

THE UNIVERSITY OF CHICAGO

ON CINEMA AS MEDIA:

ARCHEOLOGY, EXPERIENCE, DIGITAL AESTHETICS

A DISSERTATION SUBMITTED TO

THE FACULTY OF THE DIVISION OF THE HUMANITIES

IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE

BY

MICHELLE ROSE MARIE MENZIES

CHICAGO, ILLINOIS

JUNE 2017

ProQuest Number: 10193958

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10193958

Published by ProQuest LLC (2017). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code  
Microform Edition © ProQuest LLC.

ProQuest LLC.  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 – 1346

Copyright © 2016 by Michelle Rose Marie Menzies  
All rights reserved

*The Cinematograph is an invention without a future.*

Charles Antoine Lumière



## Contents

List of Figures	v
Acknowledgments	xii
Introduction: On Cinema as Media	1
I: <u>Image, Subject, Setting</u>	
1. Digital Aesthetics in the Lumière Cinema	74
2. The Technicity of Experience	160
II: <u>The Aesthetics of Movement</u>	
3. An Audiovisual Archive	230
4. The Aesthetics of <i>durée</i> : A Bergsonian Movement-Image	373
Bibliography	449

## List of Figures

0.1	Anthony McCall, <i>Face to Face IV</i> . 2013. Installation view, 2013.	xv
0.2	Anthony McCall: <i>Five Minutes of Pure Sculpture</i> . Installation view, Hamburger Bahnhof, Berlin, 2012.	8
0.3	Anthony McCall, <i>You and I, Horizontal</i> . 2005. Installation views, 2012.	9
0.4	Anthony McCall, <i>You and I, Horizontal</i> . 2005. Installation views, 2012.	10
0.5	Anthony McCall shooting <i>Cone of Variable Volume</i> on a Bell + Howell animation camera, 1974.	15
0.6	Anthony McCall, <i>Between You and I</i> . 2006. Digital animation interface.	15
0.7	Anthony McCall, <i>Line Describing a Cone</i> . 1974. Drawing for animation cinematography for (abandoned) remake.	16
0.8	Anthony McCall, <i>Conical Solid</i> . 1974. Twenty-four frames (one second) from each of the film's eight parts.	17
0.9	Anthony McCall, <i>Line Describing a Cone</i> . 1973. Documentation of the first showing of the film in the U.S., 15 February 1974.	20
0.10	Anthony McCall, <i>You and I, Horizontal</i> . 2005. Installation view, 2012.	20
0.11	Anthony McCall, <i>Solid Light Through Air and Water</i> . 1973. Preparatory study.	24
0.12	Anthony McCall, <i>Solid Light Through Air and Water</i> . 1973.	24
0.13	Anthony McCall, <i>Room With Altered Window</i> . 1973. Installation view, McCall Studio, New Paltz, New York.	25
0.14	Anthony McCall, <i>Solid Light</i> . 1973. Installation drawing for <i>Line Describing a Cone</i> .	25
0.15	Anthony McCall, Large Notebook 3: 5 June 2003–16 November 2003. Page 166: <i>Five Minutes</i> .	26
0.16	Anthony McCall, Small Notebook 6: 1 June–2 July 2004. Page 10: <i>Five Minutes</i> .	26
0.17	Anthony McCall: <i>Five Minutes of Pure Sculpture</i> . 2012. Installation drawing.	27

0.18	<i>Anthony McCall: Five Minutes of Pure Sculpture</i> . Installation view, Hamburger Bahnhof, Berlin, 2012.	28
0.19	Anthony McCall, Small Notebook 22: 27 December 2006–26 February 2007. Page 50: <i>Arrest and Flow</i> .	29
0.20	<i>Anthony McCall: Five Minutes of Pure Sculpture</i> . Installation view, Hamburger Bahnhof, Berlin, 2012.	29
0.21	Jean-Baptiste-Camille Corot, <i>The Four Times of Day: Morning, Noon, Evening, and Night</i> . c.1858.	50
0.22	Joseph Mallord William Turner, <i>Seascape with Distant Coast</i> . c.1840.	50
0.23	Auguste Rodin, <i>Two Hands</i> . Modeled before 1909; cast 1925.	51
1.1	Lumière Company, frames from <i>Panorama of the train's arrival at Perrache Station</i> . [25 October 1896] - 8 November 1896. Cameraperson unknown.	73
1.2	Lumière Company, frames from <i>The Arrival of the Train at Coitad</i> . Summer 1897. Cameraperson: Louis Lumière. <i>Boat Leaving the Harbor</i> . Summer 1897. Cameraperson: Louis Lumière. <i>Snowball Fight</i> . 31 January 1897 - 7 February 1897. Cameraperson unknown. <i>The Pyramids (General View)</i> . 12 March 1897 - [18 April 1897]. Cameraperson: Alexandre Promio.	89
1.3	Lumière Company, frames from <i>Lyon Firemen</i> . 11 October 1896. Cameraperson unknown. <i>The Baby's Breakfast</i> . [22 March 1895] - 10 June 1895. Cameraperson: Louis Lumière. <i>Workers Leaving the Factory III</i> . [15 August 1896]. Cameraperson: Louis Lumière. <i>Workers Leaving the Factory I</i> . [26 May 1895]. Cameraperson: Louis Lumière.	90
1.4	Lumière Company, frames from <i>Washerwomen at the River</i> . [Spring 1896] - 22 October 1897. Cameraperson unknown.	94
1.5	Émile Zola, <i>Crossroad in Paris</i> , c.1888-1902.	96
1.6	Émile Zola, <i>Moving Pavement</i> , c.1900.	96
1.7	Émile Zola, <i>After Lunch</i> , c.1888-1902.	102

1.8	Lumière Company, frames from <i>The Baby's Breakfast</i> . [22 March 1895] - 10 June 1895. Cameraperson: Louis Lumière.	103
1.9	Block IX of the Parthenon's west frieze. 442-438 B.C.	111
1.10	Étienne-Jules Marey, <i>Horse and Rider</i> ; <i>Chronophotographic Film</i> . 1893-94.	112
1.11	Lumière Company, frames from <i>Policeman's Parade</i> . 11 September 1896 - 20 September 1896. Cameraperson: Alexandre Promio.	129
2.1	Jean-Luc Godard, frame from <i>Goodbye to Language 3D</i> . 2014.	159
2.2	Émile Zola, <i>From the Tower</i> , c.1900.	168
2.3	Émile Zola, <i>Boats on the Seine</i> , c.1888-1902.	168
2.4	Guglielmo Temple, <i>Total solar eclipse, observed on 18 July 1860 at 3.13 p.m. from a site near Torreblanca, Spain</i> .	171
2.5	Étienne Léopold Trouvelot, <i>Plate II, Solar Protuberances. Observed on May 5, 1873 at 9h, 40m. A.M.</i>	172
2.6	Étienne Léopold Trouvelot, <i>Plate XI, The Great Comet of 1881. Observed on the night of June 25-26 at 1h. 30m. A.M.</i>	173
2.7	Étienne Léopold Trouvelot, <i>Direct Electric Spark</i> , 1885.	174
2.8	Émile Zola, <i>Paris at Night</i> , c.1900.	178
2.9	Paul Cézanne, <i>Madame (Hortense Fiquet) in a Red Dress</i> . c.1888-90.	179
2.10	Émile Zola, <i>View over Medan from the terrace</i> , c.1900.	199
2.11	Gerhard Richter, <i>Alster</i> . 1963.	199
2.12	Gerhard Richter, <i>Landscape near Hubbelrath</i> . 1969.	203
2.13	Gerhard Richter, <i>Large Eifel Landscape</i> . 1969.	203
2.14	Unknown Hellenistic artist, <i>Leda</i> . 2nd century B.C.	217
2.15	Auguste Rodin, <i>Leda and the Swan</i> . c.1913.	218
2.16	Hiroshi Sugimoto, <i>Canton Palace, Ohio</i> . 1980.	219

3.1	Ken Jacobs, frames from <i>New York Ghetto Fishmarket 1903</i> , 2006.	229
3.2	Slides from United States National Security Agency (NSA) training materials released into the public domain by Edward Snowden. April 2013.	236
3.3	Slide from NSA training materials released by Edward Snowden. April 2013.	237
3.4	Lumière Company, frames from <i>Workers Leaving the Factory I</i> . [26 May 1895]. Cameraperson: Louis Lumière. <i>Workers Leaving the Factory II</i> . [10 March 1896]. Cameraperson: Louis Lumière. <i>Workers Leaving the Factory III</i> . [15 August 1896]. Cameraperson: Louis Lumière. <i>Workers Leaving the Factory IV</i> . [February 1897]. Cameraperson: Louis Lumière.	244
3.5	Ken Jacobs, frames from <i>Tom, Tom, The Piper's Son</i> . 1969, rev. 1971, 2002.	266
3.6	Ken Jacobs, frame from <i>Tom, Tom, The Piper's Son</i> . 1969, rev. 1971, 2002.	274
3.7	William Hogarth, <i>Southwark Fair (or The Humours of a Fair)</i> . 1733.	274
3.8	Tacita Dean, frame from <i>FILM</i> . 2011.	285
3.9	Tacita Dean, notebook showing preparatory drawings and sketches for <i>FILM</i> .	286
3.10	Tacita Dean, frames from <i>FILM</i> . 2011.	287
3.11	Ken Jacobs, frames from <i>Capitalism: Child Labor</i> . 2006.	295
3.12	Ken Jacobs, frames from <i>Capitalism: Slavery</i> . 2006.	296
3.13	Pablo Picasso, <i>Still Life with Chair Caning</i> . Paris, spring 1912.	308
3.14	Pablo Picasso, <i>Musical Score and Guitar</i> . Paris, autumn 1912.	308
3.15	Pablo Picasso, <i>Violin and Newspaper</i> . Paris, autumn 1912.	312
3.16	Pablo Picasso, <i>Still life with Guitar</i> . Paris, assembled before November 15, 1913.	313
3.17	Hans Hofmann, <i>Cathedral</i> . 1959.	320
3.18	Hans Hofmann, <i>Pompeii</i> . 1959.	321
3.19	Hans Hofmann, <i>The Golden Wall</i> . 1961.	322
3.20	Ken Jacobs, frames from <i>New York Ghetto Fishmarket 1903</i> showing the structure of two digital Eternalisms. 2006.	332

3.21	Ken Jacobs, frames and inter-titles from <i>New York Ghetto Fishmarket 1903</i> , 2006.	335
3.22	Ken Jacobs, frames and inter-titles from <i>New York Ghetto Fishmarket 1903</i> , 2006.	336
3.23	Ken Jacobs, inter-titles from <i>New York Ghetto Fishmarket 1903</i> , 2006.	337
3.24	Ken Jacobs, frames and inter-titles from <i>New York Ghetto Fishmarket 1903</i> , 2006.	338
3.25	Edison Company, frames from <i>New York City "Ghetto" Fish Market</i> . 1 May 1903. Cameraperson: J. B. (James Blair) Smith.	342
3.26	Ken Jacobs, frames from <i>New York Ghetto Fishmarket 1903</i> showing celluloid and paper-print degradation. 2006.	342
3.27	Ken Jacobs, frames from <i>New York Ghetto Fishmarket 1903</i> showing video documentation of a previous Nervous System performance. 2006.	342
3.28	Ken Jacobs, frames from <i>New York Ghetto Fishmarket 1903</i> showing the Eternalization of gait. 2006.	345
3.29	Léonardo da Vinci, <i>Portrait of Lisa Gherardini</i> , wife of Francesco del Giocondo, called <i>Mona Lisa</i> , <i>la Gioconda</i> or <i>la Joconde</i> . 1503–1506.	352
3.30	David Octavius Hill and Robert Adamson, <i>Mrs. Elizabeth (Johnstone) Hall, Newhaven Fishwife at Rock House, Edinburgh</i> . c.1843-1845, printed posthumously 1916.	352
3.31	Ken Jacobs, frames from <i>New York Ghetto Fishmarket 1903</i> showing an Eternalized gesture. 2006.	353
3.32	Ken Jacobs, frames from the tinted section of <i>New York Ghetto Fishmarket 1903</i> , 2006.	361
3.33	Paul Cézanne, <i>Still Life with Apple and Oranges</i> . c.1899.	363
3.34	Pablo Picasso, <i>Still life with Guitar</i> . Variant state. Paris, fall 1912.	363
3.35	Pablo Picasso, <i>Guitar, Sheet Music, and Glass</i> . Paris, November 18, 1912, or later.	363
3.36	Hans Hofmann, <i>Sun in the Foliage</i> . 1964.	364
3.37	Ken Jacobs, frames from the tinted section of <i>New York Ghetto Fishmarket 1903</i> , 2006.	365
3.38	Tacita Dean, installation view of <i>FILM</i> in the Tate Modern, London, 2011-12.	370

4.1	Tim Rudge, PJ Steiner, Fernan Federici, and Jim Haseloff, <i>Three-dimensional confocal stack of a Bacillus subtilis bacteria colony</i> . c.2012.	372
4.2	Walther Flemming, <i>Drawings illustrating the major steps of the cell cycle</i> . c. 1880.	391
4.3	Walther Flemming, <i>Drawing illustrating chromosome behavior during mitosis</i> . c.1882.	392
4.4	George von Dassow, <i>Early stages of prenatal cell development in the sand dollar (Sea Urchin)</i> . c.2011.	392
4.5	Julius Ries, frames from <i>Fertilization and Development of the Sea Urchin Egg</i> . Paris, c.1907.	393
4.6	Ho Lam Tang and Denise Montell, <i>Fluorescence confocal micrographs of the ovary of Drosophila (small fly)</i> . c.2011.	393
4.7	Excerpt from Thomas Mann, <i>The Magic Mountain</i> , 1995, c.1927.	394
4.8	Paul D. Andrews, <i>Two HeLa cervical cancer cells captured in telophase</i> . c. 2011.	394
4.9	Excerpt from Thomas Mann, <i>The Magic Mountain</i> , 1995, c.1927.	395
4.10	Yichen Shi and Rick Livesey, <i>Human iPSC-derived neural stem cells forming polarized cellular rosettes with mitotic stem cells at the center</i> . c.2011.	396
4.11	Uncredited researcher, frames from <i>Live cell imaging of Gray Fox lung cells imaged with a Nikon SFC/TE2000 microscope, showing (top) monomeric Kusabira-Orange fluorescent label; and YPet Fluorescent Protein fluorescent label</i> . c.2010.	397
4.12	Jürgen Mayer, <i>Complete gastric lobe of a mouse pancreas with blood vessels labeled blue, insulin-producing <math>\beta</math> cells red, and glucagon-producing <math>\alpha</math> cells green</i> . c.2013.	407
4.13	George von Dassow, frame from <i>Development of a sea urchin embryo</i> . c.2011.	408
4.14	Stephanie Nowotarski, Mark Peifer, frame from <i>Development of a fruit fly embryo</i> . c.2011.	409
4.15	Léonardo da Vinci, <i>Studies of flowing water, with notes</i> . c.1510-13.	417
4.16	Étienne-Jules Marey, <i>Triangular prism presenting one of its bases to the air stream, fourth and last version of the smoke machine equipped with 57 channels</i> . 1901.	418
4.17	Jean Comandon, frame from <i>Living syphilis bacteria moving among the red blood cells of a frog</i> . 1909.	419

4.18	Uncredited reporter, “Microbes <i>Caught In Action: Moving Pictures of Them a Great Aid In Medical Research.</i> ” <i>The New York Times</i> , Sunday 31 October 1909.	419
4.19	Miquel Bosch, <i>Montage of time-lapse images of the dendritic spine from a living mouse neuron showing the chronology of the birth of a memory at a molecular level.</i> c.2012.	420
4.20	Betzig Lab, HHMI/Janelia Research Campus, Janetopoulos Lab, University of the Life Sciences, Romero Lab, University of Minnesota, frame from <i>Rapid movements of a single cell protozoan T. thermophila expressing GFP-scramblase.</i> c.2014.	420
4.21	Timeline comparing the history of technological discovery with developments in cell biology.	426
4.22	Auguste Rodin, <i>Saint John the Baptist.</i> Modeled 1878-1880; cast 1925.	437
4.23	Étienne-Jules Marey with George Demeny, <i>Untitled (Sprinter).</i> 1890-1900.	438
4.24	Eadweard J. Muybridge, <i>Man Lifting 75-lb. Stone on Shoulder:</i> Plate 397 from <i>Animal Locomotion.</i> 1887.	438
4.25	Jean Comandon and Pierre de Fonbrune, frames from <i>Substitution du noyau chez une amibe: Amoeba Sphaeronucleus.</i> c.1938.	438
4.26	Auguste Rodin, <i>The Age of Bronze.</i> Modeled 1875-1877; cast 1925.	439
4.27	Betzig Lab, frames from <i>Rapid muscle contractions in a roundworm embryo in the three-fold stage, with labeled GFP-PH domains (green) and mCherry-histones (magenta), as recorded in a single 2D optical section at 50 frames/sec.</i> c.2014.	444
4.28	Excerpt from Thomas Mann, <i>The Magic Mountain</i> , 1995, c.1927.	445
4.29	Betzig Lab, HHMI/Janelia Research Campus, Lippincott-Schwartz Lab, National Institutes of Health, frame from <i>Interaction of a T-cell (orange) with a target cell expressing a plasma membrane marker (blue) at 1.3 sec intervals.</i> c.2014.	446



## Acknowledgements

This dissertation trails many debts, both to people and to institutions. I am grateful for material support over the course of writing from a University of Chicago Williams Dissertation Year Fellowship, a Fulbright New Zealand Graduate Fellowship, Public Trust New Zealand's William Georgetti Scholarship, and the New Zealand Federation of University Women. Travel awards from the Humanities Division and the Department of English at the University of Chicago made it possible for me to conduct archival research, interview artists, and visit exhibitions.

I owe much to my dissertation committee. Mark Hansen has been a restless interlocutor and a sensitive reader; and his willingness to think past tacit disciplinary boundaries helped me to articulate the terms of my own inquiry over and over. Lauren Berlant has been an intellectual mentor and a friend; her curiosity and fearlessness taught me how to think *with* objects, artistic or theoretical. Tom Gunning has been a voice of encouragement and rigor; I have relied on the acuity of his judgement and the reliability of his eye. All three have shaped my thinking, and their individual and collective influence permeates this project. I am grateful for their encouragement, their open-mindedness, and for the extraordinary education they have given me.

At the University of Chicago Miriam Hansen provided an indelible model of passionate, responsive scholarship. Hamza Walker of the Renaissance Society has been a friend, ally, and sounding board, and this project owes a dimension of contemporaneity to his influence. Christian Quendler was a generous reader at a pivotal moment; and Shaun Hotckhiss, James Felce, and

Scott Waitukaitis provided important points of entry into the questions of contemporary science. A concentrated month spent working with Jacques Rancière gave me a model with which to approach the (dis)connection between philosophical aesthetics and contemporary art; I am grateful to him, and to *Critical Inquiry*.

I learnt a great deal from curating an exhibition and symposium focused on Anthony McCall at the University of Chicago in 2012. I am hugely grateful to Julia Gibbs, Sabrina Craig, and Chloe Connelly for making the event possible; to Anthony McCall for his generous participation; and to Chrissie Iles and Nicole Wittenberg for their insights. In different contexts Flo Jacobs, Ken Jacobs, Tacita Dean, and Mark Lewis have also been extraordinarily generous with time; and Philippe-Alain Michaud has been both a friend and a model of critical curatorial practice.

The University of Chicago is a unique intellectual atmosphere, and I learnt much from from ongoing dialogue with Robert Bird, Jim Chandler, Bradin Cormack, Elaine Hadley, Bill Brown, Darby English, Matthew Jesse Jackson, Debbie Nelson, and Ralph Ubl. The Affective Publics reading group was a space of solidarity and experiment, and I'm grateful to Kasia Bartoszynska, Jonathan De Souza, Luis-Manuel Garcia, and Tom Perrin for the opportunities to think out loud. Chicago itself would have been unimaginable without the company of Emily Capper, Rachel Eisendrath, Laura-Zoe Humphries, Kristian Kerr, Max Koss, Anna Lee, Maja Naef, Solveig Nelson, Anahid Nersessian, and Caryn O'Connell.

Completing this project in New Zealand brought things full circle, and I am grateful to former colleagues at the Adam Art Gallery; at the Departments of Art History and Film at Victoria

University of Wellington, particularly Kirsten Moana Thompson; and at the Elam School of Fine Arts, the University of Auckland.

My friends Jason Lindsay and Joanna Chow-Lindsay have always been there; as has my family. I dedicate this project to my brothers, Neil, Raymond, and Mark Menzies; and to my parents, Mildred and Roy Menzies, with more gratitude than I can say.

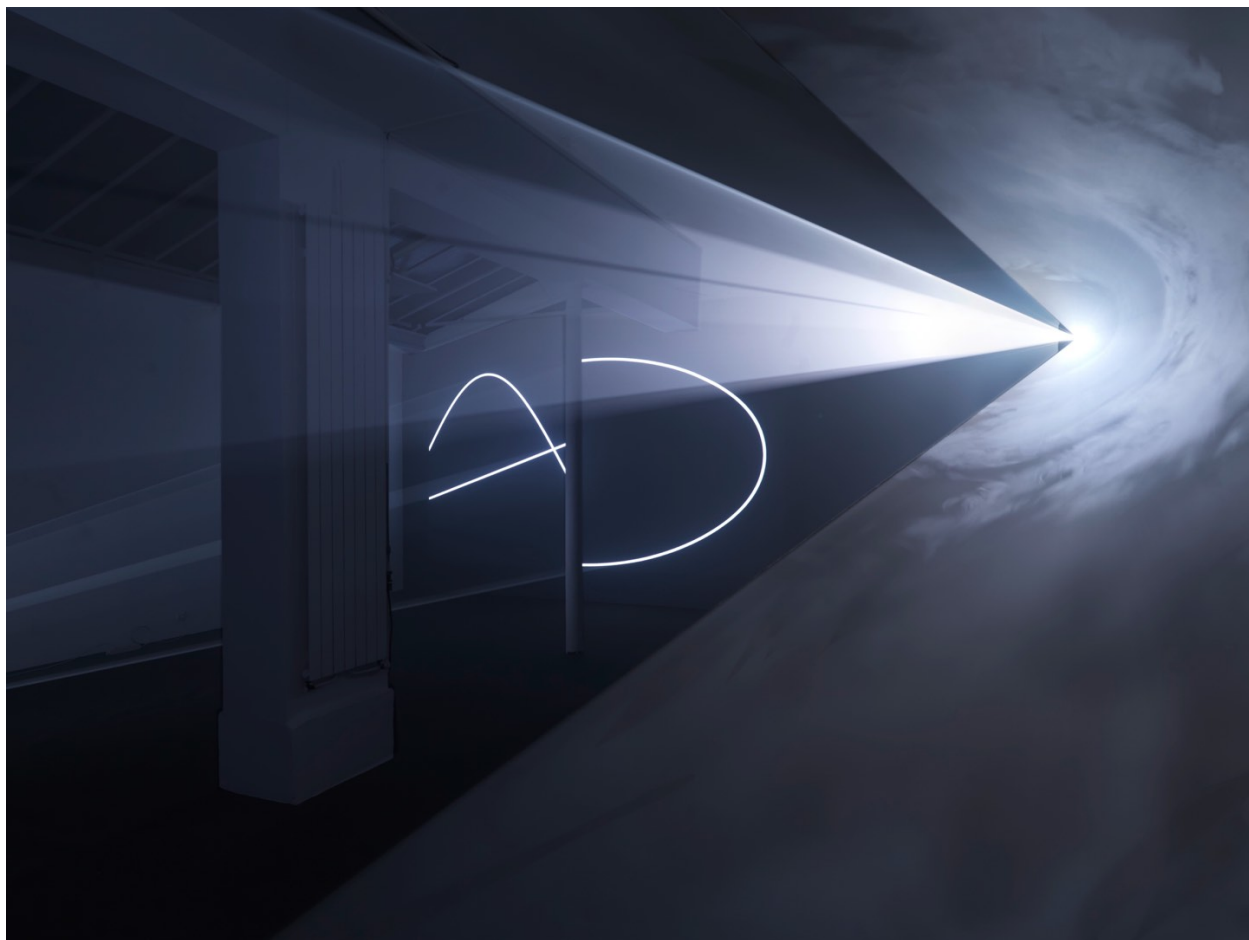


Figure 0.1: Anthony McCall, *Face to Face IV*. 2013. Installation for computer, QuickTime movie file, two video projectors, two haze machines. One cycle: 30 minutes in two parts. Installation view, Galerie Martine Aboucaya, Paris, 2013. Photo by André Morin. Courtesy the artist and Martine Aboucaya.

## Introduction: On Cinema as Media

*The true difficulty is to pose the problem, to abstract oneself to this end from language (which was made for conversation, not for philosophy), to carve reality along its natural lines, whereas language and common sense have tailored and distributed it with a view to the convenience of our actions. In this way the problem will be limited, but the effort to resolve it, and above all to pose it, will become unlimited. At bottom, resolving and posing amount to the same thing. The problem, such as I conceive it, is only posed once it is resolved.*

Henri Bergson<sup>1</sup>

*Foucault's key historical principal is that any historical formation says all it can say and sees all it can see.*

Gilles Deleuze<sup>2</sup>

This dissertation has two ambitions. The first is to claim Henri Bergson as a profound philosopher of media. The second is to offer a renewed description of media aesthetics in light of the transformations, at once experiential and imagistic, effected by the coming-into-being of a general, subtending digital media paradigm.

These ambitions are intimately related. In perhaps the paradigmatic text of media aesthetics Walter Benjamin observes that “the way in which human perception is organized—the medium in which it occurs—is conditioned not only by nature but by history”; so that cultural analyses can and should turn to works of art “to draw conclusions about the organization of perception at

---

<sup>1</sup> Henri Bergson, "Letter to Floris Delattre (24 December 1935)," in *Henri Bergson: Key Writings*, ed. Keith Ansell Pearson and John Mullarkey (London and New York: Continuum, 2002), 370.

<sup>2</sup> Gilles Deleuze and Didier Eribon, "Life as a Work of Art," in *Negotiations, 1972-1990* (New York: Columbia University Press, 1986/1995), 96.

the time the art was produced.”<sup>3</sup> My governing theoretical method strives to work in the landscape of implication opened by Benjamin’s conceptualization of the ‘medium’ status of perception, and the resulting evidentiary status of the artwork. A close reading of Bergson’s encounters with photography and film (the new media of his time) provides this dissertation with an analytic heuristic by which to account for technical mediation’s complex double character as a mode of perception—an epistemological period style—traceable in the formal logic of specific works of art. More fundamentally, my argument situates Bergson’s accounts of visual media within the wider ambit of his philosophical project in order to evaluate the aesthetic transformations triggered by the digital media paradigm within the framework of Bergsonian phenomenology. This intellectual tradition has understood mediation, technological or otherwise, as a form of embodied experience; and consequently awards it a fundamental status in the constitution of what Benjamin calls ‘the organization of perception at the time the art was produced.’

Two decades ago, the media theorist Friedrich Kittler predicted that a “general digitization of channels and information” would trigger a reworking of subjectivity from the ground up; because in an era dominated by audiovisual inscriptions, he suggested, “one can no longer dream of writing as the expression of individuals or the trace of bodies.”<sup>4</sup> This media critical foretelling of the washing away of the social subject constituted by the long era of textual media was echoed in the contemporaneous literary criticism of Fredrick Jameson, who hailed the rising

---

<sup>3</sup> Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility (1936)," in *Walter Benjamin: Selected Writings 3, 1935-1938*, ed. Michael W. Jennings and Howard Eiland (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2002), 104.

<sup>4</sup> Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffery Winthrop-Young and Michael Wutz (Stanford, Calif.: Stanford University Press, 1999), 1, 18.

omnipotence of the digital network's "whole new technology" as the sign of an encroaching "depthlessness, which finds its prolongation...in a whole new culture of the image or the simulacrum."<sup>5</sup> The portentous tone of these two influential commentaries point to a sense of the oncoming digital media paradigm as not only the newest in a series of dominating technologies, but the engine of a fundamentally new structure of collective life.

And in fact the instantiation of digital technologies across the full spread of our lived experience—via devices, banking systems, medical technology, surveillance—has granted this technological scenario an unprecedented degree of reach into the fine-grained details of our lives. In a present tense Kittler dubbed "the media age," we can see that "from the Remington via the Turing machine to microelectronics...one century was enough to transfer the age-old monopoly of writing into the omnipotence of integrated circuits."<sup>6</sup> An image embedded within this technological infrastructure is, further, a new kind of media object: at once a 'picture,' in the classical sense of the term, and a representational deposit of computational information. To this extent the widespread dissemination of audiovisual inscriptions throughout the mediated settings of contemporary life would seem to underscore the acuity of Kittler's prognostication on the passing sway of the subjectivity-paradigm constituted by a socio-technical complex Marshall McLuhan conceptualized as the "Gutenberg Galaxy"—print media in general, and literature in particular.<sup>7</sup> So profoundly granular is the aptly named *metadata* that can be extracted from the constitutive torrents of visual media that flow through the digital network that the question of a

---

<sup>5</sup> Fredric Jameson, *Postmodernism, or, the Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991), 6.

<sup>6</sup> Kittler, *Gramophone, Film, Typewriter*, 18-19.

<sup>7</sup> *Gramophone, Film, Typewriter*, ? Cf. Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, c1962).

digitally-grounded subjectivity can indeed at times seem reducible to a matter of the information that has filtered into the network.<sup>8</sup>

“The true difficulty is to pose the problem” Bergson wrote in a letter to his nephew Floris Delattre; because the task of philosophy, in his conception, boils down to the challenge of inventing an analytic description that can “carve reality along its natural lines.”<sup>9</sup> The digitalization of virtually everything has, on the one hand, effected a decisive social transformation by re-calibrating the material structure of the image *and* the subtending of structures of lived experience. Yet this profound adjustment of the discursive terms for media aesthetics has not actually annihilated the materiality of images; nor liquidated the frameworks of production, display, and interpretation with the subjectivity-overwriting carnivorous suggested by the tone of Jameson and Kitter’s diagnostics. A rather more accurate description of the nature of the discursive reset triggered by the digital paradigm is circled by the film critic Raymond Bellour, in the observation that:

The very nature of a medium capable of incorporating and transforming all the others, connected with the special knack the resulting products have of appearing, at every moment, inside a box that is both intimate and global, has profoundly transformed (this has become obvious to all) our sense of the creation as well as the apprehension of images.<sup>10</sup>

The methodological specificity of this dissertation lies in its orientation to Bergsonian phenomenology. As a result, it is constituted upon a refusal of the phenomenological

---

<sup>8</sup> Documents released into the public domain by Edward Snowden in 2013 show, for example, show that the streams of digital data constantly flowing through the global internet is significantly composed of audiovisual content (material produced actively and passively by agential human subjects). Snowden’s documents also make abundantly clear that this audiovisual archive is a rich source of information. Cf. “Nsa Prism Program Slides,” The Guardian, <http://www.theguardian.com/world/interactive/2013/nov/01/prism-slides-nsa-document> Friday 1 November 2013.

<sup>9</sup> Bergson, “Letter to G. Lechalas,” 370.

<sup>10</sup> Raymond Bellour, “Between-the-Images (1990),” in *Between-the-Images (Entre-Images – Photo, Cinéma, Vidéo)*, ed. Lionel Bovier (Zurich & Dijon: JRP|Ringier & Les presses du réel, 1990/2013), 17.



nullifications implied in the Kittlerian model of media theory. Where media critics after Kittler have tended to analyze mediation by attending to the connection between technological devices and technical inscriptions, my argument prioritizes a consideration of the interaction—or the interface—between the technical image, the agential subject, and the socio-experiential setting. Recognizing that *media create experience* because, and in Kittler’s words, “media determine our situation,” my argument proposes that a methodological attention to questions of spectatorship and cultural reception can, in some full sense, ground our understanding of media aesthetics in a situation where the analytical object has already submitted to an unpredictable permutation in its reframing by digital technics.<sup>11</sup>

In mood and specifics, my project turns away from dominant models in the field of media theory towards elements of anticipation in the historical film scholarship of Tom Gunning and Miriam Hansen. Gunning’s project has located cinema in an aesthetics of movement with a fullness that predicts an effort to connect a Bergsonian phenomenology of movement to the film and photography most contemporary with Bergson’s thought.<sup>12</sup> Hansen’s mapping of cinema’s participatory role in the construction of modern sociality—as well as her attention to the non-continuous correlation between modes of spectatorship in pre-, post-Classical, and global cinemas—also anticipates an attempt to broach the question of digital spectatorship through an

---

<sup>11</sup> Kittler’s injunction is an initiating call to arms. It runs: “Media determine our situation, which—in spite or because of it—deserves a description.” Kittler, *Gramophone, Film, Typewriter*, xxxix.

<sup>12</sup> For instance, Gunning claims the Serpentine dances of Loïe Fuller, filmed by both Lumière and Edison, as a mass cultural expression of a Bergsonian aesthetics of motion—see Tom Gunning, “Loïe Fuller and the Art of Motion: Body, Light, Electricity and the Origins of Cinema,” in *Camera Obscura, Camera Lucida: Essays in Honor of Annette Michelson*, ed. Richard Allen and Malcolm Turvey (Amsterdam: Amsterdam University Press, 2003), 86.

attention to the sensual paradigms established by film spectatorship.<sup>13</sup> More fundamentally, my effort to conceptualize the difficult-to-grasp interface between the image, the subject, and the experiential setting operates under the aegis of Hansen's declaration that what is at stake in debates over questions of spectatorship is:

not just a question of competing readings of a particular historical development; it is a question of how one defines—and confines—the concept of cinema as an institution.<sup>14</sup>

In what is to follow I will introduce the conceptual framework of this dissertation by characterizing my argument's approach to conceptualizing digital mediation, and contextualizing its claim for Bergson's significance as a philosopher of media. I will also provide an overview of method, situate the argument within media studies, and outline its breakdown into chapters.

### Conceptualizing 'Digitality': Cinema as Media

You walk into a darkened room and are confronted by the presence of "two enormously tall, quiet, translucent forms made of walls of light that are barely moving."<sup>15</sup> You respond haptically, instinctively reaching out to 'touch' the luminous membranes. The volumetric character of this work of art suggests perambulation, and you begin to pace the room, observing the installation from different angles, noting the spiraling puffs of smoke, and testing the object's obvious, yet

---

<sup>13</sup> See Miriam Hansen, "Early Cinema, Late Cinema: Permutations of the Public Sphere," *Screen* 34, no. 3 (1993); Miriam Hansen, Oskar Negt, and Alexander Kluge, "Foreword (1991)," in *Public Sphere and Experience: Toward an Analysis of the Bourgeois and Proletarian Public Sphere* (Minneapolis: University of Minnesota Press, 1993); Miriam Hansen, "The Mass Production of the Senses: Classical Cinema as Vernacular Modernism," *Modernism/Modernity* 6, no. 2 (1999).

<sup>14</sup> Babel & Babylon: Spectatorship in American Silent Film (Cambridge, Massachusetts: Harvard University Press, 1991), 88.

<sup>15</sup> Anthony McCall in Graham Ellard and Stephen Johnstone, eds., *Anthony McCall: Notebooks and Conversations* (Surrey and Burlington VT: Lund Humphries in association with Kunstmuseum St Gallen, 2015), 83.

somehow counterintuitive permeability by moving into and out of its fields of curving, contoured light. Over the course of this spatialized looking you realize, suddenly, that the ‘body’ of this figural sculpture is an intensely durational thing. An initially closed-off form has opened up and seems to be turning over on itself, waxing and waning in an elegant, wave-like undulation. Entirely new chambers of light have appeared as a result of this fluid evolution, and these pockets of space submit in turn to the flux of an ongoing mutation. The effect of watching this form’s attenuated movement is mediative, and strangely transfixing. The aesthetics of Anthony McCall’s ‘Solid Light’ films are grounded in an atmospherics of mediation; and the viewer who persists with its materialist poetics for a sufficient period of time is interpellated into a phenomenology situated at an unusual pivot between the temporal structures of cinema, drawing, and sculpture.

The device underpinning these works is a straightforward one, involving the filling of a darkened room with a colorless, fog-like haze. An animated line drawing projected through this mist becomes automatically spatialized, turning into an animated volume—the dimensional light-sculpture. The installation’s technical elements (projectors and haze machines) are scrupulously exposed to view, and the generating animation is always visible, as a kind of ‘footprint,’ on the architectural surfaces (walls, floors) upon which the projected image rests. Yet a comprehension of the technology underlying a Solid Light film tends to complicate rather than to clarify the question of how exactly you are to look at it.

You begin to understand, for example, that the spatialization of the beam of projection has situated you, as a viewer, within—rather than against—the field of the cinematic picture-plane.



Figure 0.2: *Anthony McCall: Five Minutes of Pure Sculpture*, curated by Henriette Huldish. Installation view at Nationalgalerie im Hamburger Bahnhof, Museum für Gegenwart, Berlin, 2012, showing (from front to back): *Meeting You Halfway*, 2009; *Breath III*, 2005; *Between You and I*, 2006; *Coupling*, 2009. Photograph by Sean Gallup, Getty Images.



Figure 0.3: Anthony McCall, *You and I, Horizontal*. 2005. Installation for computer, QuickTime movie file, video projector, two haze machines. One cycle: 50 mins., 6 parts. Installation views, Experimental Station/ University of Chicago, Chicago, at the exhibition *Phenemonologies of Projection, Aesthetics of Transition: Anthony McCall 1970-79, 2001—*, curated by Michelle Menzies, 2012. Photographs by James Prinz. Courtesy the artist and the University of Chicago Film Studies Center, Chicago.

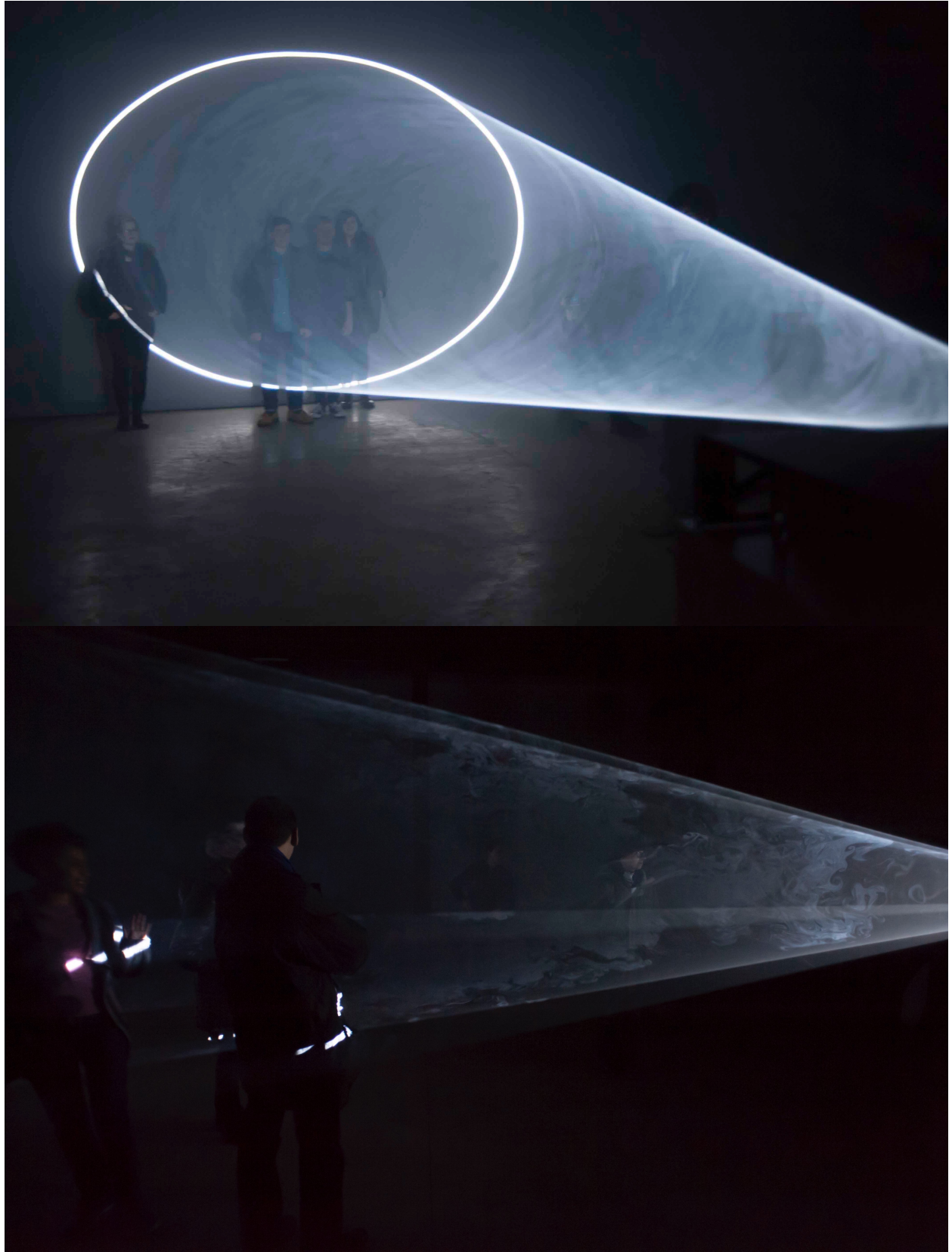


Figure 0.4: Anthony McCall, *You and I, Horizontal*. 2005. Installation views, 2012. Photographs by James Prinz. Courtesy the artist and the University of Chicago Film Studies Center, Chicago.



This rearrangement of the relation between projector, audience, and screen has also located you within the movement of the work; not only physically, as you traverse the room, but psychologically, as you become attuned to the encompassing cadence of the sensuous veils of light. “Cinema creates a virtual world, a place that you enter with your eyes and your imagination but not with your physical body” McCall has observed, but “my pieces require that your actual body be there in the flesh, in the present. And active.”<sup>16</sup> This statement of aesthetic aspiration indicates something of the intensity of his preoccupation with questions of embodiment. He continues:

When we talk about representing the body, we usually have in mind some sort of static visual image. I find it more useful to think of the body less as something you look at and more as a verb, always in motion and constantly undergoing change. Our bodies are a bundle of code built around a clock, and our internal rhythms of sleeping and waking, and our cycles of growing, of maturing, of loving, of fertility, of aging, even our emotional states are connected to it. Then physically, the body is symmetrical; it’s based on pairs, on doubling: it has a front and a back, a left and a right. Finally, I would maintain that an individual body cannot be really understood or described if you treat it as bounded by its skin. Most of our experience is based on pairing with other bodies. Our sense of self is only possible because we are in an almost constant state of mutual exchange with others. Most of the pieces of the last few years have been attempting to describe the state of ‘between’, the moment of exchange.<sup>17</sup>

In fact the formal language of “the pieces of the last few years”—installations such as *You and I, Horizontal* (2005) and *Face to Face* (2013)—was initiated with McCall’s *Line Describing a Cone* (1973). The radical gesture of this early film, now considered a canonical work of Structuralist cinema, was the elimination of the movie screen; and the positing, in its place, of the beam of projection as itself a sufficient aesthetic object. “This cinema subverts cinematic

---

<sup>16</sup> McCall in Anthony McCall: Notebooks and Conversations (Surrey and Burlington VT: Lund Humphries in association with Kunstmuseum St Gallen, 2015), 119.

<sup>17</sup> McCall in Anthony McCall: Notebooks and Conversations, 120.

convention by exploring the medium and its properties and materials” the curator John Hanhardt wrote of Structuralist film—“it is filmmaking that creates itself out of its own experience.”<sup>18</sup> The curator Chrissie Iles concurs, observing that *Line* emblemized Structuralist film’s deconstructive preoccupations by combining “the phenomenological reductivism of Minimalism with the participatory inclusiveness of Happenings,” and in a manner that allowed “the process of the film’s realization [to] becom[e] its content.”<sup>19</sup> Critical assessments also emphasize the significance of McCall’s effort to distill the experience of cinema to an ontological essence, by reconfiguring the medium’s most reduced component elements—projector, audience, screen—around the embodied experience of real time, or what he called “primary experience.”<sup>20</sup> “For McCall,” the curator Philippe-Alain Michaud summarizes, the paradigmatic concept inaugurated with *Line* was a materialist reconceptualization of cinema itself. Then and since, in this artist’s work:

the film is to be projected, not in a theater but in an exhibition space that is closed off, homogeneous, non-hierarchized, and level, with no separation between projection space and spectators, no rows of chairs, and, above all, no screen. An essential point: mist is diffused throughout the projection, so that the image of the circle projected on the screen’s surface is replaced by the projector’s light beam, which takes on a material consistency. The film shows the formation of a geometrical body in space caused by the projection of a simple light beam, and insofar as it becomes a narrative, it is the visual narrative of this materialization.<sup>21</sup>

---

<sup>18</sup> John Hanhardt, “The Medium Viewed: The American Avant-Garde Film,” in *A History of the American Avant-Garde Cinema: A Film Exhibition Organized by the American Federation of Arts*, ed. Marilyn Singer (New York: American Federation of Arts, 1976), 21.

<sup>19</sup> Chrissie Iles, “Between the Still and Moving Image,” in *Into the Light: The Projected Image in American Art, 1964–1977; Catalog of an Exhibition Held at the Whitney Museum of American Art, October 10 2001 - January 6, 2002*, ed. Chrissie Iles (New York: Whitney Museum of American Art, 2001), 45.

<sup>20</sup> McCall wrote of *Line* in the 1970s: “*Line Describing a Cone* ... is the first film to exist in real, three-dimensional space. This film exists only in the present: the moment of projection. It refers to nothing beyond this real time. It contains no illusion. It is a primary experience, not secondary: i.e., the space is real, not referential; the time is real, not referential.” Anthony McCall, ““Line Describing a Cone” and Related Films,” *October* 103(Winter, 2003): 42.

<sup>21</sup> Philippe-Alain Michaud, “Line Light: The Geometric Cinema of Anthony McCall,” *ibid.* 137(Summer 2011): 4.



On the one hand, then, it is unsurprising that McCall's recent installations are configured as Solid Light films: assemblages of light, duration, and movement that convey his singular, elegant sense of cinema as a performative, gestural poetics, unfolding in real space and through concrete duration. Yet the fact of a formal continuity between his contemporary work and the work of the 1970s belies another, co-present reality—the fact of a major, structural break. McCall's practice of the last decade has followed a creative hiatus of twenty years. In the intervening period, as he himself notes, “something has certainly happened to the social institution of Cinema.”<sup>22</sup> If McCall's digital installations are posed in a formal and conceptual language initiated with *Line*, they are also composed as born digital works: actualized through a creative process that has been comprehensively remediated by the concrete tools and atmospheric features of the digital media paradigm. In fact the migration to a digitally subtend practice has reconfigured McCall's practice on such a fundamental level that an examination of the persistence of his formal signature across two distinct configurations of technical media offers an illuminating, unusual heuristic by which to conceptualize the scope and aesthetic stakes of ‘digitality’ itself.

McCall's film production, for example, has always been centered, both conceptually and stylistically, around the animation of a graphite drawing. Every Solid Light film has begun life as a set of drawings; the essential features of which are distilled into a ‘score’ laying out the elements of an animation: “measurements, speeds, movements and so on all indicated, along

---

<sup>22</sup> McCall observes that “cinema, once organised around movie theatres, has been steadily fracturing into shards, and moving images have gone everywhere ... The other important thing about the last twenty-five years is the shift from printed page to screen. This is interesting to me because the twenty years I was not making art (the '80s and '90s) were the same twenty years when these changes accelerated. In the 1970s, the printed page was our primary source of information. Fast forward to the late 1990s and everyone is looking at screens.” Anthony McCall in Michelle Menzies, "Interview with Anthony McCall (2 August 2011)," (New York: August 2, 2011), 99.

with storyboards, descriptive notes and time graphs.”<sup>23</sup> In the 1970s, the animation itself was conducted by hand. Michaud describes the line of *Line Describing a Cone* as having been drawn incrementally, frame-by-frame, “on a sheet of black paper using white gouache, ruling-pen, and compass.”<sup>24</sup> The pragmatics of this process meant that the result could only be viewed in the form of a time-based image somewhat later, “after the first print came from the lab.”<sup>25</sup> One implication of this inherent constraint of the celluloid medium is reflected in the fact that the Solid Light films of the 1970s are based on the animation of straightforward geometrical shapes: *Line Describing a Cone* (1973), *Conical Solid* (1974), or *Partial Cone* (1974).

By comparison, digital filmmaking permits playback at any stage in the development of a moving image, and this concrete fact has endowed the animation process with a degree of flexibility unimaginable within the material logic of celluloid. McCall passes the score for a digital Solid Light installation to a computer programmer, who returns it in the form of an algorithmic translation—a script combining “description and mathematics.”<sup>26</sup> From this point the artist works in the studio with a customized software, editing and ‘sculpting’ the drawn line on the level of the composed movement by testing and nuancing every variable of shape, pitch, amplitude, and speed. The malleability of the digital interface has allowed the newer Solid Light films to work with a far more complex range of forms: animating not only circles, but ellipses, traveling waves, and wipes.<sup>27</sup>

---

<sup>23</sup> McCall in Ellard and Johnstone, Anthony McCall: Notebooks and Conversations, 89.

<sup>24</sup> Michaud, "Line Light: The Geometric Cinema of Anthony McCall," 2.

<sup>25</sup> McCall in Ellard and Johnstone, Anthony McCall: Notebooks and Conversations, 147. “In the ‘70s you had to completely finish the work before you could look at it,” McCall notes, “so you had to have a complete idea that you could quantify, and then you had to execute it, and then you could look at it.” McCall in Menzies, "Interview with Anthony McCall (2 August 2011)."

<sup>26</sup> McCall in Ellard and Johnstone, Anthony McCall: Notebooks and Conversations, 89.

<sup>27</sup> McCall in Anthony McCall: Notebooks and Conversations, 147, 51.



Figure 0.5: Anthony McCall shooting *Cone of Variable Volume* on a Bell + Howell animation camera, 1974. Photograph by George Griffin. Courtesy the artist and Sean Kelly, New York.

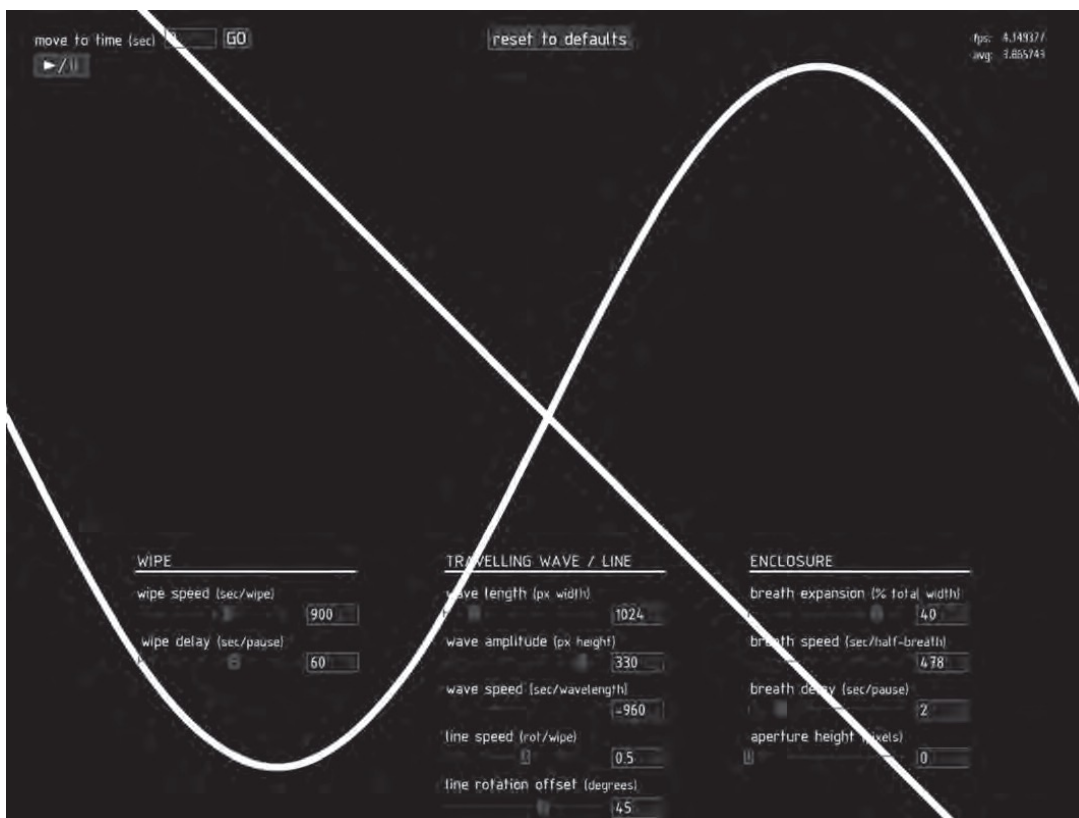


Figure 0.6: Anthony McCall, *Between You and I*. 2006. Digital animation interface. Courtesy the artist and Sean Kelly, New York.

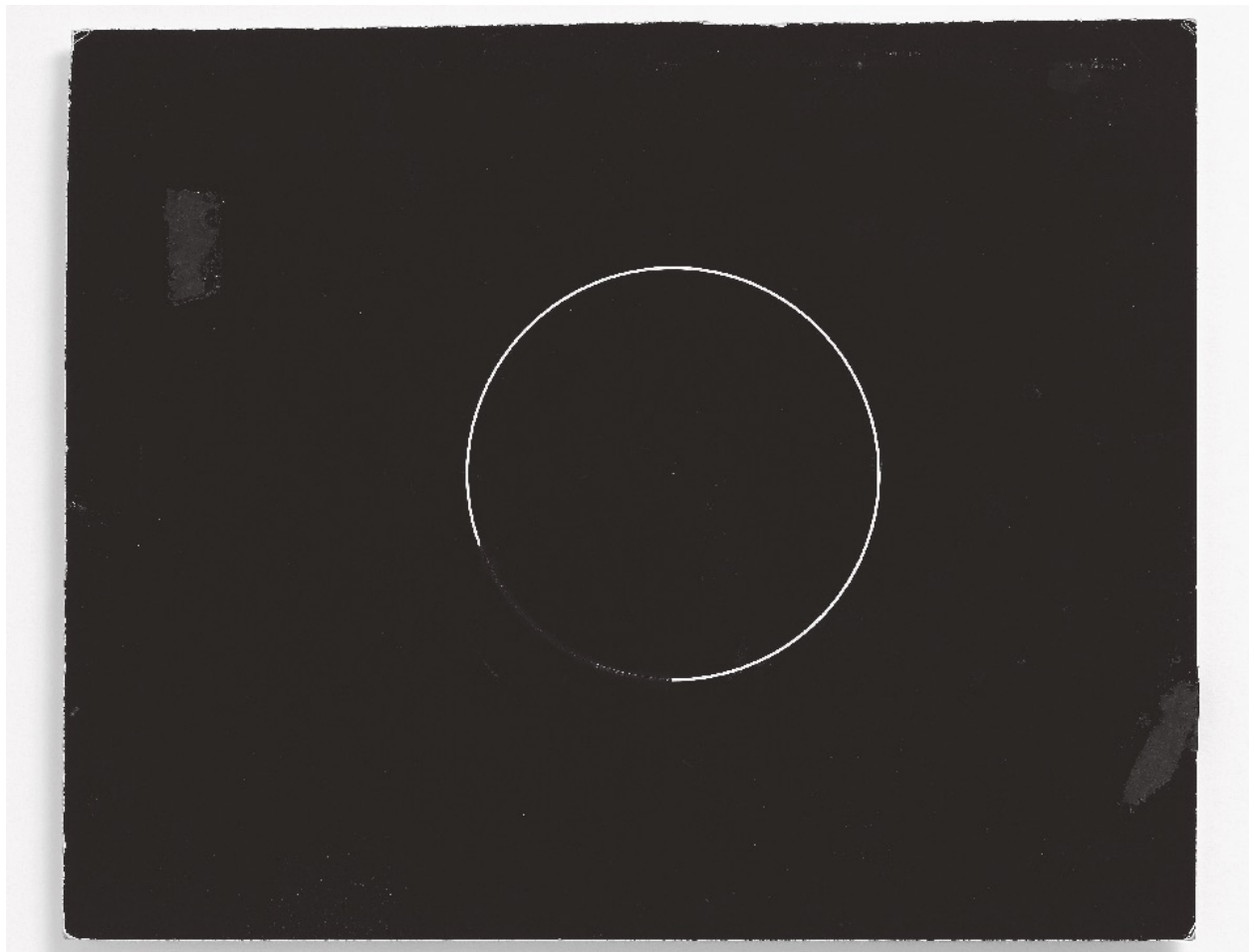


Figure 0.7: Anthony McCall, *Line Describing a Cone*. 1974. Drawing for animation cinematography for (abandoned) remake. Gouache on glossy black board. 26.7 x 33 cm. Courtesy the artist and Sean Kelly, New York.

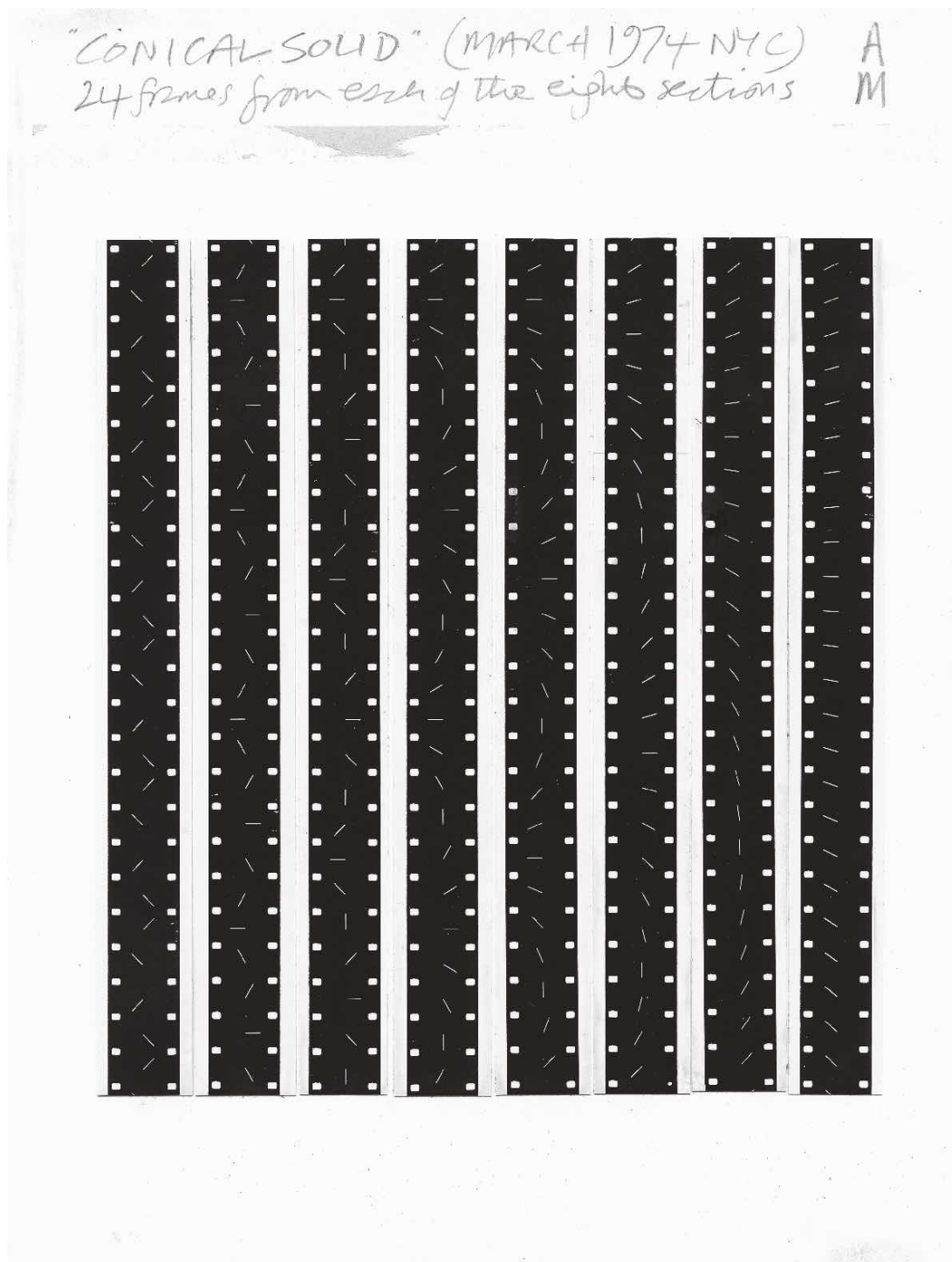


Figure 0.8: Anthony McCall, *Conical Solid*. 1974. Twenty-four frames (one second) from each of the film's eight parts. Photostat of contact prints mounted on paper with pencil and masking tape. 27.9 x 21.3 cm. Courtesy the artist and Sean Kelly, New York.

The digital studio's broader attributes also mean that McCall can work with 'Solid Light' at every stage of the creative process, by using data projectors and haze machines to create volumetric 'marquettes' of an installation. The primary virtue of these working models is their capacity to remain poised at an evanescent pivot: the material and temporal intersection of drawing, sculpture, and cinema. "These models provide the means for McCall to get close to the material of [his] distinctly immaterial form," the artists Graham Ellard and Stephanie Johnstone observe, so permitting him "the kinds of intuitive and responsive adjustments that the film rostrum of the early works could never afford."<sup>28</sup> In the exhibition situation, the mobility of digital projection has been similarly constitutive. "A film projector weighs 70 pounds, [is] awkward and heavy, and with its reels and pulleys, needs to be kept more or less horizontal" McCall mulls, while its off-the-shelf digital equivalents are lightweight, and can be trained into vertical, diagonal, and horizontal directions.<sup>29</sup>

Most fundamental, perhaps, are the changes wrought within the art world itself. "In the seventies the kind of work I made was part of an avant-garde film culture," the artist recalls, and "there was very little interest from the world of commercial galleries."<sup>30</sup> By comparison, the digital Solid Light films are exhibited within a cultural situation informed by—and to some extent formed by—the relocation of the cinematic medium from the margins of the art world to its centre.<sup>31</sup> Almost from the moment that portable video cameras became commercially

---

<sup>28</sup> Anthony McCall: Notebooks and Conversations, 14.

<sup>29</sup> McCall in Anthony McCall: Notebooks and Conversations, 51.

<sup>30</sup> Olivier Michelon, "Interview with Anthony McCall," in Anthony McCall: Elements for a Retrospective, 1972-1979/2003-, ed. Olivier Michelon (Rochechouart and London: Musée de Rochechouart and Serpentine Gallery, with Monografik Editions, 2007), 53.

<sup>31</sup> In fact, Michaud describes *Line Describing a Cone* as an "emblematic prefiguration" of "filmmaking's migration toward the art world." Michaud, "Line Light: The Geometric Cinema of Anthony McCall," 2.

available, moving images (first electronic, then digital) entered the gallery space with a ferocity that transformed it.<sup>32</sup> The art historian Rosalind Krauss has characterized the impact visited upon museum culture by the appearance of “the portapak, and its televisual effect” in this way: “twenty-five years later, all over the world, in every biennale and at every art fair ... whether it calls itself installation art or institutional critique, the international spread of mixed-media installation has become ubiquitous.”<sup>33</sup> As a consequence, the dusty and smoke-filled industrial basements that formed the exhibition venues for New York avant-garde cinema of the 1970s have almost entirely given way to white cubes capable of the presentation and historicization of time-based art.

*Then*, the normative experience of cinema involved looking up, in darkness, at a moving image enlarged upon a screen located within a distinct physical architecture. *Now*, a perambulating viewer habituated to a miniaturized moving image hails a projection-based installation as one among a number of possible configurations of ‘cinema’; because the prevalent media paradigm has unpinned the moving image from a defined architectural setting. The viewer of McCall’s Structuralist films was witness to an explicitly performative event understood to offer an aesthetic distillation of the cinematic medium to this ontological essence: the embodied and durational experience of projected light. By comparison, the viewer of a moving image

---

<sup>32</sup> So intense has video’s effect on the artworld been that its story of origin has already been mythologized. “It is said” writes Tom Sherman, “that the late Nam June Paik was the George Washington of video art.... As the familiar story goes, Paik purchased the first Sony Portapak delivered to the U.S. on October 4th, 1965. That afternoon he charged the battery and got the Portapak working at a Sony dealership, jumped in a taxi and got stuck in a traffic jam caused by a visit from Pope Paul VI, shot twenty minutes of video out the window of the taxi, and then showed the recording to his friends at the Cafe a Go-Go in Greenwich Village that evening. That, according to the myth, was the birth of video art.” See: Tom Sherman, “The Premature Birth of Video Art,” (Email, [http://www.experimentalcenter.org/sites/default/files/history/pdf/ShermanThePrematureBirthofVideoArt\\_2561.pdf](http://www.experimentalcenter.org/sites/default/files/history/pdf/ShermanThePrematureBirthofVideoArt_2561.pdf)2007).

<sup>33</sup> Rosalind E. Krauss, “A Voyage on the North Sea”: Art in the Age of the Post-Medium Condition (London: Thames & Hudson, 2000), 30, 20.





Figure 0.9: Anthony McCall, *Line Describing a Cone*. 1973. Film screening with 16mm and projector in an empty, darkened room. 30 mins. Documentation of the first showing of the film in the U.S. at Artists Space, New York, on 15 February 1974. Photograph by Peter Moore. Courtesy the artist and Sean Kelly, New York.

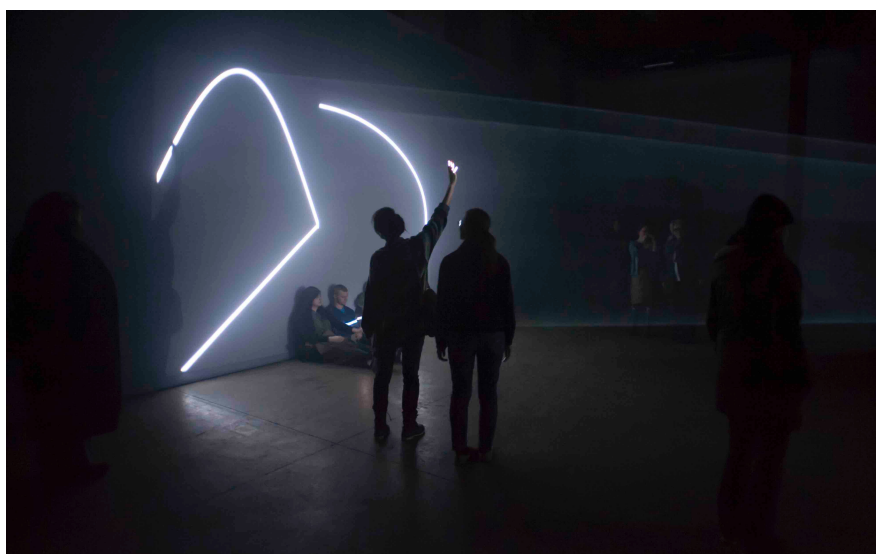


Figure 0.10: Anthony McCall, *You and I, Horizontal*. 2005. Installation view, 2012. Photograph by James Prinz. Courtesy the artist and the University of Chicago Film Studies Center, Chicago.



installation configured by the ongoing time of gallery space is not confronted with a mediation on the medium, but with a temporal politics enacted as a corporal poetics, in the form of an inside-outside relation between the ‘body’ of the artwork and the body of the spectator. *Then*, the elimination of the projection screen was a radically political act, nakedly comprehensible in its effort to deconstruct the primacy of film narrative by emphasizing the material status of the beam as something other than “a mere carrier of coded information, which is decoded when it strikes a flat surface.”<sup>34</sup> *Now*, the elimination of the projection screen is a tacit, almost invisible fact, because the proliferation of mobile screens has undermined the centrality of the projected moving image in a manner that endows the same deconstructive gesture with a quite different ideological bite. It is worth asking, in light of all these facts, how it is even possible that an artist whose signature aesthetic form was understood to have reduced cinema (then grounded in celluloid) to an ontological essence “by exploring the medium and its properties and materials” was able to translate the same aesthetic form into a mode of digital cinema.<sup>35</sup>

McCall himself reflects on the complex character of his creative leap into digitality in the following way:

You know, my titles, since I started again, have been intended to refer to the corporeal in some way: *You and I*; *Between You and I*; *You and I, Horizontal*; *Leaving*; *Coupling*, all these kinds of things. I dared to go in that direction because I realized that the forms do suggest the figural. Not in any pictorial sense, but they suggest it emotionally, or physically. ... It is very hard to come up with the right language for it, ... but there is something suggested which is recognized by people that are absorbed by the forms, that is sensuous, or erotic. The poetic register is the one that interests me—the art of ambiguity and suggestion, and reference, but by indirection, by formal means. I feel if

---

<sup>34</sup> McCall, ""Line Describing a Cone" and Related Films," 42.

<sup>35</sup> Hanhardt, "The Medium Viewed: The American Avant-Garde Film," 21.

you're working in pairs, for instance, and using forms of this kind, you're already in a poetic realm. It is not literal, it is not symbolic, it is physical and it is poetic.

And I think it is a step beyond that more puritan Minimalism I really subscribed to in the 70s—the ‘what you see is what you get’ idea. Those forms are far, far more beyond that than I previously realized; or perhaps, I feel I can reach [the form of Solid Light] more now, possibly with the way I work.<sup>36</sup>

The nature of McCall’s “step beyond” the “puritan” mandate of Structuralist film’s Minimalist inheritance is encapsulated by this open admission that the digital Solid Light installations provide their viewer with access to *more* than what she sees. In contrast to the abstraction of the artist’s titles in the 1970s—*Circulation Figures* (1972), *Cone of Variable Volume* (1974), *Four Projected Movements* (1975)—works since the early 2000s suggest a typology of natural and bodily movements: *You and I* (2005), *Meeting You Halfway* (2009), *Coupling* (2009), *Throes* (2011). This shift in orientation from the sphere of the geometric to the organic is reinforced on the level of form. While horizontal digital installations like *Turning Under* (2004), *Doubling Back* (2003), and *You and I, Horizontal* (2005) continue to be readable within the traditional orientation of cinematic projection, vertical and diagonal installations such as *Exchange* (2005), *Breath* (2004), *Skirt* (2010), or *Face to Face* (2013) invoke an entirely other set of phenomenal registers: provoking comparisons to natural formations like waterfalls and moonlight, and activating hermeneutic frameworks more usually associated with architecture or figurative sculpture. Equally significant to specificity of the digital mode is the artist’s foregrounding of “the poetic register.” The installation *Leaving* (2009), for example, is a mediation on mortality in which he turns to an inaugural use of sound—specifically, “the suggestion of ocean or river”—to set up “various kinds of poetic resonances within the black box” that will alert the viewer to the

---

<sup>36</sup> McCall in Michelle Menzies, “Interview with Anthony McCall,” (New York: August 2, 2011).

work's exploration of death as an "act of exchange between something you can see and something you can't."<sup>37</sup> The explicitly literary flavor of this characterization speaks to a referential expansion at the core of McCall's digital style, and whose most obvious outcome has been to place a Bergsonian conception of the body at the heart of his contemporary production.<sup>38</sup>

The *why* of this development is bound up with the incommensurate character of the translation between analog and digital processes. It is the "hands-on quality of the digital," for example, that has permitted the algorithmic remediation of celluloid cinema to grant this artist a previously unimaginable degree of latitude for creative pre-visualization and experiment.<sup>39</sup> "Digital is not necessarily faster," he cautions, because "two days of programming are not so different from two days of hand animation."<sup>40</sup> Yet the key question is not one of speed, but of the capacity of an expressive medium to actualize an aesthetic ambition predicated on phenomenal interpellation—"my pieces," McCall emphasizes, "require that your actual body be there in the flesh, in the present. And active."<sup>41</sup>

We can observe, in light of this claim, that the digital Solid Light films are more physically encompassing than their analog predecessors; because a new generation of non-toxic haze machines have created wholly new conditions of legibility for works previously reliant on the

---

<sup>37</sup> McCall in Tyler Coburn, "Interview with Anthony McCall," Art Review January 2011.

<sup>38</sup> McCall in Ibid.

<sup>39</sup> McCall in Ellard and Johnstone, Anthony McCall: Notebooks and Conversations, 14.

<sup>40</sup> McCall in Menzies, "Interview with Anthony McCall (2 August 2011)."

<sup>41</sup> McCall in Ellard and Johnstone, Anthony McCall: Notebooks and Conversations, 119. My emphasis.

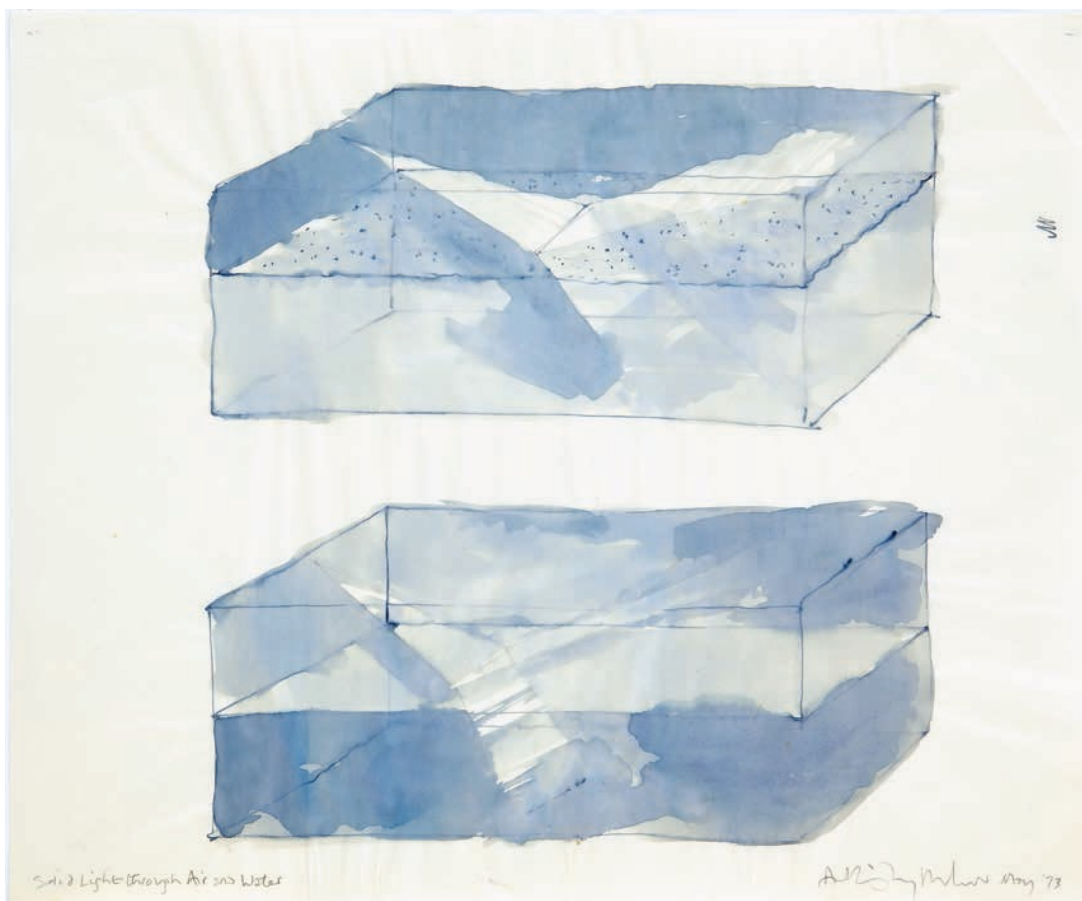


Figure 0.11: Anthony McCall, *Solid Light Through Air and Water*. 1973. Preparatory study. Ink wash and pencil. 35.6 x 43.2 cm. Courtesy the artist and Sean Kelly, New York.

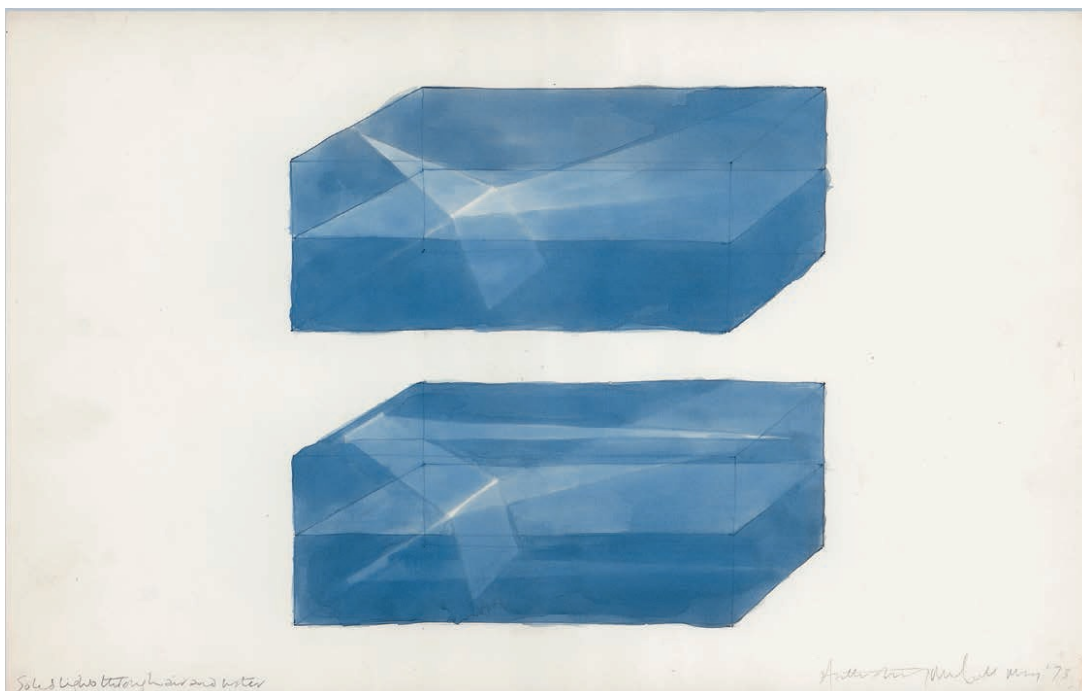


Figure 0.12: Anthony McCall, *Solid Light Through Air and Water*. 1973. Ink on paper. 36.8 x 58.4 cm. Courtesy the artist and Sean Kelly, New York.



Figure 0.13: Anthony McCall, *Room With Altered Window*. 1973. Gelatin silver print. 20.3 x 25.4 cm. Installation view, McCall Studio, New Paltz, New York. Courtesy the artist and Sean Kelly, New York.

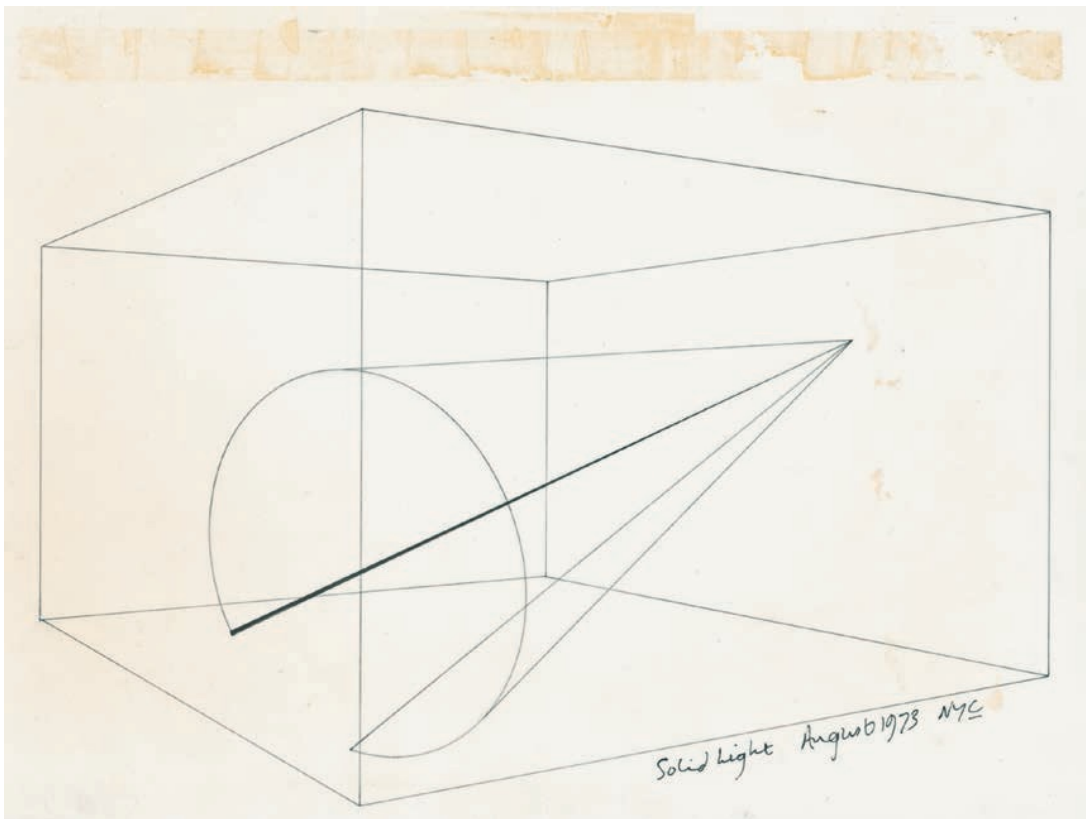


Figure 0.14: Anthony McCall, *Solid Light*. 1973. Installation drawing for *Line Describing a Cone*. Ink on paper. 23.5 x 30.5 cm. Courtesy the artist and Sean Kelly, New York.

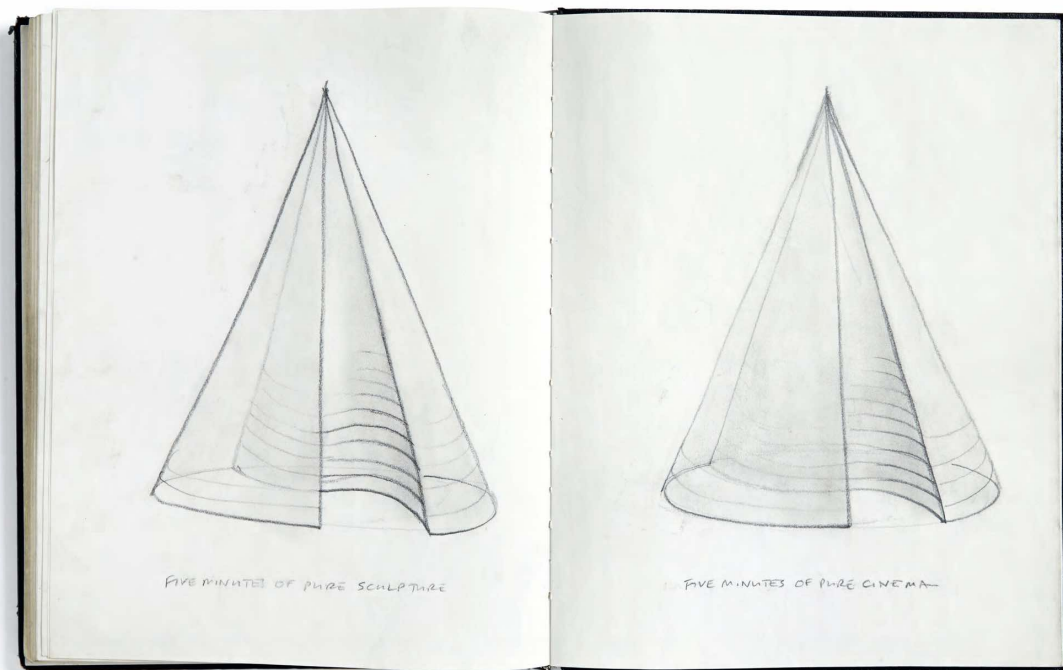


Figure 0.15: Anthony McCall, Large Notebook 3: 5 June 2003–16 November 2003. Page 166: *Five Minutes*. Courtesy the artist and Sean Kelly, New York.

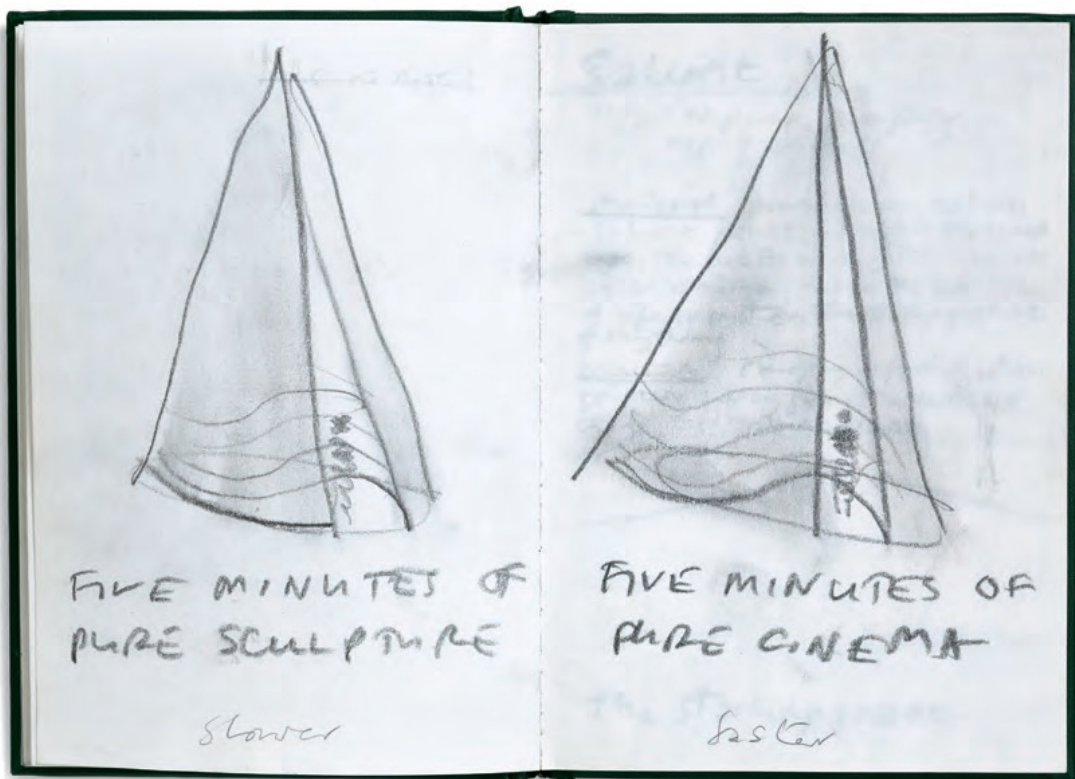


Figure 0.16: Anthony McCall, Small Notebook 6: 1 June–2 July 2004. Page 10: *Five Minutes*. Courtesy the artist and Sean Kelly, New York.



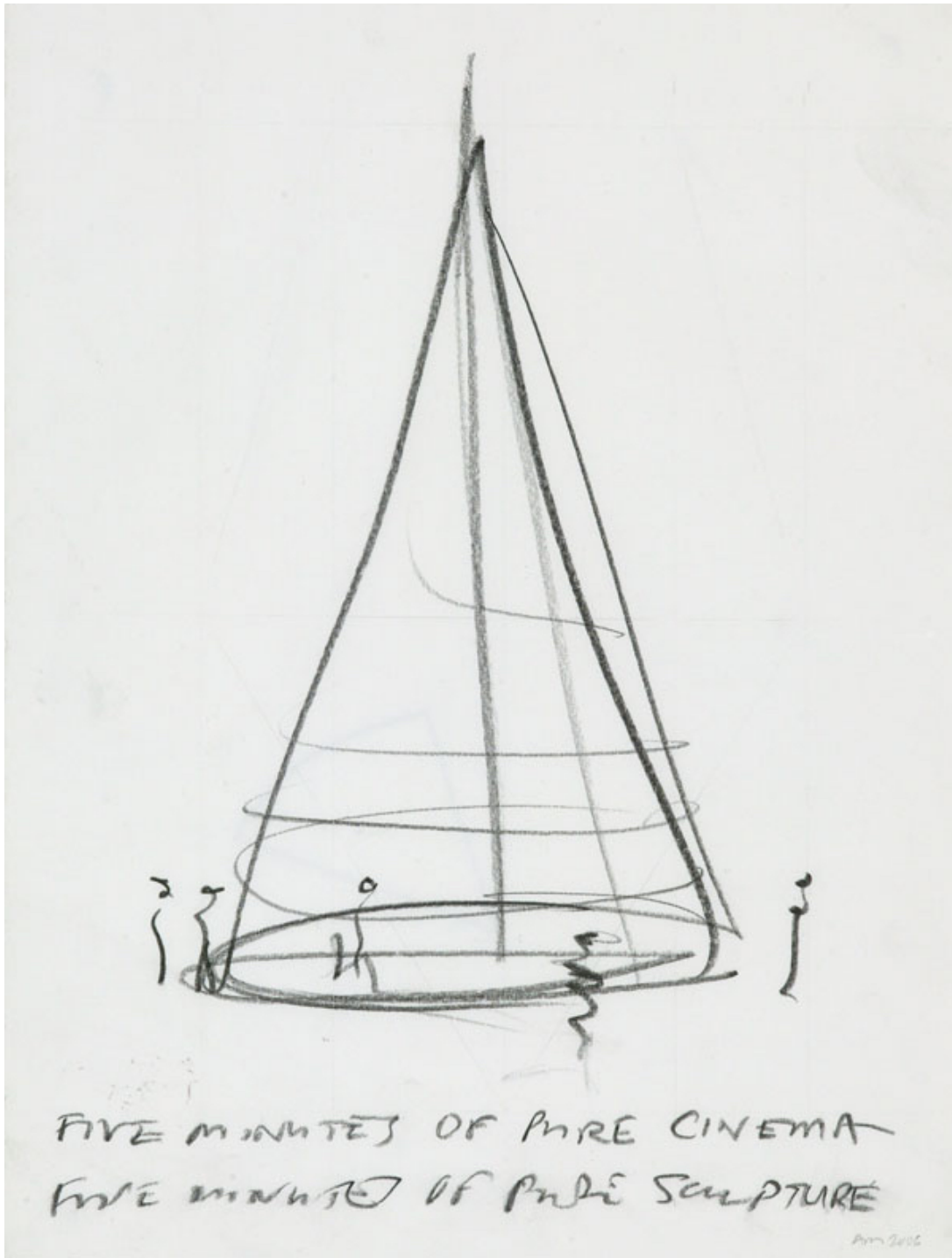


Figure 0.17: Anthony McCall: *Five Minutes of Pure Sculpture*. 2012. Installation drawing. Courtesy the artist and Sean Kelly, New York.



Figure 0.18: *Anthony McCall: Five Minutes of Pure Sculpture*, curated by Henriette Huldish. Installation view, Hamburger Bahnhof, Berlin, 2012.



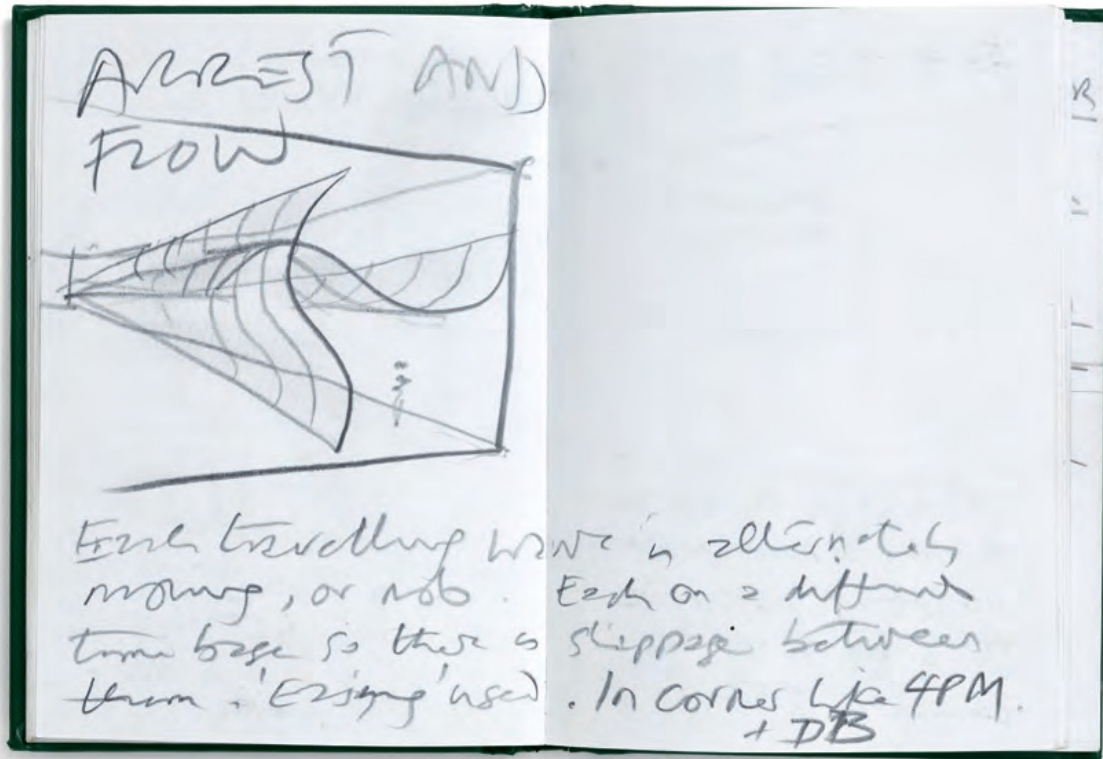


Figure 0.19: Anthony McCall, *Small Notebook 22*: 27 December 2006–26 February 2007. Page 50: *Arrest and Flow*. Courtesy the artist and Sean Kelly, New York.

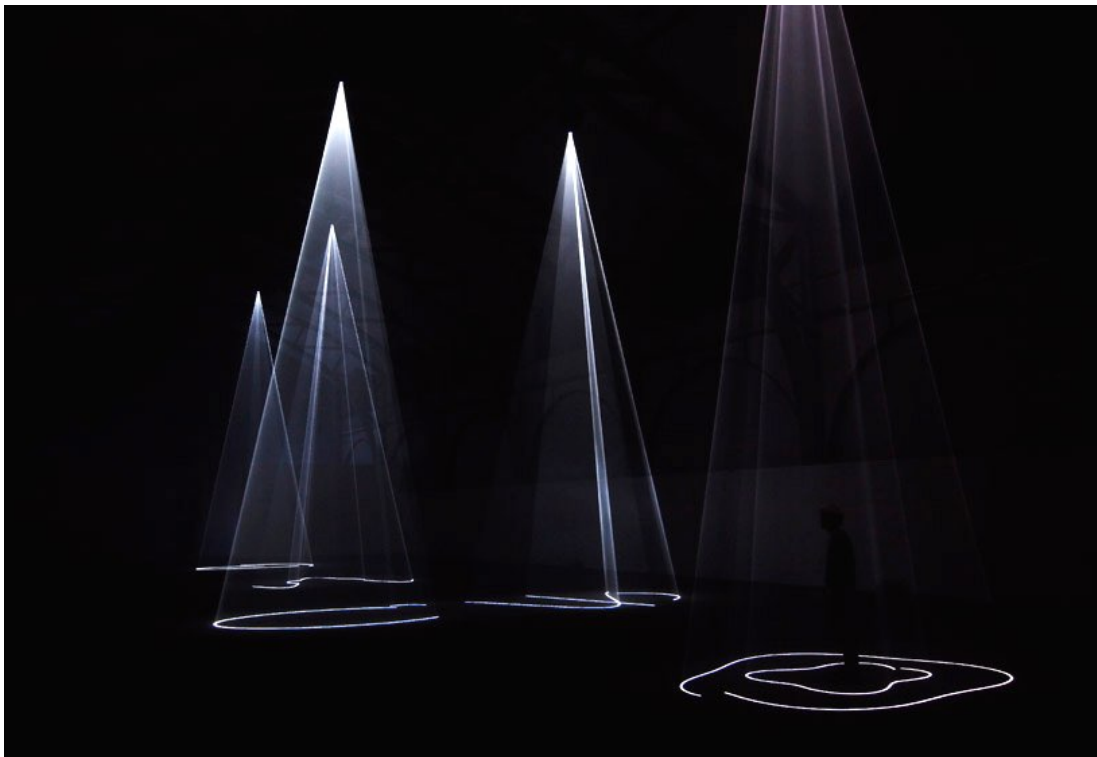


Figure 0.20: Anthony McCall: *Five Minutes of Pure Sculpture*, curated by Henriette Huldish. Installation view, Hamburger Bahnhof, Berlin, 2012.

ambient presence of dust in the screening environment for the barest visibility.<sup>42</sup> Similarly, it is the flexibility of the digital interface that has allowed McCall to engage in an overt poetics of description—deploying strategies of fact by animating forms that will invoke a sense of the body “as a verb, always in motion and constantly undergoing change.”<sup>43</sup> The intense solidity of digital Solid Light has also had Bergsonian implications; permitting an intensified physiological interpellation whose effect is to synchronize the viewer’s implicitly embodied sense of time with the temporal structure of the artwork. In this, McCall’s digital installations are able to draw the viewer more fully into the *jouissance* of an aesthetics of movement unpinned from an overt reference to the technological apparatus, or to the sphere of quantifying orders of time—the time of clocks, calendars, and the work week. The idea of movement most relevant here is one that flows out of a Bergsonian conception of the body as “a bundle of code built around a clock,” and that is articulated as a relation of exchange between bodies and natural rhythms.<sup>44</sup> It is McCall’s new emphasis on corporality that is *affectively* “recognized by people that are absorbed by the forms”—“not in any pictorial sense,” so much as “emotionally, or physically”—because his digital works operate in the sphere of the explicitly biorhythmic.<sup>45</sup> “Most of the pieces of the last few years have been attempting to describe the state of ‘between’, the moment of exchange,” he admits; and in fact this development is symptomatic rather than generative.<sup>46</sup> I want to suggest

---

<sup>42</sup> McCall notes that “by 2002 ... I discovered that the “Haze” Machine had been invented. This was related to the fog machine, but it was based on a water-plus-glycol (a derivative of starch) solution, rather than oil, and it produced not a smoke-like fog, but instead something quite a bit thinner, like an ambient sea-mist. ... The Haze machine also had the advantage of being non-toxic and odourless, and unlike the oil-based machines, it left no residue on surfaces in the space.” McCall in Mark Godfrey and Anthony McCall, “Anthony Mccall’s “Line Describing a Cone”,” Tate Papers, no. 8 (Autumn 2007).

<sup>43</sup> McCall in Ellard and Johnstone, Anthony Mccall: Notebooks and Conversations, 119.

<sup>44</sup> McCall in Anthony Mccall: Notebooks and Conversations, 120.

<sup>45</sup> McCall in Anthony Mccall: Notebooks and Conversations, 119.

<sup>46</sup> McCall in Anthony Mccall: Notebooks and Conversations, 120.

that ‘digitality’ has provided McCall with a medium of composition more capable of materializing the phenomenology of Solid Light, and that the result has been an enlargement of the scope and amplitude of his aesthetic ambition.

And yet the newness of the digital Solid Light films is of a complex kind: if the digital situation has enlarged McCall’s creative practice, it has done so by allowing for a more comprehensive actualization of his original concept. It is on this level that this artist’s migration to a new creative interface circles the idea of the cinema at the heart of this dissertation; and, simultaneously, holds up a mirror to its conception of the stakes involved in assessing the discursive after-effects of an alteration in the technological *a priori*.

This dissertation locates media aesthetics at the intersection of the technical image, the agential subject, and the experiential setting. I conceptualize this notion of a ‘setting’ latter by turning to Michel Foucault’s framework of the *dispositif*. Understood in its widest circumference, as the experiential setting, the Foucauldian concept of the *dispositif* is coincident with the historical *a priori*: the *dispositif* is the general social apparatus in and through which an age instantiates itself.<sup>47</sup> A shift in the *dispositif* is consequently not a local discursive adjustment—rather, it implies a fundamental recalibration of the subtending structures of experience. What is implied

---

<sup>47</sup> The significance of the concept ‘*dispositif*’ in French philosophy is profound, designating a technical and a vernacular word without a precise English correlate; in different contexts meaning ‘arrangement,’ ‘apparatus,’ ‘configuration,’ and most important, a structure of relation between the discontinuous yet functional elements of a social apparatus. Bracketing a dense genealogy in film theory (particularly apparatus theory), I mean first to refer to Louis Althusser’s concept of a *dispositif* of social form and regulation, and the intentional reworking to which this framing was submitted by Foucault, who says: “What I’m trying to pick out with this term is, firstly, a thoroughly heterogenous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions,” and “*the system of relations that can be established between these elements*. Secondly, what I am trying to identify in this apparatus is precisely the nature of the connection that can exist between these heterogenous elements.” Michel Foucault and Alain Grosrichard et al, “The Confession of the Flesh,” in *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon (New York: Pantheon Books, 1977/1980), 194.

by a new technological *dispositif* for the discourse of media aesthetics, for example, is a fundamental recalibration of the relation between the image, the subject, and the ‘setting.’ This re-conjugation implicates not only technological devices and technical inscriptions, but also the social and cultural contexts in which media objects circulate. To this extent my analysis posits the discursive ramifications of the digital media paradigm as far more *atmospheric* than they are localizable. The case study presented by McCall’s migration from an analog to a digital configuration of cinema demonstrates this atmospheric capacity of the technological *a priori* to trigger experiential consequences that are not always immediately (or even tacitly) recognizable as technological. For the viewer of digital Solid Light installation is confronted with a work of Structuralist cinema that is also an aesthetic distillation of a paradigm shift in media; one that has impacted the work of art on every conceivable level of its production and reception.

Indeed understanding the shift from an analog to a digital media paradigm as an alteration in the technological *dispositif* lets us grasp precisely why ‘digitality’ has bestowed McCall’s practice with the newness of an activated latency. As an avant-garde filmmaker informed by “that more puritan Minimalism I really subscribed to in the 70s” McCall has always understood ‘cinema’ less in terms of a material technology (a celluloid animation stand, a computer interface) than as a media devoted to an inscription of movement.<sup>48</sup> To grasp *cinema as a media turned toward the articulation of movement* is to comprehend that its ontology is not technical, but phenomenal and aesthetic. It is this understanding that has allowed McCall to take up digital processes in a key that has activated the pragmatic gap between between the affordances of

---

<sup>48</sup> McCall in Menzies, "Interview with Anthony McCall."

analog and digital inscription in creatively meaningful ways. But if ‘digitality’ has provided McCall with a medium of composition more capable of materializing his ideas—“I feel I can reach [the form of Solid Light] more now, possibly with the way I work”—this outcome is fundamentally attributable to the fact that the transition from an analog to a digital configuration of visual media is underwritten by a technological *dispositif* that has intensified cinema’s capacity to inscribe the phenomenology of movement.<sup>49</sup>

I want to turn, in the context of this claim, to a fuller citation of Benjamin’s commentary on the relation between social and aesthetic form in the 1936 version of the Work of Art essay:

*Just as the entire mode of existence of human collectives changes over long historical periods, so too does their mode of perception.* The way in which human perception is organized—the medium in which it occurs—is conditioned not only by nature but by history. The era of the migration of peoples, an era which saw the rise of the late-Roman art industry and the Vienna Genesis, developed not only an art different from that of antiquity but also a different perception. The scholars of the Viennese school, resisting the weight of the classical tradition under which this art had been buried, were the first to think of using such art to draw conclusions about the organization of perception at the time the art was produced.<sup>50</sup>

Here Benjamin draws on “the scholars of the Viennese school, Riegl and Wickhoff” to posit aesthetics as a form of experience so folded into sociality that the materiality of the work of art can act as a kernel of the real, preserving striations of experience from which cultural analysis can “draw conclusions about the organization of perception at the time the art was produced.”<sup>51</sup>

Benjamin and Siegfried Kracauer did not aim to produce an ontological account of the new

---

<sup>49</sup> McCall in Ibid.

<sup>50</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1936),” 104.

<sup>51</sup> Particularly relevant here is the introduction to Alois Riegl’s *Late Roman Art Industry* (1889), which notes that “from this time of turmoil when two epochs were parting ... we have a vast number of works of art, mostly anonymous and undated, but *offering us a faithful image of the disturbed spiritual conditions of the time.*” Alois Riegl, *Late Roman Art Industry*, trans. Rolf Winkes, *Archaeologica* (Roma: G. Bretschneider, 1985), 16, 17.

media of their time, Miriam Hansen notes; rather, they sought to offer an analytic “apprehension of [its] place in a materialist phenomenology of the present.”<sup>52</sup> The expanded idea of form carried within the Foucauldian framework of the *dispositif* can bring an assessment of the aesthetic consequences of the digital media paradigm—‘digitality,’ as I have characterized it in this section—closer to this descriptive and materialist analytic aspiration. For in redefining *cinema as media*, this dissertation seeks not only to reorganize disciplinary classifications, but also to enlarge the genealogical and historical scope that can be awarded to an aesthetics of movement. “If we relinquish defining the cinematographic apparatus on the basis of material determinations,” Michaud has written,

—film as the conjunction of a supple celluloid medium, perforation, and rapid emulsion—and instead consider it in a more unusual and larger framework, as a conceptual interrelating of transparency, movement, and impression... *a shift occurs in the order of discourse that will lead us to see cinema less as a spectacle than as a form of thought.*<sup>53</sup>

Positing the ontology of cinema to lie in the phenomenology and aesthetics of movement, rather than in the technological substrate—cinema as “a conceptual interrelating of transparency, movement, and impression”—allows this dissertation to attribute the fulfillment of cinema’s Bergsonian vocation to an alteration of the technological *dispositif* that has made old dimensions of Bergson’s philosophical project newly visible and articulable.

---

<sup>52</sup> Benjamin and Kracauer, writes Hansen, offer us “not an ontology of film, then, but the apprehension of cinema’s place in a materialist phenomenology of the present,” and an “appreciation of cinema’s possible role in effecting a not-yet-apprehensible future.” Miriam Bratu Hansen, *Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno* (Berkeley: University of California Press, 2012), xviii.

<sup>53</sup> Philippe-Alain Michaud, *Aby Warburg and the Image in Motion*, trans. Sophie Hawkes (New York & Cambridge, Mass.: Zone Books & MIT Press, 2004), 39-40. My emphasis.

## Philosophy at the Movies: Bergson and the Aesthetics of Movement

Jacques Derrida has observed that “Bergson was one of the first, perhaps the first philosopher, to refer in a systematic way to the techniques of photography and cinematography.”<sup>54</sup> The most influential contemporary commentator on the connection between Bergson and media, however, has been Gilles Deleuze. The central proposition of his two volume *Cinema* books—*Cinema 1: The Movement Image* (1983; trans. 1992) and *Cinema 2: The Time Image* (1985; trans. 1989)—is the claim an intuitive, almost blinding correspondence between Bergson’s philosophy of movement and the art of moving images.<sup>55</sup> This interventionist, highly imaginative argument has had a profound critical impact: the *Cinema* books have generated a revisionist image of Bergson’s philosophy that effectively established the discursive conditions of possibility for thinking its significance for media aesthetics.

Deleuze describes the *Cinema* books as a taxonomy of images, of ‘movement-images’ and ‘time-images,’ with each category conceived as a distinct, historical stage in the cinema’s stylistic development. His argument over the two volumes narrates a process of transition—from the movement-image to the time-image—and this chronological structure holds a great strategic significance.

---

<sup>54</sup> Jacques Derrida, Hubertus von Amelunxen, and Michael Wetzell, *Copy, Archive, Signature: A Conversation on Photography*, trans. Jeff Fort (Stanford, Calif.: Stanford University Press, 2010), 36-7.

<sup>55</sup> Gilles Deleuze, *Cinema 1: The Movement-Image*, trans. Hugh Tomlinson and Barbara Habberjam (Minneapolis: University of Minnesota, 1986); *Cinema 2: The Time-Image*, trans. Hugh Tomlinson and Robert Galeta (Minneapolis: University of Minnesota, 1986). See also *Bergsonism*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Zone Books, 1988). Despite Bergson’s enormous popularity in his own lifetime, his influence had faded by the post-war period. Deleuze’s re-reading of Bergson should be understood as a component of his wider effort to revitalize and reanimate certain neglected or misunderstood voices in the philosophical and artistic tradition: Leibniz, Spinoza, Nietzsche, Bergson, even Foucault; Proust, Bacon, Kafka.

In the Preface to *Cinema 1* Deleuze observes that “the discovery of a movement-image, and more profoundly, of a time-image” in Bergson’s *Matter and Memory* (1896, trans. 1911) “still retains such a richness today that it is not certain that all its consequences have been drawn.”<sup>56</sup> The sense of latency surrounding this radical idea of a movement-image can only be attributed to Bergson himself; or at least to the Bergson of *Creative Evolution* (1907, trans. 1911), whose unambiguous refusal of cinematic movement introduces a highly problematic element of discursive discordance.<sup>57</sup> “Despite the rather overhasty critique of the cinema Bergson produced shortly afterwards,” the Preface to *Cinema 1* continues, “nothing can prevent an encounter between the movement-image, as he considers it, and the cinematographic image.”<sup>58</sup> The argumentative trajectory of Deleuze’s *Cinema* books thus strives to reconcile the Bergson of *Matter and Memory* with the Bergson of *Creative Evolution*—negotiating the critique proffered in the latter text, while advocating for Bergson’s position in the former. The perception of a need to refute the later Bergson in favor of the earlier is a discursive problem that continues to fuel the contemporary project of thinking Bergson’s significance as a philosopher of media.<sup>59</sup> But what specifies Deleuze’s particular neo-Bergsonian account is its construction of an aesthetic genealogy. The *Cinema* books describe the shift from the movement-image to the time-image as an aesthetic evolution that allowed the cinema to “rediscover that very movement-image of the first chapter of *Matter and Memory*.”<sup>60</sup> In this, Deleuze’s effort to read Bergson against the grain

---

<sup>56</sup> *Cinema 1: The Movement-Image*, xiv.

<sup>57</sup> “What is again very odd is that Bergson was perfectly aware of the existence of mobile sections or movement-images. This happened before *Creative Evolution*, before the official birth of cinema: it was set out in *Matter and Memory* in 1896. The discovery of the movement-image, beyond the conditions of natural perception, was the extraordinary invention of the first chapter of *Matter and Memory*. Had Bergson forgotten it ten years later? *Cinema 1: The Movement-Image*, 2.

<sup>58</sup> *Cinema 1: The Movement-Image*, xiv.

<sup>59</sup> See, in particular, Mark B. N. Hansen, *New Philosophy for New Media* (Cambridge, Mass.: MIT Press, 2004).

<sup>60</sup> Deleuze, *Cinema 1: The Movement-Image*, 3.



should be understood to tie the cinema's realization of an inherent Bergsonian vocation to the historical evolution of film style.

Deleuze launches this argument in the first chapter of *Cinema I* by noting that the Bergson of *Creative Evolution* understood "the modern scientific revolution" to consist of "relating movement not to privileged instants, but to any-instant-whatever," and concludes that:

*Cinema seems to be the last descendant of this lineage which Bergson traced.* One might conceive of a series of means of translation (train, car, airplane...) and in parallel, a series of means of expression (diagram, photo, cinema). The camera would then appear as an exchanger or, rather, as a generalised equivalent of the movements of translation. ... When we think about the prehistory of cinema, we always end up confused, because we do not know where its technological lineage begins, or how to define this lineage. We can always refer to shadow puppets, or the very earliest projection systems. But, in fact, the determining conditions of the cinema are the following: not merely the photo, but the snapshot (the long-exposure photo [*photo de pose*] belongs to this other lineage); the equidistance of snapshots; the transfer of this equidistance on to a framework which constitutes the 'film' (it was Edison and Dickson who perforated the film in the camera); a mechanism for moving on images (Lumière's claws). It is in this sense that the cinema is the system which reproduces movement as a function of the any-instant-whatever that is, as a function of equidistant instants, selected so as to create an impression of continuity. Any other system which reproduces movement through an order of exposures [poses] projected in such a way that they pass into one another, or are 'transformed,' is foreign to the cinema. This is clear when one attempts to define the cartoon film; if it belongs fully to the cinema, this is because the drawing no longer constitutes a pose or a completed figure, but the description of a figure which is always in the process of being formed or dissolving through the movements of lines and points taken at any-instant-whatevers of their course. The cartoon film is related not to a Euclidean, but to a Cartesian geometry. It does not give us a figure described in a unique moment, but the continuity of the movement which describes the figure.<sup>61</sup>

This opening section of *Cinema I*'s Bergsonian exposition slots cinema in amongst the major scientific inventions as "the last descendant of this lineage which Bergson traced." What is circled here is an ontological question about the *kind* of thing that cinema constitutes; and,

---

<sup>61</sup> Cinema 1: The Movement-Image, 4-5. My emphasis.

simultaneously, a deferral to the judgement of *Creative Evolution* for an answer. Deleuze accepts Bergson's categorization to conclude that the cinema is a kind of scientific device. For "when we think about the prehistory of cinema, we always end up confused, because we do not know where its technological lineage begins, or how to define this lineage" he admits, contextually; and while one can point to pre-cinematic forms like "shadow puppets, or the very earliest projection systems," this order of reference does not seem quite adequate as an account of cinematic genesis. Moving in a different direction, then, Deleuze has a cue from the Bergson of *Creative Evolution* to specify "the determining conditions of the cinema" in the co-presence of a set of technological parameters: sequential snapshot photography, a film-strip, and a mechanism capable of moving the latter around a device. "Any other system which reproduces movement through an order of exposures [poses] projected in such a way that they pass into one another, or are 'transformed,' is foreign to the cinema" he asserts, in a kind of provision conclusion; and this fact seems "clear when one attempts to define the cartoon film."

In fact "the cartoon film" is an interesting aesthetic case as a type of film whose far from self-evident place in Deleuze's taxonomy of cinematic images actually illuminates the limits of his categorization of the cinema. In a text that predates *Cinema I* by approximately three decades—the review "A Bergsonian Film"—the film critic Andre Bazin opines that "the most interesting tradition in animated films":

does not make of the animated film an *a posteriori* animation of a drawing that has a virtually autonomous existence. Rather, it turns such a film into the evolution of the drawing itself or, more accurately, its metamorphosis. Animation here is not the mere

logical transformation of space; it is the temporal transformation of that space as well. It is a germination, a budding; form engenders form without ever justifying its existence.<sup>62</sup>

On the one hand, the Bazinian definition of animation seems coincident with the Deleuzian. Where Bazin sees animation as most interesting when artists working in this genre turns the film “into the evolution of the drawing itself or, more accurately, its metamorphosis”; Deleuze notes that a cartoon film “does not give us a figure described in a unique moment, but the continuity of the movement which describes the figure.” Bazin, however, grasps this vitalist quality as an absolutely Bergsonian characteristic: “animation here is not the mere logical transformation of space; it is the temporal transformation of that space as well.” By comparison Deleuze hesitates over the categorization of the cartoon film. It seems, for a moment, to belong those *other* systems “which reproduc[e] movement through an order of exposures [*poses*] projected in such a way that they pass into one another, or are ‘transformed’”—that is, as properly belonging to pre-cinematic *dispositifs* like the magic lantern, shadow puppets shows, or the long-exposure photograph. Deleuze almost immediately readmits the cartoon film to the genre of optical things Bergson called ‘cinema’—“the cartoon film is related not to a Euclidean, but to a Cartesian geometry”—yet this reconsideration has little to do with an acknowledgment of its Bergsonian *aesthetic* qualities.

This potential exclusion of animation from the Deleuzian taxonomy of ‘cinematic’ images is clearly an outcome of the *Cinema* books’ reliance on the account of cinema proffered by the Bergson of *Creative Evolution*. Bergson’s claim for cinema’s scientific ontology is a fundamental categorization; and Deleuze’s acceptance of this judgement has the effect of tinting—or tainting

---

<sup>62</sup> André Bazin, “A Bergsonian Film: The Picasso Mystery (1956),” in *Bazin at Work: Major Essays & Reviews from the Forties & Fifties*, ed. Bert Cardullo (New York: Routledge, 1997), 215.

—his own conception of the cinema’s beginnings with a quantifying edge. Speaking rhetorically, *Cinema 1* asks “Is not cinema at the outset forced to imitate natural perception?”

And, what is more, what *was* cinema’s position at the onset? On the one hand, the view point [*prise de vue*] was fixed, the shot was therefore spatial and strictly immobile; on the other hand, the apparatus for shooting [*appareil de prise de vue*] was combined with the apparatus for projection, endowed with a uniform abstract time. The evolution of the cinema, the conquest of its own essence or novelty, was to take place through montage, the mobile camera and the emancipation of the viewpoint, which became separate from projection. The shot would then stop being a spatial category and become a temporal one, and the section would no longer be immobile, but mobile. The cinema would rediscover that very movement-image of the first chapter of *Matter and Memory*.<sup>63</sup>

Bellour paraphrases the implications of this claim in the following way: “In its earliest stages, says Deleuze, cinema had not yet invented its own time, as it would so do through editing, the mobile camera, and the advent of multiple takes.”<sup>64</sup> The *time*-image fulfills the cinema’s Bergsonian aesthetic vocation, because it is to the category of time-images that Deleuze attributes possibility of rendering movement in Bergsonian terms. “He speaks,” Bellour continues, “of a modulation, an act of the Real itself that excludes any interruption, any overly privileged instant and any instance that might risk being fixed on transcendent elements”; and this “flawless meshing of movement and time, where discontinuities and ruptures are integrated into a continuous expansion” is an aesthetic achievement only arrived at over the course of historical time.<sup>65</sup> As an aesthetic category, then, the Deleuzian movement-image should be understood to designate a position of stylistic primitivism: it is a starting point.<sup>66</sup> The Deleuzian time-image, on the other hand, is a Bergsonian movement-image.

---

<sup>63</sup> Deleuze, *Cinema 1: The Movement-Image*, 3.

<sup>64</sup> Bellour, “The Film Stilled (1987),” 130.

<sup>65</sup> “The Film Stilled (1987),” 134.

<sup>66</sup> Deleuze, *Cinema 1: The Movement-Image*, 3.

This highly developmental model pins a hierarchal taxonomy of cinematic images to the unfolding of historical process, so imaging the evolution of film style as an aesthetic teleology. By comparison, Bazin's characterization of animation as a Bergsonian art paraphrases Bergson's commentary on *aesthetics*, as this is articulated elsewhere in *Creative Evolution*:

To the artist who creates a picture by drawing it from the depths of his soul, time is no longer an accessory; it is not an interval that may be lengthened or shortened without the content being altered. The duration of his work is part and parcel of his work. To contract or dilate it would be to modify both the psychical evolution that fills it and the invention which is its goal. The time taken up by the invention is one with the invention itself. It is the progress of a thought which is changing in the degree and measure that it is taking form. It is a vital process, something like the ripening of an idea.

The painter is before his canvas, the colors are on the palette, the model is sitting—all this we see, and also we know the painter's style: do we foresee what will appear on the canvas? We possess the elements of the problem; we know in an abstract way, how it will be solved, for the portrait will surely resemble the model and will surely also resemble also the artist; but the concrete solution brings with it that unforeseeable nothing which is everything in a work of art. And it is this nothing that takes time. Nought as matter, it creates itself as form. The sprouting and flowering of this form are stretched out on an unshrinkable duration, which is one with their essence. So are the works of nature. Their novelty arises from an internal impetus which is progress or succession, which confers on succession a peculiar virtue or which owes to succession the whole of its virtue—which, at any rate, makes succession, or *continuity of interpenetration* in time, irreducible to a mere instantaneous juxtaposition in space. ... *Time is invention or it is nothing at all.*<sup>67</sup>

Bergson awards the work of art an organic ontology by acknowledging that the artist “creates a picture by drawing it from the depths of his soul.” One consequence of this recognition of the artwork's status as an empirical expression of the creative act is the philosopher's grasp of the significance of artistic process. The duration of a creative act “is not an interval that may be lengthened or shortened without the content being altered,” Bergson points out, since for the artist “to contract or dilate it would be to modify both the psychical evolution that fills it and the invention which is its goal.” Within the context of creative process “*the time taken up by the*

---

<sup>67</sup> Henri Bergson, *Creative Evolution* (1907; Trans. 1911) (New York: Cosimo Classics, 2005), 370-1.

*invention is one with the invention itself*,” because creativity itself “is a vital process, something like the ripening of an idea.” Bazin’s familiarity with this passage is palpable in his description of animation as an aesthetic form that “turns such a film into the evolution of the drawing itself or, more accurately, its metamorphosis”; “it is a germination, a budding; form engenders form without ever justifying its existence.”<sup>68</sup> Indeed Bergson’s phrasing in this moment of *Creative Evolution* clarifies the capacity of the work of art to function as a Bergsonian movement-image in its materialization of duration: “the sprouting and flowering of this form are stretched out on an unshrinkable duration, which is one with their essence.” Deleuze’s separation of the movement-image and the time-image into distinct stylistic categories ignores this fundamental status awarded to *time as movement* in Bergson’s phenomenology.

It is clear from *Creative Evolution*’s discussions of visual media that Bergson himself did not award film and photography the potential to function as Bergsonian movement-images. Yet there is a complexity at work in this philosopher’s encounter with visual media—one that Derrida circles by wondering what to make, in light of Bergson’s thematics, of “new possibilities of seeing inside the body and of taking photographic type images of it.”<sup>69</sup> My argument across this dissertation takes up this dimension of the question of Bergson’s significance, considered from the point of view of the technological possibilities of the digital paradigm. Contra Deleuze, my argument asserts the aesthetic significance of ‘cinema’s position at the outset.’ Bergson’s ideas about visual media were pitched at, and thus actually shaped by, nineteenth-century film

---

<sup>68</sup> The spectatorial effect of this aesthetic of movement is sketched by Bazin in the following way: “a pure and free metamorphosis that is at root the direct apprehension of the freedom of the mind, made visible through art.” Bazin, “A Bergsonian Film,” 214.

<sup>69</sup> Derrida, Amelunxen, and Wetzel, Copy, Archive, Signature, 36-7.

and photography, so that a deconstruction of the riddle of his contradictory judgments on imagistic movement requires a close examination of the films and photographs actually contemporary with his thought. It is this confrontation that the *Cinema* books evade, since Deleuze's theoretical framework is constructed upon an acceptance of Bergson's own designation of 'primitive' cinema as scientific.<sup>70</sup> Situating Bergson's concrete encounters with visual media within the broader framework of his phenomenology, however, reveals his locatedness in a technological *a priori* that, then as now, has profound epistemological implications for what is visible and articulable.

The art historian Georges Didi-Huberman has spoken of the vertigo that each reader of Bergson experiences—"a particularly shattering experience of thought"—when the "young philosopher" of *Matter and Memory* declares a refusal of systems in the following way:

[We] seek experience at its source, or rather above that decisive *turn* where, taking a basis in the direction of our utility, it becomes properly *human* experience. The relativity of knowledge may not, then, be definitive. By unmaking that which needs have made, we may restore to intuition its original purity and so recover contact with the real.<sup>71</sup>

The philosophical endeavor encapsulated within this statement is stunningly clear: it is a phenomenological metaphysics that seeks "experience at its source" in order "to restore to intuition its original purity and so *recover contact with the real*." This real is defined clearly in *Creative Evolution* (1907, trans. 1911): "the flux of time is reality itself, and the things which we

---

<sup>70</sup> Deleuze, *Cinema 1: The Movement-Image*, 3.

<sup>71</sup> Henri Bergson, "An Introduction to Metaphysics (1903; Trans. 1913)," in *The Creative Mind: An Introduction to Metaphysics* (1903) (New York: Dover, 1988), 184. "It is easy to imagine," Didi-Huberman writes, "on hearing such words, all the great founders of systems, from Plato to August Comte, furiously turning in their graves." Georges Didi-Huberman, "The Eye Opens, the Lamp Goes Out: Remarks on Bergson and Cinematography," in *Instruments in Art and Science: On the Architectonics of Cultural Boundaries in the 17th Century*, ed. Helmar Schramm, Ludger Schwarte, and Jan Lazardzig (Berlin & New York: Walter de Gruyter, 2008), 422.

study are the things which flow.”<sup>72</sup> The grounding concept of Bergson’s philosophy can thus also be summarized concisely: movement, experienced as time, is the phenomenological *a priori*. Though it is profoundly counterintuitive to the intellect, the temporal flux of movement is our experiential ground—life itself is movement, since movement is ground.

“His merit is obvious” Maurice Merleau-Ponty summarizes of the “profound thought of Bergson”; because “Bergson is one of those who seeks to find in the experience of the human what is at the limit of this experience, be it the natural thing or life,” “in opposition to every type of human operation, or every type of teleology.”<sup>73</sup> The Bergsonian project devotes itself to the task of “restor[ing] to intuition its original purity” through a methodological conjoining of theory and practice: by lacing metaphysics with a reference to the empiricism of concrete experience, and often to the empiricism of the scientific method. It is, in Bergson’s own characterization, a “metaphysic moulded on experience (whether exterior or interior); with an unpretentious philosophy determined to base itself on solid ground; with a doctrine that is in no sense systemic, that is not provided with an answer to every question.”<sup>74</sup> Indeed “an empiricism worthy of the name sees itself as obliged to make an absolutely new effort for each new object it studies” Bergson clarifies in “An Introduction of Metaphysics (1903; trans. 1913)” —the keynote essay of the important collection *The Creative Mind* (1933; trans. 1992)—because:

---

<sup>72</sup> Bergson, *Creative Evolution*, 374.

<sup>73</sup> Maurice Merleau-Ponty, *Nature: Course Notes from the Collège De France*, ed. Dominique Séglaard, trans. Robert Vallier (Evanston, Ill.: Northwestern University Press, 2003), 58.

<sup>74</sup> This letter to the editor of *Le Figaro* (7 March 1914) continues: “Each of my books has cost me several years of scientific research; and each of them issues in no vague generalities but in conclusions which are able to throw light on some one aspect of very special problems.” Cited in Keith Ansell Pearson and John Mullarkey, “Introduction,” in *Henri Bergson: Key Writings*, ed. Keith Ansell Pearson and John Mullarkey (London and New York: Continuum, 2002), 45.



It cuts for the object a concept appropriate to the object alone, a concept one can barely say is still a concept, since it applies only to that one thing. This empiricism does not proceed by combining ideas one already finds in stock... philosophy thus defined does not consist in choosing between concepts and taking sides with one school, but in seeking a unique intuition from which one can just as easily come down again to the various concepts, because one has placed oneself above the divisions of the schools.<sup>75</sup>

The central challenge of Bergson's philosophical endeavor involves the adequate conveyance of movement's status as the phenomenological *a priori*, because the pragmatics of life work against an uninhibited awareness of the real: "perception, intellection, language" all move us in the opposite direction.<sup>76</sup> It is in light of this fact that Bergson searches endlessly for concepts that will perform methodological work by illuminating the reality of movement *empirically*—"flexible, mobile, almost fluid representations always ready to mould themselves on the fleeting forms of intuition."<sup>77</sup> This highly imagistic formulation, offered elsewhere in "An Introduction to Metaphysics," circles the paradoxical status of the movement-image in Bergson's thought as an idea that emerged, in a sense, both *in* and *out* of time.

In a published letter to Delattre, both a nephew and a literary critic, Bergson points out that the novelist Samuel "Butler only uses images, comparisons, etc. to supplement or even simply to decorate the expression of his thought: he could, strictly speaking, do without it."

By contrast, in a book like *Creative Evolution* or *The Two Sources*, images are most often introduced because they are indispensable, as none of the existing concepts are able to *express* the thought of the author, and the author is thus obliged to *suggest* it. This suggestion can only be made by an image, but by an image which has not been chosen by

---

<sup>75</sup> Henri Bergson, "An Introduction to Metaphysics (1903; Trans. 1913)," *ibid.*, 147.

<sup>76</sup> *Creative Evolution*, 332. For "before philosophizing one must live; and life demands that we put on blinders, that we look neither to the right, nor to the left nor behind is, but straight ahead in the direction we have to go." "The Perception of Change (1920)," in *The Creative Mind: An Introduction to Metaphysics* (New York: Dover, 1988), 113.

<sup>77</sup> "An Introduction to Metaphysics (1903; Trans. 1913)," 141.

the philosopher, which presents itself independently as the sole means of communication, and imposes itself with absolute necessity.<sup>78</sup>

Here Bergson reveals an orientation to *thinking in images*: to an approach to philosophy conceived not in terms *of* images, but *with* images. These philosophical images are required to perform methodological work by “*express[ing]* the thought of the author” since no existing concepts are entirely adequate to the conveyance of the idea, “and the author is thus obliged to *suggest* it.” To think in Bergsonian images is to think in terms of highly concrete concepts—“a concept appropriate to the object alone, a concept one can barely say is still a concept, since it applies only to that one thing”—because the appropriate philosophical image is one that will impress itself on a reader with a kind of foreshortened directness: “*present[ing]* itself independently as the sole means of communication, and *impos[ing]* itself with absolute necessity.” In an effort to make his fundamental claim for movement more intuitive, for example, Bergson turns over and over again to two kinds of visual metaphors—the plastic and the technical image.<sup>79</sup>

The figure of the artist is a privileged Bergsonian image of human agency, and in references to art and creativity—typically involving painting, poetry, music, characters in novels—he tends to emphasize a sense of a liable, pervasive creative evolution. By comparison the image of ‘the machine,’ or of mechanism in general, is deployed to convey the reductions of abstract systems; and this idea is troped in technical images: ‘the cinematographic illusion,’ the kaleidoscope, the

---

<sup>78</sup> “Letter to G. Lechalas,” 369. In a translator’s note Melissa McMahon observes that Bergson is responding to the suggestion of a similarity between his work and that of “the English essayist and novelist Samuel Butler... Bergson begins his letter by claiming his complete ignorance of Butler prior to 1914, then gives his own account of Butler’s position and finally underlies what he sees as their crucial differences.” Keith Ansell Pearson and John Mullarkey, eds., *Henri Bergson: Key Writings* (London and New York: Continuum, 2002), 388.

<sup>79</sup> Bergson, *Creative Evolution*, 52.

unrolling of the film strip, serial photography, a mosaic, a puzzle, the slapstick comedian. Both plastic and technical images serve the purpose of philosophical illustration and intimate related—essentially two sides of the same coin. Their connection as alternative figures for a variously authentic or reduced intuition is captured, for example, in the Bergsonian dictum that “the more duration marks the living being with its imprint, *the more obviously the organism differs from a mere mechanism, over which duration glides without penetrating.*”<sup>80</sup> The tropes come together even more suggestively in an important passage in “The Perception of Change” (1911):

Suppose that instead of trying to rise above our perception of things we were to plunge into it for the purpose of deepening and widening it. We should obtain this time a philosophy where nothing in the data of the senses or the consciousness would be sacrificed: no quality, no aspect of the real would be substituted for the rest ostensibly to explain it.

It will be said that this enlarging is impossible. How can one ask the eyes of the body, or those of the mind, to see more than they see? Our attention can increase precision, clarify and intensify, it cannot bring forth in the field of perception what was not there in the first place. That’s the objection.—It is refuted in my opinion by experience. For hundreds of years, in fact, there have been men whose function has been precisely to see and to make us see what we do not naturally perceive. They are the artists.

What is the aim of art if not to show us, in nature and in the mind, outside of us and within us, things which did not explicitly strike our senses and our conscious? The poet and the novelist who express a mood certainly do not create it out of nothing; they would not be understood by us if we did not observe within ourselves, up to a certain point, what they say about others. As they speak, shades of emotion and thought appear to us which might long since have been brought about in us but remained invisible; *just like the*

---

<sup>80</sup> Creative Evolution, 42. My emphasis.

*photographic image which has not yet been plunged into the bath where it will be revealed.* The poet is this revealing agent.<sup>81</sup>

This passage indicates clearly that Bergson's demand of the artwork is the precise correlate of his demand of metaphysics: that it offer the human subject a framework by which to push past the exigencies of spatialized thinking. The role of the artist is to "enlarg[e]" for human perception things "which might long since have been brought about in us but remained invisible." Within the framework of a phenomenology for whom "the sense 'par excellence' is the sense of sight," the technical image provides a conveniently vernacular figure for the philosophical challenge posed by the fact that our "normal psychological life" is characterized by "a constant effort of the mind to limit its horizon, to turn away from what it has a material interest in *not* seeing."<sup>82</sup> Art, with philosophy, provides an anecdote to this perceptual utilitarianism when the artist acts as a "revealing agent" by rendering aesthetically visible what was previously imperceptible, "*just like the photographic image which has which has not yet been plunged into the bath where it will be revealed.*" Here the technical image is a figure for the artist's role in materializing what is phenomenologically real and material, but that still eludes the normative frameworks of human perception. This conception of the artwork is not grounded

---

<sup>81</sup> This passage offering a series of important references to specific artists: "But nowhere is the function of the artist shown as clearly as in that art which gives the most important place to imitation, I mean painting. The great painters are men who possess a certain vision of things which has or will become the vision of all men. A Corot, a Turner,—not to mention others—has seen in nature many an aspect which we did not notice. Shall it be said that they have not seen but created, that they have given us products of their imagination, that we adopt their inventions because we like them and that we get pleasure from looking at nature through the image the great painters have traced for us? It is true to a certain extent; but, if it were only that, why should we say of certain works—those of the masters—that they are true? Where would the difference be between great art and pure fancy? If we reflect deeply upon what we feel as we look at a Turner or a Corot, we shall find that, if we accept them and admire them, it is because we had already perceived something of what they show us. But we had pierced without seeing. It was, for us, a brilliant and vanishing vision, lost in the crowd of those visions, equally brilliant and equally vanishing, which became overcome in our ordinary experience like "dissolving views" and which constitute, by their reciprocal interference, the pale and colorless vision of things that is habitually ours. The painter has isolated it; he has fixed it so well on the canvas that henceforth we shall not be able to help seeing in reality what he himself saw." "The Perception of Change (1920)," 111-3. My emphasis.

<sup>82</sup> "The Perception of Change," 120. My emphasis.

in an idea of medium, so much as in the valorization of the artist's power to open up "a much more direct vision of reality"—the authentic work of art arises from the capacity of the artist to free perception "from the contraction that it is accustomed to by the demands of life."<sup>83</sup> In this declaration Bergson gives a wholly classical aesthetic idea a new phenomenological ground, by positing a intrinsic connection between *durée* and artistic process.<sup>84</sup> Art is a non-utilitarian, perceptually posited expression of the incommensurability, a way to "expand our vision of things," for the artist reveals duration *intuitively*.<sup>85</sup> Within the Bergsonian framework, then, life is creative and art is as incommensurable as life; so that aesthetics can be conceived as an empirical expression of metaphysics.<sup>86</sup>

"If we consider, from our point of view, the things of nature," he notes elsewhere, "the thing we find most striking about them is their beauty." And this perception:

is more and more accentuated as nature goes from the inorganic up to the organic, from plant to the animal, and from the animal to man. Therefore, the more intense the work of nature, the more beautiful is its product. That is to say that, if beauty were to reveal to us its secret, we should penetrate through it into the very intimacy of nature's work. But will it reveal it? Perhaps,—that is, if we consider that beauty itself is only an effect, and if we go back to the cause. Beauty belongs to form, and all form has its origins in a movement which outlines it: form is only recorded movement.<sup>87</sup>

---

<sup>83</sup> "The Perception of Change," 115.

<sup>84</sup> This entirely classical idea of aesthetics is articulated, for example, in the famous Shakespearean discourse on the arts in *A Midsummer Night's Dream*: "The poet's eye, in fine frenzy rolling, / doth glance from heaven to earth, from earth to heaven; / and as imagination bodies forth / *the forms of things unknown*, the poet's pen / *turns them to shapes and gives to airy nothing / a local habitation and a name*." William Shakespeare, *A Midsummer Night's Dream*, ed. Peter Holland, Oxford Shakespeare (Oxford & New York: Oxford University Press, 1994), 260. My emphasis.

<sup>85</sup> Bergson, "The Perception of Change (1920)," 111. "An infinity of elements infinitely small, presenting an infinity of shades, would be necessary to obtain the exact equivalent of the figure that the artist has conceived as a simple thing, which he has wished to transport as a whole to the canvas, and which is the more complete the more it strikes us as the projection of an indivisible duration." *Creative Evolution*, 100.

<sup>86</sup> "The Perception of Change," 115.

<sup>87</sup> "The Life and Work of Ravaillon," 207-8.



Figure 0.21: Jean-Baptiste-Camille Corot, *The Four Times of Day: Morning, Noon, Evening, and Night*. c.1858. Oil on wood. 142.2 x 72.3: x 62.2: 72.3: and x 64.7 cm. Collection of The National Gallery, London.



Figure 0.22: Joseph Mallord William Turner, *Seascape with Distant Coast*. c.1840. Oil on canvas. 91.4 x 121.9 cm. Collection of Tate Gallery, London.





Figure 0.23: Auguste Rodin, *Two Hands*. Modeled before 1909; cast 1925. Bronze. 45.7 x 53 x 32.4 cm. Collection of Musée Rodin, Paris.

The concatenation of this argument is suggestive in proposing that the perception of beauty is intrinsically connected to a perception of organic life. If beauty seems “more and more accentuated as nature goes from the inorganic up to the organic,” the variation is directly correlated to the endowment of plants, animals and humans each with the sense of organic life: “*the more intense the work of nature, the more beautiful is its product.*” Yet to locate the ontology of beauty itself in Nature is to submit to a fallacy. Within the logic of a Bergsonian framework, the perception of beauty is always related to the perception of a movement, so that we cannot assume that “if beauty were to reveal to us its secret, we should penetrate through it into the very intimacy of nature’s work.” Rather, “beauty belongs to form, and *all form has its origins in a movement which outlines it*: form is only recorded movement.” The perception of beauty is the effect of the intuition of a movement in the form “which outlines it”; and this intuitive trope of movement clarifies Bergson’s refusal of a received philosophical distinction between natural and aesthetic beauty.

Yet Bergson never loses sight of the the mechanistic system, so that the technical image remains an important figure for all that mechanism obscures:

Art lives on creation and implies a latent belief in the spontaneity of nature. But disinterested art is a luxury; like pure speculation. Long before being artists, we are artisans.<sup>88</sup>

If the plastic image is the figure of “disinterested art”—pure perception—the technical image figures our everyday, ‘artisanal’ perceptual labor. If the plastic image is a metaphysical trope, the function of the technical image is to impress upon the reader the sheer weight of all that stands in the way of a direct vision of the real. As such, the Bergson of *Creative Evolution* notes

---

<sup>88</sup> *Creative Evolution*, 52. My emphasis.



that “we may then sum up what we have been saying” by stating that “*the mechanism of our ordinary knowledge is of a cinematographical kind,*” because the ‘mechanism’ of ordinary perception involves:

extracting from all the movements peculiar to all the figures an impersonal movement abstract and simple, movement in general, so to speak: we put this into the apparatus, and we reconstruct the individuality of each particular movement by combining this nameless movement with the personal attitudes. Such is the contrivance of the cinematograph. And such is also that of our knowledge.<sup>89</sup>

The argument of this passage, in its refusal of the “contrivance of the cinematograph,” has been understood as an injunction against cinema. And indeed the trope of ‘the cinematographic illusion’ is virtually incomprehensible as a Bergsonian philosophical image: one that will expound its idea effortlessly, because posed in “a language [the philosopher] created for it, where the fluidity of the images allows the naked idea to show through, where the abstractions come alive and live.”<sup>90</sup> “Everyday things sometimes impose visual metaphors upon us” the musicologist Vladimir Jankélévitch has written, “and Bergson himself had no qualms about differentiating between the ‘superficial’ self and the ‘deep’ self.”<sup>91</sup> Yet one must also recognize that these things are also “visual metaphors,” “a way of speaking”; because “*only* an awareness that a way of speaking is, simply, a way of speaking can keep us honest.”<sup>92</sup> Deleuze’s paradigmatic re-reading did not, however, preserve a sense of these critical—and in a strong sense, *literary*—distinctions.

---

<sup>89</sup> Creative Evolution, 332.

<sup>90</sup> "The Life and Work of Ravaissou (1904)," 189.

<sup>91</sup> Vladimir Jankélévitch, *Music and the Ineffable*, trans. Carolyn Abbate (Princeton, N.J.: Princeton University Press, c2003), 15.

<sup>92</sup> Ibid.

Bellour writes of Deleuze effecting a kind of transfiguration of film studies—“because he took up these difficult questions of movement and time at their very foundations, and because he spoke better than anyone else of the formal and historical breaks that little by little composed a cinema of visible time and one particular destiny of modern and contemporary film.”<sup>93</sup> My own argument works in aftermath of Deleuze’s powerful claim for the correlation between the aesthetics of cinema and the Bergsonian aesthetics of movement. Yet no disciplinary assessment of the *Cinema* books that grants significance to the concrete history of visual media can avoid an acknowledgement of the distinction between, “on the one hand, Deleuze’s energetic, objectivizing view,” and the reality, on the other, of “*everything that it excludes*.”<sup>94</sup> Paradoxically, the *Cinema* books can be said to have retained what is *least* pertinent about Bergson’s preoccupation with technical images.

For even if cinema can be justifiably characterized as “the last descendant” in a lineage of scientific devices, the aesthetic experience of the projected film cannot be contained by the category of scientific experiment. The Bergson of *Creative Evolution* responds to cinema as a wholly scientific system by reading the *filmstrip* as if it were a series of nineteenth-century photographs. “In fact,” as Didi-Huberman puts it, “Bergson seems to have refuted the cinema as someone who holds a piece of film in their hands where movement is reduced to the ‘immobile sections’ of a photogram, as opposed to projected film—what Deleuze names, in contrast, ‘mobile sections.’”<sup>95</sup> Far more adequate to the cinema’s imaginative history (in both science and

---

<sup>93</sup> This is because, Bellour writes, Deleuze “took up these difficult questions of movement and time at their very foundations, and because he spoke better than anyone else of the formal and historical breaks that little by little composed a cinema of visible time and one particular destiny of modern and contemporary film.” Bellour, “The Film Stilled (1987),” 154.

<sup>94</sup> “The Film Stilled (1987),” 155. My emphasis.

<sup>95</sup> Didi-Huberman, “The Eye Opens, the Lamp Goes Out: Remarks on Bergson and Cinematography,” 428.

in art) is Bazin's counterposing claim that "cinema is an *idealistic* phenomenon" owing "virtually nothing to the scientific spirit."<sup>96</sup> Deleuze's hesitation over the categorization of the cartoon film tells us that he worked far too too literally the philosophical image of cinema proffered by *Creative Evolution*. Drawing from this particular characterization an entire working methodology, he ends up with a definition of his ostensible object that cannot see that object clearly, either descriptively or historically.

This dissertation strives to unpin Bergson from Deleuzian frameworks, and as such its argument circumvents the *Cinema* books almost entirely. Re-thinking Bergson's deployment of the technical image as, in an important way, a "visual metaphor" and "a way of speaking" allows my argument to foreground, as a methodological predicate, the question of the technical image's constructive place in the unfolding of Bergson's thought.<sup>97</sup> More fundamentally, an effort to deconstruct the Bergson imaged by the *Cinema* books through the framework of Foucauldian archeology allows a reading Bergson on his own terms and, simultaneously, an reencounter with the latencies still embedded in his thought.

### On Method: The Visible and the Articuable

Speaking in a period following Foucault's death, and of the implications of his methodology, Deleuze describes the relation between archeology and history in the following way:

What Foucault takes from History is that determination of visible and articulable features unique to each age which goes beyond any behavior, mentality or set of ideas, since it makes these things possible. ... Foucault continued to be fascinated by what he saw as

---

<sup>96</sup> André Bazin, "The Myth of Total Cinema," in *What Is Cinema?* Vol 1, ed. Dudley Andrew; Foreword by Jean Renoir (Berkeley and Los Angeles: University of California Press, 1967, 2005), 17. My emphasis.

<sup>97</sup> Jankélévitch, *Music and the Ineffable*, 15.

much as by what he heard or read, and the archeology he conceived of is an audiovisual archive.<sup>98</sup>

What is circled by this statement concerns, on the one hand, a dimension of the tacitly seeable that Foucault himself refers to as the “*perfectly visible*.”<sup>99</sup> This almost tactile sense of visibility is expressed in the priority granted to the image across the range of Foucault’s thought—as in, for example, the stylistic concreteness with which the formation of a concept of ‘insanity’ is figured as material emergence in *Madness and Civilization*’s (trans., abridged 1964) description of “the sudden bursts of life, the random gestures and words, the *wind of madness* that suddenly breaks lines, shatters attitudes, rumples draperies.”<sup>100</sup> But in its intersection with the method of archeology, what Foucault designates by ‘the visible’ takes on a more fundamental cast.

“Foucault did not believe that there can be an epistemologically useful theory of truth divorced from the variable historical conditions under which statements become candidates for the status of truth” the philosopher Arnold Davidson has written in an exegetical analysis that attempts to clarify Foucault’s grounding concern with showing “the possibilities to which our distinct historical periods bind us.”<sup>101</sup> In a succinct parallel summary the historian Paul Veyne observes

---

<sup>98</sup> Gilles Deleuze, Foucault, trans. Séan Hand (Minneapolis: University of Minnesota Press, 1988), 49, 50.

<sup>99</sup> “The painter, on the other hand, is *perfectly visible*” Foucault writes in *The Order of Things*: “his full height; or at any rate, he is not masked by the tall canvas which may soon absorb him... His dark torso and bright face are half-way between the visible and the invisible.” Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1994), 3. My emphasis.

<sup>100</sup> *Madness and Civilization: A History of Insanity in the Age of Reason*, trans. Richard Howard (London: Routledge, 2004), 30.

<sup>101</sup> Arnold Davidson, “Styles of Reasoning: From the History of Art to the Epistemology of Science,” in *The Emergence of Sexuality: Historical Epistemology and the Formation of Concepts* (Cambridge, Mass.: Harvard University Press, 2001), 128, 33. My emphasis.

that “the originality of Foucault's research is that it works on truth in the context of time.”<sup>102</sup>

Key to this conception of history as a set of conditions under which, at a given time, some things and not others are seeable and speakable is the significance and particular meaning Foucault awards to the twin concepts of ‘the visible’ and ‘the articulable.’

“An ‘age’ does not pre-exist the statements which express it, nor the visibilities which fill it” Deleuze explains, because an ‘age’ is constituted on the basis of those statements and visibilities.<sup>103</sup> To speak of what is ‘visible’ and ‘articulable’ in the context of the archeology is thus to grasp Foucault’s deployment of these terms as designating an epistemological possibility. The “visible and articulable features unique to each age” are the mark of a perspectivalism that cannot be transcended in the quest for subterranean depth.<sup>104</sup> This is because, and in Deleuze’s characterization, “Foucault’s key historical principal is that any historical formation says all it can say and sees all it can see.”<sup>105</sup> “What I’m looking for are not relations that are secret, hidden, more silent or deeper than the consciousness of men” Foucault himself clarifies; “I try on the contrary to define the relations on the very surface of discourse; I attempt to make visible what is

---

<sup>102</sup> Paul Veyne, *Foucault: His Thought, His Character* (Cambridge; Malden, MA: Polity, 2010), 14, 21. Veyne writes that Foucauldian archeology shows us how “in every age, contemporaries are...trapped in ‘discourses’ as if in a deceptively transparent glass bowl, unaware of what those glass bowls are and even that they are there. False generalities and ‘discourses’ vary from age to age. But in every period they are taken to be true. In this way, truth is reduced to *telling the truth*, to saying whatever confirms with what is accepted as the truth, even though this will make people smile a century later.” Veyne also calls this ‘glass bowl’ the *dispositif*, a word he translates as “the set-up.” The archeologist wants to put his finger on past ‘set-ups,’ the now-opaque forms of tacit knowledge, Veyne writes, and to do so “he takes history as his starting point and selects from it samples (madness, punishment, sex) in order to make explicit the underlying ‘discourse’ and infer from this an empirical anthropology.” *Foucault: His Thought, His Character* (Cambridge; Malden, MA: Polity, 2010), 14, 9, 15. See also Veyne’s classic essay “Foucault Revolutionizes History,” in *Foucault and His Interlocutors*, ed. Arnold Ira Davidson (Chicago: University of Chicago Press, 1997).

<sup>103</sup> Deleuze and Eribon, “Life as a Work of Art,” 96.

<sup>104</sup> Deleuze, *Foucault*, 49.

<sup>105</sup> *Ibid.* Deleuze and Eribon, “Life as a Work of Art,” 96.

invisible only because it's too much on the surface of things.”<sup>106</sup> The archeological claim “I would like to reveal a descriptive possibility” consequently circles commitment to *inductive* process enacted through “the intrinsic description of the monument.”<sup>107</sup> Within the terms of this method the contents of the historical archive are not to be interrogated for “what they are hiding, what they are ‘really’ saying, inspite of themselves,” but approached as singular utterances capable of yielding positive information as to “their mode of existence, what it means to them to have come into existence, to have left traces, and perhaps to remain there, awaiting the moment when they might be of use once more.”<sup>108</sup> Deleuze points out that what is implicit—and sometimes missed—about the archeological method is that “historical formations interest [Foucault] only because they mark where we come from, what circumscribes us, what we’re in the process of breaking out.”<sup>109</sup> At the same time this method is enacted on the basis of historical artifacts, because the archeologist turns to history for material for re-mediation.

This last fact is made plain by an important passage in *The Archeology of Knowledge* (1969; trans. 1972) in which Foucault offers the following methodological clarification:

The analysis of the archive involves a privileged region: at once close to us, and different from our present existence, it is the border of time that surrounds our presence, which overhangs it, and which indicates it in its otherness; it is that which, outside ourselves, delimits us. The description of the archive deploys its possibilities (and the mastery of its possibilities) on the basis of the very discourses that have just ceased to be ours; its threshold of existence is established by the discontinuity that separates us from what we can no longer say, and from that which falls outside our discursive practice; it begins with

---

<sup>106</sup> Michel Foucault, "The Archeology of Knowledge," in *Foucault Live: (Interviews, 1961-1984)*, ed. Sylvère Lotringer (New York, N.Y.: Semiotexte, 1969), 57-8. My emphasis.

<sup>107</sup> *The Archaeology of Knowledge; and, the Discourse on Language*, trans. A.M. Sheridan Smith (New York: Pantheon Books, c1972), 108, 7.

<sup>108</sup> *The Archaeology of Knowledge; and, the Discourse on Language*, trans. A.M. Sheridan Smith (New York: Pantheon Books, c1972), 109.

<sup>109</sup> Deleuze and Eribon, "Life as a Work of Art," 95.

the outside of our own language (langue); its locus is the gap between our own discursive practices.<sup>110</sup>

The archeologist proceeds by activating this rare “privileged region”: “the border of time that surrounds our presence” and “overhangs it”; “that which, outside ourselves, *delimits us*.” The significance of these liminal “discourses that have *just ceased to be ours*” lies in their status as a pivot point between the historically tacit and the historically alien. What is implied here is the possibility of a separation from “our present existence” and a distantiated perspective on “our discursive practice”—the possibility, that is to say, of moving “outside of our own language” on the basis of those discontinuities and gaps which separate us “from what we can no longer say.” In Deleuze’s words, Foucault’s method provides us with a vision of history as “what separates us from ourselves and what we have to go *through and beyond* in order to think what we are.”<sup>111</sup> The utopianism of this way of conceiving the historically bound character of the ‘visible’ and ‘articulable’ is conveyed in the Benjaminian cast of this Foucauldian question about perception:

how does it happen that at a given period something could be said and something else has never been said?<sup>112</sup>

In proximity to Velázquez’s *Las Meninas* (1656), for example, Foucault’s visual gesticulations seem to suggest that it is only by acts of repeated close attention—sustained absorption, and an interplay of careful reading, looking, hearing, touching and feeling—that we can ever really begin to discern the fact of a potent multiplicity to our sense experience before it is routed into

---

<sup>110</sup> Foucault, *Archaeology of Knowledge*, 130-1.

<sup>111</sup> Deleuze and Eribon, “Life as a Work of Art,” 95. My emphasis. Elsewhere Deleuze continues: “Thinking is always experiencing, experimenting, not interpreting but experimenting, and what we experience, experiment with, is always actuality, what’s coming into being, what’s new, what’s taking shape. History isn’t experimentation, its only a set of conditions, negative conditions almost, that make it possible to experience, experiment with, sometimes beyond history. Without history the experiments would remain indeterminate, divorced from any particular conditions, but the experimentation itself is philosophical rather than historical.” Gilles Deleuze and Claire Parnet, “A Portrait of Foucault,” *ibid.*, ed. Paul Rabinow, 106.

<sup>112</sup> Foucault, “The Birth of a World,” 66.

the shaping domain of the hermeneutic by means of perception and cognition. Appreciating that this multi-form potentiality of sense provides the phenomenological ground for our ways of knowing the world at their most distilled crux is the necessary *a priori* if we are to really see our way to understanding what feature of the structural composition of knowledge Foucault means to render visible in this declaration: “there are thus two centers around which the picture may be organized, according to whether the fluttering attention of the spectator decides to settle in this place or in that.”<sup>113</sup> A historical delimitation of the visible and articulable is manifested in the ‘machinery’ of perceptual composition that directs the beholder’s gaze toward certain details and not others—a constructed, and therefore fundamentally epistemological way of seeing that Foucault deconstructs by looking at a figurative painting over and over again. Working with the Deleuzian figure of the ‘audiovisual archive,’ we can say that Foucault’s innovation is to set the terms for a conception of history itself as an audiovisual possibility.

What the method of archeology offers to media studies, then, as is a way to name the determining experiential effects of a technological paradigm without ceding experience itself to technological determination. This Foucauldian inflection is powerfully illustrated in the following description of the sociality of technology in *Discipline and Punish* (1975; trans. 1977):

Taken one by one, most of these techniques have a long history behind them. But what is new, in the eighteenth century, was that, by being combined and generalized, they attained a level at which the formation of knowledge and the increase of power regularly reinforced one another in a circular process. At this point, the disciplines crossed the ‘technological’ threshold. First the hospital, then the school, then, later, the workshop were not simply ‘reordered’ by the disciplines; they became, thanks to them, apparatuses such that any mechanism of objectification could be used in them as an instrument of subjection, and any growth of power could give rise in them to possible branches of

---

<sup>113</sup> The Order of Things, 13.



knowledge; it was this link, proper to technological systems, that made possible within the disciplinary element the formation of clinical medicine, psychiatry, child psychology, educational psychology, the rationalization of labour. It is a double process, then: an epistemological ‘thaw’ through a refinement of power relations; a multiplication of the effects of power through the formation and accumulation of new forms of knowledge.<sup>114</sup>

Here the panoptic schema is seen as becoming functional when “the disciplines crossed the ‘technological’ threshold”: that is, when “by being combined and generalized, they attained a level at which the formation of knowledge and the increase of power *regularly reinforced one another in a circular process*.” In this moment the apparatus’ constitutive elements were not merely “reordered,” but instead redeployed as mechanisms *of the apparatus*. Foucault understands panopticism as a *dispositif*: a social technology for habituation and habitation. As such, it is capable of using the local apparatuses at its disposal, “such that any mechanism of objectification could be used *in them* as an instrument of subjection, and any growth of power could give rise *in them* to possible branches of knowledge.”

For Foucault “the machines are social before being technical,” Deleuze notes—“or, rather, there is a human technology which exists before a material technology.”<sup>115</sup> At the same time, the panoptic *dispositif* is understood to come into itself as a “pure architectural and optical system” only *after* breaching the “‘technological’ threshold” representing by its own functioning as a social network. The network aesthetics implied by this reinforcing circulation of power is a characteristic “proper to technological systems”: a “double process” enacted as a grand social loop, in which “knowledge follows the advances of power, discovering new objects of

---

<sup>114</sup> Discipline and Punish: The Birth of the Prison (New York: Vintage Books, 1995), 224.

<sup>115</sup> Deleuze, Foucault, 39. See also Raymond Williams, Television: Technology and Cultural Form (London: Fontana, 1974).

knowledge over all the surfaces on which power is exercised.”<sup>116</sup> This looping technicity is manifested as the capacity to become mutual with the grain of daily experience; because the *dispositif* reinforces itself in an oscillation between micro and macro levels, spreading through the discrete apparatuses into “the dust of events, actions, behavior, opinions... the most elementary particle, the most passing phenomenon... the infinitely small of political power.”<sup>117</sup> What is emphasized in the literary quality of this conceptual framing is the porousness of the *dispositif* to forms of life—its capacity to be enacted across the field of experience in an easy syncopation between the structural and the very small. It is this dimension of scale that endows the *dispositif* with its most characteristic aspect of difficult-to-grasp, transparent ubiquity. And in a social situation where the historical *a priori* is a technological *a priori*, this transparent ubiquity becomes the technological interface articulated as the tacit ground of everyday experience.

### Disciplinary Vicissitudes: Media Studies, Media Aesthetics

*Gramophone, Film, Typewriter* (1986) opens with the declaration that “media determine our situation, which—in spite or because of it—deserves a description.”<sup>118</sup> Friedrich Kittler frames the intervention implicit in his influential archeology of devices as a supplement to and corrective of the Foucauldian project, as mapped across the major “experience-books.”<sup>119</sup> This critique is particularly directed at Foucault’s central methodological principals of ‘the historical a

---

<sup>116</sup> Foucault, *Discipline and Punish*, 202.

<sup>117</sup> *Discipline and Punish*, 211.

<sup>118</sup> Kittler, *Gramophone, Film, Typewriter*, xxxix.

<sup>119</sup> Michel Foucault, “How an ‘Experience-Book’ Is Born,” in *Remarks on Marx: Conversations with Duccio Trombadori* (New York: Semiotext(e), 1991).

priori' and 'the archive,' which Kittler understands to be insensitive to the mediality of archival inscription.

"Foucault, the last historian or first archeologist, merely had to look things up" he observes in *Gramophone's* introduction, because "the suspicion that all power emanates from and returns to archives could be brilliantly confirmed, at least within the realms of law, medicine, and theology."<sup>120</sup> The problem, from the point of view of the media critic, is that "even writing itself, before it ends up in libraries, is a communication medium, the technology of which which the archeologist simply forgot."<sup>121</sup> This characterization of Foucault as basically unconcerned with assessing technological mediation leads to the judgement that "discourse analysis cannot be applied to sound archives or towers of film rolls"; or at least not without modification. Simply put, Kittler understands the Foucauldian method to have been un-self-consciously predicated on an analysis of archives that "stored writing—no more or no less."<sup>122</sup>

Kittler himself opened media studies up to another direction. "No contemporary critic has done more than Friedrich Kittler to turn theory on to technology" Mark Hansen summarizes, because "for Kittler, technologies—specifically, media technologies—furnish the background for our contemporary forms of knowledge production; by mediating our experience of space and time, they comprise materially embodied and historically concrete versions of the Kantian forms of

---

<sup>120</sup> Kittler, *Gramophone, Film, Typewriter*, 5.

<sup>121</sup> *Ibid.*

<sup>122</sup> Kittler writes: "As long as it was moving along, history was indeed Foucault's 'wave-like succession of words.' More simply, but no less technically than tomorrow's fiber optic cables, writing functioned as a universal medium—in time where there was no concept of medium. Whatever else was going on dropped through the filter of letters or ideograms." *Gramophone, Film, Typewriter*, 7, 5-6.

intuition.”<sup>123</sup> To this end *Gramophone* builds on a previously established concept of ‘discourse networks’—a “‘Foucauldian’ analysis of historically contingent rules and regulations”—to offer an ‘archeology’ of the devices Kittler sees as constitutive for the construction of experience in the nineteenth- and twentieth- centuries. At the heart of this argument is a description of the passing away of McLuhan’s ‘the Gutenberg Galaxy’ as the dominant social media, as the adjunct to the rise of technical devices and their new vernacular of audiovisual inscriptions. It is in this context that *Gramophone* puts forward the following diagnostic on the nature of the experiential revolution triggered by ‘the media age’:

Before the end, something is coming to an end. The general digitization of channels and information erases the differences among individual media. Sound and image, voice and text are reduced to surface effects, known to customers as interface. Sense and sense turn to eyewash...Inside the computers themselves everything becomes a number: a quantity without image, sound, or voice. And once optical fiber networks turn formerly distinct data flows into a standardized series of digital numbers, any medium can be translated into any other. With numbers, everything goes. Modulation, transformation, synchronization; delay, storage, transportation; scrambling, scanning, mapping—a total media link on a digital base will erase the very concept of medium.<sup>124</sup>

Kittler views concrete visual media as visiting a carnivorous annihilation on our sense-perceptual experience—in his account optical media override our senses, rather than enlarging or extending them in new directions, so that mediated experience becomes a form of diminished experience: “Before the end, something is coming to an end.”<sup>125</sup> “Technical media...were developed strategically to override the senses” he summarizes in the collection of late essays titled *Optical Media* (2002; trans. 2010), so that “if they impinge upon our senses at all like film

---

<sup>123</sup> Mark B. N. Hansen, *Embodying Technesis: Technology Beyond Writing* (Ann Arbor: University of Michigan Press, 2000), 220-1.

<sup>124</sup> Kittler, *Gramophone, Film, Typewriter*, 1-2.

<sup>125</sup> *Ibid.*

or television, it is completely justified to conceive of them as enemies (and without the cultural pessimism that Horkheimer and Adorno's chapter on radio and film in *Dialectic of Enlightenment* made fashionable)."<sup>126</sup> This judgement has had the odd effect of bestowing the anti-technological basis of Horkheimer and Adorno's *Dialectic of Enlightenment* (1944; trans. 1972) with a long afterlife, if one marked by a significant twist. Kittler recodes Adorno and Horkheimer's pessimism about the culture industry into a bias against experience; and within the context of a declaration of the end of experience, also declares the end of *aesthetic* experience:

On December 6, 1877, Edison, lord of the first research laboratory in the history of technology, presented the prototype of the phonograph to the public. ... Three years later, the Lumière brothers in France and the Skladanowsky brothers in Germany merely had to add a means of projection to turn Edison's invention into cinema.

Ever since that epochal change we have been in possession of storage technologies that can record and reproduce the very time flow of acoustic and optical data. Eyes and ears have become autonomous. And that changed the state of reality more than lithography and photography, which (according to Benjamin's thesis) in the first third of the nineteenth century merely propelled the work of art into the age of its technical reproducibility. Media "define what really is"; they are always already beyond aesthetics.<sup>127</sup>

This refusal of the viability of an aesthetics of new media at a foundational discursive level—"media 'define what really is'; they are always already beyond aesthetics"—finds an echo in the also-influential work of Lev Manovich. In *The Language of New Media* (2001) Manovich observes that "*aesthetics* implies a set of oppositions that I would like to avoid—between art and mass culture, the beautiful and the ugly, the valuable and the unimportant"; while "*poetics* also bears undesirable connotations."<sup>128</sup> Both Kittler and Manovich postulate mediated experience (particularly when digital) as existing in a sensate realm somehow outside the reach of discursive

---

<sup>126</sup> Optical Media: Berlin Lectures 1999 (Cambridge, UK; Malden, MA: Polity Press, 2010), 36.

<sup>127</sup> Gramophone, Film, Typewriter, 3.

<sup>128</sup> Lev Manovich, *The Language of New Media*, Leonardo (Cambridge, Mass.: MIT Press, 2002), 12.

analysis (particularly when that discourse is concerned with aesthetics): “in contrast to the arts,” Kittler writes, “media do not have to made do with the grid of the symbolic.”<sup>129</sup> As a result, they fervently repudiate the viability of a phenomenologically coherent conception of media aesthetics. This tendency of media critics to denigrate media aesthetics has produced a second odd alignment: an argumentative sympathy within media studies with the views of *anti-*technological cultural critics, who have tended to describe mediated experience as diminished, anti-aesthetic, and a-political, if not the outright mechanism of a control society.<sup>130</sup>

On the one hand, it is worth acknowledging that Kittler’s tone in *Gramophone* is polemical; and that this text’s tendency for overstatement reflects its author’s fundamental disinterest in excavating the lived consequences of his chosen devices beyond their implications for the overthrowing of the Gutenberg Galaxy. Yet this indifference to the question of media’s experiential ramifications generates an serious intellectual blindspot. The declaration, for example, that audiovisual technologies “not only subvert writing, but ... *render their own own description impossible*,” for example, cedes the experiential ground of mediation to a rhetorical annihilation, and in this produces a critical dead end.<sup>131</sup> And where *Gramophone* observes with real prescience that “the general digitization of channels and information erases the differences among individual media,” the potential play of this insight is immediately reduced to an un-useful absolutism when Kittler concludes that under such conditions “sense and sense turn to eyewash.”<sup>132</sup> In his blithe willingness to liquidate the spectatorial interface between image,

---

<sup>129</sup> Kittler, *Gramophone, Film, Typewriter*, 11.

<sup>130</sup> C.f. Theodor W. Adorno and Max Horkheimer, *Dialectic of Enlightenment: Philosophical Fragments*, ed. Gunzelin Schmid Noerr, trans. Edmund Jephcott (Stanford, Calif.: Stanford University Press, 1944, 2002).

<sup>131</sup> Kittler, *Gramophone, Film, Typewriter*, xxxix. My emphasis.

<sup>132</sup> *Gramophone, Film, Typewriter*, 1.

subject, and setting, Kittler actually represses the phenomenology of mediated experience. *Gramophone's* succinct opening claim can thus be said to mask another problem of description.

In a world in which the apparatus has assumed the operative scale of a general condition of social experience, there is room for critical pathways capable of describing the determining effects of mediation while refraining from annihilating the perceptual grounds of mediated experience itself. This dissertation's response to the discursive refusal of media aesthetics within media studies is methodological: an effort to read Foucault against Kittler, *after* Kittler.

The question of whether Foucault's archeology could be adapted to fit the task of media archeology has been asked before in the discipline, with hedged responses.<sup>133</sup> Yet media studies in Germany and the United States has been significantly influenced by Kittler's suggestion that Foucault's project lacks a serious account of technology. Kittlerian critics, for example, have understood *Gramophone* to set a post-Foucaultian theoretical possibility into motion for media studies by "pull[ing] discourse analysis off its textual and discursive head and set[ting] it on its media-technological feet."<sup>134</sup> In their introduction to the book's English translation, Geoffery Winthrop-Young and Michael Wutz reiterate the claim that Foucault that "neither reflect[ed] on the mediality of the discourses practices he analyzed nor [went] beyond the confines of the Gutenberg Galaxy," so that:

where Foucault's archives are based on the hegemony of written language, on the silent assumption that print is the primary (if not the only) carrier of signification, Kittler's

---

<sup>133</sup> See particularly D.N. Rodowick, *Reading the Figural, or, Philosophy after the New Media* (Durham: Duke University Press, 2001).

<sup>134</sup> Geoffery Winthrop-Young and Michael Wutz, "Translators' Introduction," in *Gramophone, Film, Typewriter* (Stanford, Calif.: Stanford University Press, 1999), xxii.

archeology of the present seeks to include the technological storage and communication media of the post-print age(s).<sup>135</sup>

*Gramophone*'s attention to "the technological storage and communication media of the post-print age" has done much to establish the disciplinary conditions of possibility for a phenomenological approach to media studies.<sup>136</sup> Yet in the aftermath of a disciplinary paradigm shift partly triggered by Kittler's ground-breaking attention to the materiality of the technological real, media studies must grapple with the limitations of the Kittlerian project for an analysis of the technological present.<sup>137</sup> Far from constituting a critical dead end, a concrete description of "our media-controlled senses" *after* the general digitization of media is a starting point for an engagement with the ramifications of the digital erasure of "the differences among individual media."<sup>138</sup> A methodological indifference to the question of spectatorship leads Kittler's archeology of devices toward an account of mediation that strives constantly, in the words of Jacques Rancière, to "erase the genealogy that renders our 'images' material and conceivable; erase the characteristics that lead to something in our time being experienced by us as art." It is in response to this discursive erasure that this dissertation attempts to reverse Kittler's terms through a methodological enactment of media archeology as an archeology of knowledge.

---

<sup>135</sup> "Translators' Introduction," in *Gramophone, Film, Typewriter* (Stanford, Calif.: Stanford University Press, 1999), xx.

<sup>136</sup> Kittler, *Gramophone, Film, Typewriter*, xxxix.

<sup>137</sup> Jacques Rancière, *The Future of the Image*, trans. Gregory Elliott (London & New York: Verso, 2007), 15.

<sup>138</sup> *Gramophone, Film, Typewriter*, 10, 1.



This dissertation attempts to liberate Bergson for a discussion of media aesthetics without refusing the letter of his injunction against technical media, or skipping over its analytic nuances. To this extent the first chapter, “Digital Aesthetics in the Lumière Cinema” puts the philosopher into contact with the cinema directly coincident with the development of his thought. Spectatorial fascination, Miriam Hansen has written, always involves a dialectical play between the facticity of a representation and the lateral play of the viewer’s imagination—between “the film on the screen and ‘the film in the spectator’s head’”—and it is this ‘film in the spectator’s head’ that is so strikingly present in Bergson’s account of the Lumière cinema.<sup>139</sup> In tracking the force of this afterimage, I follow Gunning’s sense that the surviving works of early cinema comprise “physically fragile, but esthetically powerful traces,” a careful penetration of whose “esthetic form endows our historical understanding of the period with the relief and depth demanded by the ongoing fascination exerted by these images and stories from the beginning of our century.”<sup>140</sup> The fundamental value of a reading of Bergson’s encounter with the movies focalized through an attention to the aesthetics of the pre-narrative ‘cinema of attractions’ is a simultaneous recasting of the *tone* of *Creative Evolution*’s critique and a restoration to cinema of its unruly, mass cultural heritage as a media.

The second chapter, “The Technicity of Experience,” turns to literary case studies to develop the Foucauldian concept of the *dispositif* as a heuristic for thinking technological mediation. The transition from a nineteenth-century photographic *dispositif* to an incipient twentieth-century cinematic *dispositif* is an important context for Bergson’s ideas about the technical

---

<sup>139</sup> Hansen, *Babel & Babylon*, 13.

<sup>140</sup> Tom Gunning, *D. W. Griffith and the Origins of American Narrative Film: The Early Years at Biograph* (Urbana & Chicago: University of Illinois Press, 1991), 8.

image, and a close reading of Gustave Flaubert and the poet Frank O'Hara provides my analysis with a framework with which to describe the atmospherics of mediation as a perceptual weave, or kind of 'tinting,' that is always traceable to the form and logic of the technological *dispositif*. Each literary exemplar demonstrates the functioning of the sensual infrastructures of spectatorship as an aesthetic and phenomenal interpellation that opens the subject up to a Bergsonian perception of movement in the world. In this, the second chapter lays the groundwork for the project's effort to make pre and post celluloid configurations of cinematic movement thinkable; in part by detaching the idea of movement from the technological apparatus.

"An Audiovisual Archive," the third chapter, is posited as an media archeology of the digital image: an argument unpacked through an account of the filmmaker Ken Jacobs. The evolution of Jacobs' style from a materialist excavation of celluloid to a materialist deployment of the digital image provides my disruption with an important aesthetic case study for thinking the implications of media aesthetics' transformation by digitality. In the aftermath of a metamorphosis Bellour has characterized as "the mixing, the contamination, the passages or movements between images that have accumulated at the convergence of three techniques and three arts: photography, cinema, and video," we occupy an imagistic landscape in which relations between still and moving images—and even technical and plastic images—have been remapped.<sup>141</sup> One outcome, traceable in Jacobs' oeuvre, is a clarification of cinema's identity as a

---

<sup>141</sup> Raymond Bellour, "The Power of Words, the Power of Images," *Camera Obscura* 8, no. 3: 24 (September 1990, Special Issue on Unspeakable Images, edited by Elisabeth Lyon and Raymond Bellour): 7.

media that has allowed pre and post celluloid configurations of ‘cinematic’ movement to become aesthetically and materially thinkable.

The final chapter, “The Aesthetics of *durée*: A Bergsonian Movement-Image,” proposes that thinking about Bergson within the framework of digital media opens epistemological and aesthetic resonances wholly unavailable an analysis routed, as are the *Cinema* books, exclusively through an examination of celluloid cinema. The argument’s close reading of a contemporary technical cinema, live cell imaging, seeks to demonstrate the capacity of digital images to map movement in the phenomenological and aesthetic tenor of Bergson’s demand. The inscription of a creative evolution by this technology generates a genuinely new sight-line on Bergson’s philosophical project; and I argue conclusively, in its way, that Bergson’s critique of ‘the cinematographic illusion’ can be speculatively revised in the early twenty-first-century.

## **Part I**

### **Image, Subject, Setting**



Figure 1.1: Lumière Company, frames from *Panorama de l'arrivée en gare de Perrache pris du train* (*Panorama of the train's arrival at Perrache Station*). [25 October 1896] - 8 November 1896. 35mm, b&w, silent. Cameraperson unknown. Lyon, France. Collection of the Institut Lumière, Lyon.

## Chapter One

### Digital Aesthetics in the Lumière Cinema

*No longer shall you gaze on't, lest your fancy may think anon it moves.*

William Shakespeare<sup>1</sup>

*Backwards over the course of time a constant remodeling of the past by the present, of the cause by the effect, is being carried out.*

Henri Bergson<sup>2</sup>

#### I. Philosophy at the Movies

Let's begin in medias res; to catch things where they are at work, in the middle. At the cusp of the last century, a knowing Parisian spectator in the city of nineteenth-century modernity takes his place in a darkened room, as one amidst a group. This body of viewers are arranged in an ensemble against a beam of light that throws an image, full-sized, onto a screen. The figure of the philosopher can be specified by time, space and milieu: Henri Bergson watches a film program during the public life of the Lumière cinema (1895-1906), at a moment of the last fin-de-siècle that brings into parallel the period between his composition of two groundbreaking philosophical works—*Matter and Memory* (1896) and *Creative Evolution* (1907)—and the cinema's first articulation as apparatus of mass cultural pleasure.

---

<sup>1</sup> William Shakespeare, *The Winter's Tale*, ed. Stephen Orgel, Oxford Shakespeare (Oxford & New York: Oxford University Press, 1996), 225: 5.3.60-21.

<sup>2</sup> Bergson, "The Possible and the Real," 84-5.

What is fundamentally at stake in this primal scene of viewing hinges on the movement between apprehension and description. It is in the philosopher's conscious deployment of language that some dimensions of this new attraction of moving pictures will be rendered visible, in a powerful discursive figuration that will contribute to "the constitution of this object as an object of thought" by locating it in "a certain distribution of the thinkable."<sup>3</sup> Yet the plain phenomenology of what I have described as an imagined scenario of spectatorship also preserves the contour of something beyond word pictures—another, more unstable potentiality. As an embodied spectator, the philosopher is situated in a zone of mediation by an aesthetic *dispositif* whose phenomenal architecture orchestrates his "living body" into a distinct, historically specific relation to the moving image.<sup>4</sup>

My argument in this chapter will consider both players in this "set-up" at the moment of beginnings: the film and the philosopher.<sup>5</sup> I will argue against an overgeneralized characterization of the history of cinema that reduces the social life of the twentieth century's most public aesthetic form into singularities, thereby eviscerating the visibility of an unruly, intermedial heritage whose penumbra of latent possibility—newly available through the newness of contemporary media—can provide media aesthetics with concrete historical grounds against which to renew its own description and draw a horizon of aspiration. In equal measure, I will argue against a reductive assessment of Henri Bergson that moves too quickly over his seeming

---

<sup>3</sup> Jacques Rancière, translated by Jon Roffe, "Thinking between Disciplines: An Aesthetics of Knowledge," *Parrhesia: a journal of critical philosophy*, no. 1 (2006): 6, 8.

<sup>4</sup> Henri Bergson, *Creative Evolution* (New York: Cosimo Classics, 1907/2005), 328.

<sup>5</sup> I take the operative value of the term *dispositif* from Michel Foucault, and will develop a discussion of its significance through the argument and chapters to follow. The historian Paul Veyne's summarizes the power and scope of the *dispositif* heuristic across Foucault's project by translating it as "the set up." Veyne, *Foucault: His Thought, His Character*, 13; 22-36; 92-110.

refusal of technical media—in this evading the irreducible complexity of a historical configuration of knowledge whose skepticism and very distancing holds out a latent analytic possibility. Bergson’s conscious effort to engage with new forms of the technical image allowed him to link the social and philosophical significance of an emergent raft of visual media to *lived experience* from the very onset of aesthetic modernism. I will argue that this experiential emphasis locates Bergson’s ongoing significance to media studies. When Henri Bergson proposed that photography and ‘the movies’ function as exteriorizations of natural perception, in particular, he diagnosed an effect of mass media whose implications and ramifications Walter Benjamin would later conceptualize under the rubric of “innervation.”<sup>6</sup>

Yet it is against the infamous Bergsonian injunction against ‘the cinematic illusion’ that my argument will claim the Lumière cinema as an aesthetic *dispositif*: an unambiguous canon of artworks whose powerful interpellations well from a stylistic capacity to trigger and corral an intense spectatorial response to the perception of movement. It is the goal of this chapter to recover an indeterminacy latent in the encounter between film and philosopher at their moment of confrontation in a site of cultural performance, from whose ordinary *mise-en-scène* an aesthetic dimension cannot be excluded. Formulating the precise nature of the connection

---

<sup>6</sup> “The collective is a body, too,” writes Benjamin. “Only when in technology body and image space so interpenetrate that all revolutionary tension becomes bodily collective innervation, and all the bodily innervations of the collective becomes revolutionary discharge, has reality transcended itself to the extent demanded by the *Communist Manifesto*.” The Work of Art essay continues: “*The most important social function of film is to establish equilibrium between human beings and the apparatus*. Film achieves this goal not only in terms of man’s presentation of himself to the camera but also in terms of his representation of his environment by means of this apparatus.” Walter Benjamin, “Surrealism: The Last Snapshot of the European Intelligentsia (1929),” in Walter Benjamin: Selected Writings 2, Part 1, 1927-1930, ed. Michael W. Jennings, Howard Eiland, and Gary Smith (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 1999), 217-8; “The Work of Art in the Age of Its Technological Reproducibility (1936),” 117, 18. For orienting work on innervation see: Miriam Hansen, “Benjamin, Cinema and Experience: The Blue Flower in the Land of Technology,” *New German Critique* 40 (Winter 1987); “Of Mice and Ducks: Benjamin and Adorno on Disney,” *South Atlantic Quarterly* 92, no. 1 (Winter 1993); Miriam Bratu Hansen, “Benjamin and Cinema: Not a One-Way Street,” *Critical Inquiry* 5, no. 2 (Winter 1999); “Room-for-Play: Benjamin’s Gamble with Cinema,” *October* 109 (Summer 2004).



between the cinema and the twentieth-century's preeminent philosopher of movement will consequently require initially reading against the grain; as the deconstructive route to a description of media aesthetics capable, I hope, of accommodating a utopian valence that Mark B.N. Hansen has described as the "*Bergsonian vocation*" of contemporary media art.<sup>7</sup>

It is for these reasons that a dissertation about media aesthetics in a moment dominated by a digital vernacular begins in a backward posture, with the extended contemplation of a body of celluloid work that mark the cinema's earliest articulation as an apparatus of mass cultural pleasure. Yet film history as it has been re-written in the last three decades leaves little ambiguity on the question of how scrupulously unsentimental must be the critical gaze we turn toward the cinema's original moments: to appreciate not only the always-mixed nature of this heterogeneous form, but above all to recognize that film has always been an art tied to industry. Beginning in the 1970s, a generation of emphatically historicist film scholars have written the historiography of early cinema in terms that, taken collectively, dispense with prelapsarian nostalgia by providing the critical models and thick descriptive accounts necessary to bring the period into focus as a site of furious contest between media.<sup>8</sup> From this perspective a topographic view of early cinema offers a crucial analytic paradigm for another situation of modernity marked by the intensified presence of mass media in scenes of everyday life. Film emerged in a competitive media environment where it battled X-Rays and other 'scientific' spectacles for spectators, and where popular forms like variety shows and vaudeville entertainment mingled with literary

---

<sup>7</sup> Hansen, *New Philosophy for New Media*, 11. My emphasis.

<sup>8</sup> In particular, three volumes specify benchmark moments in the assessment of early cinema: Roger Holman, ed. *Cinema 1900/1906: An Analytical Study* by the National Film Archive (London) and the International Federation of Film Archives (Brussels: International Federation of Film Archives, 1978); John L. Fell, ed. *Film before Griffith* (Berkeley & L.A.: University of California Press, 1983); Thomas Elsaesser and Adam Barker, eds., *Early Cinema: Space, Frame, Narrative* (London: BFI Pub., 1990).

genres, pictorial traditions and embodied theatrical practices of longer lineage, particularly *commedia dell'arte*, to form a backdrop of thoroughly promiscuous cross-cultural reference.<sup>9</sup>

Most profoundly, the period of early and early classical cinema marks that moment of modernity during which the constitution of an audience for the cinema's address, via the interpellative force of visual pleasure in images moving on a screen, gave rise to essentially new modes of identification: to forms of spectatorship reaching across subject-positions and lines of social exclusion, by the hailing of marginal groups, "such as immigrant working-class audiences and women across class and generational boundaries," in ways that fundamentally reorganized the public sphere.<sup>10</sup> Miriam Hansen describes the stakes of this key issue of spectatorship as stemming from a problem of unalloyed display:

The elaboration of classical methods of spectator-positioning appears as the industrial response to the problems posed by the cinema's availability to ethnically diverse, socially unruly, and sexually mixed audiences. The ideological objective of constructing a unified subject of—and for—mass-cultural consumption, of integrating empirically diverse audiences with this goal, was troped in the ambiguous celebration of film as a new universal language.<sup>11</sup>

In the terms of Hansen's analysis, it is the demonstrative function of the cinema's mode of address—the capacity of photographic representation to *show* the world that surrounds, and in so

---

<sup>9</sup> Important accounts of the intermedial range of the early cinema's media environment include Noël Burch, *Life to Those Shadows*, trans. Ben Brewster (Berkeley: University of California Press, 1990); Robert C. Allen, "Vitascope/Cinématographe: Initial Patterns of American Film Industrial Practice," in *Film before Griffith*, ed. John L. Fell (Berkeley & L.A.: University of California Press, 1983); Allan Williams, "The Lumière Organization and 'Documentary Realism,'" *ibid*; Robert C. Allen, "Vitascope/Cinématographe: Initial Patterns of American Film Industrial Practice," *ibid*. On the question of intermediality also see: Richard Abel, ed. *Silent Film* (New Brunswick, N.J.: Rutgers University Press, 1996); Rick Altman, ed. *Silent Film Sound* (New York: Columbia University Press, 2004); Tom Gunning, "From the Kaleidoscope to the X-Ray: Urban Spectatorship, Poe, Benjamin, and 'Traffic in Souls' (1913)," *Wide Angle* 19(1997). The paradigmatic long history of cinema's interaction with literature is André Gaudreault, *From Plato to Lumière: Narration and Monstration in Literature and Cinema*. (Toronto & Buffalo: University of Toronto Press, 2009).

<sup>10</sup> Hansen, *Babel & Babylon*, 17.

<sup>11</sup> *Babel & Babylon*, 16.

doing make it available in visual experience to any subject who sees—that subtends and propels the industry’s ideological, unambiguously disciplinary drive to unify and corral the screen image into the visual language of Classical film form.

But early cinema retains its alterity. In a now-classic formulation, Tom Gunning describes ‘the Cinema of Attractions’ as a genre of early film ruled by the carnivalesque texture of exhibitionist seduction and direct address to the viewer. Where a classical Hollywood style already incipient by 1906 was to define itself as a transparent vehicle for narrative through a rigorous concealment of the camera’s recording gaze, ‘the attraction’ drew spectator and spectacle into a foreshortened compact subtended by the affective magic of resonant detail and a blithe willingness to disclose the constructed nature of cinematic display. Modeled on fairground thrills and other traditions of open enjoyment in mediated experience, this film form proffered up the newness of a vital image that seemed, astonishingly, to move from and in itself. As attractions, Gunning writes, the first films held an inherent capacity to trigger the animating alterity of “a jolt of pure presence, soliciting surprise, astonishment, or pure curiosity.”<sup>12</sup> Gunning’s account of this paradigmatic case of alterity in film form thus locates the aesthetic stakes of the Cinema of Attractions in the suspended temporality of an absorptive fascination with movement.

---

<sup>12</sup> Tom Gunning, "The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde," in *Early Cinema: Space, Frame, Narrative*, ed. Thomas Elsaesser and Adam Barker (London: BFI Pub., 1990), 57; "'Now You See It, Now You Don't': The Temporality of the Cinema of Attractions," in *The Silent Cinema Reader*, ed. Lee Grieveson and Peter Krämer (London; New York: Routledge, 2004), 48; "An Aesthetic of Astonishment: Early Cinema and the (In)Credulous Spectator," in *Viewing Positions: Ways of Seeing Film*, ed. Linda Williams (New Brunswick, New Jersey: Rutgers University Press, 1994). The term ‘attraction’ has an intermedial genealogy, having been developed by Eisenstein from his work on theatre: “An attraction is in our understanding any demonstrable fact (an action, an object, a phenomenon, a conscious combination, and so on) that is known and proven to exercise a definite effect on the attention and emotion of the audience and that, combined with others, possesses the characteristic of concentrating the audience’s emotions in any direction dictated by the production’s purpose.” Sergei Eisenstein, "The Montage of Film Attractions (1924)," in *The Eisenstein Reader*, ed. Richard Taylor (London: BFI Publishing, 1998), 35-6.

In placing the Lumière cinema at the head of a genealogy of media aesthetics that runs through potent moments in the twentieth-century to our contemporaneity, then, I seek to lay claim to the theoretical implications of a historical archive. The films of the earliest period—those that have survived—attest, in their fragility, to a moment of historical time when the cinematic image remained unruly, on the level of both composition and address to a heterogeneous audience. Pausing to appreciate the complexity and intermedial thickness of the early cinema's *habitus* is consequently to examine the contours of a prior instance of newness emerging into a world whose features remain contemporaneously recognizable. Indeed it is the co-presence of elements of convention and alterity in the Lumière cinema that makes this body of work so exemplary a case study and heuristic for thinking a plain fact about the always-mixed temporality of those broad cultural phenomena experienced by social collectives as 'new'. Early cinema, in Gunning's words, must be grasped "not simply an elementary stage of cinematic evolution, the infancy of an art form, but as a period that possessed a different conception of space, time, and narrative."<sup>13</sup> Preserved in the aesthetics of this cinema of attractions is an intertwining of the continuity of tradition, in T. S. Eliot's sense of cultural *longue durée*, with the frisson of an inassimilable difference whose odd coequality of familiarity and strangeness might well be the distinguishing mark of truly new forms of collective experience.

As a methodological question, however, the query 'why begin *here*?' has another answer, intimately if laterally tied to the fascination with visual spectacle that must ground all theories of film spectatorship. A reply in this second vein is partly imaginative, and concerns the specific nature of the affective claim the Lumière cinema has exerted on its non-contemporary spectators

---

<sup>13</sup> Gunning, D. W. Griffith and the Origins of American Narrative Film, 6.

through the twentieth-century as ‘the first films.’<sup>14</sup> I want to to confront the aura of beginnings that lingers over this material with some directness, and acknowledge the force of ontological longing that lends such a palpably emotional tinge to many retrospective assessments and descriptions of these flickering movies. “To look critically and sympathetically at the beginnings of cinema—to those programmes of one-minute scenes first publicly exhibited in Paris in December 1895 ... is like pondering what happened to the universe in the first few microseconds after the big bang,” writes Dai Vaughan, in an essay symptomatically titled *Let There Be Lumière*.<sup>15</sup> Yet to note the allure of a fantasy of cinematic genesis is also a way to bracket and reorient that ontological hunger—with its attendant teleological baggage—away from the dead-end of nostalgia and coherently toward questions of aesthetics.

For if the Lumière films have trailed an afterimage in the twentieth-century imaginary, the persistence of that visual haunting has been most articulately registered in the avant-garde. In the cinematic tradition and in the experimental practice of the camera-arts more broadly defined, the pang of first-ness crystallized around the spectatorial experience of this archive has been closely connected with the antagonism of a utopian desire for radicalism in film practice, and so for historical precedents that might model strategies of resistance to that monolithic apparatus Thomas Elsaesser describes, succinctly, as “the hegemony of Hollywood.”<sup>16</sup> Jean-Luc Godard and Hollis Frampton are particularly cogent voices in this line, as practitioners who have left

---

<sup>14</sup> This phrase acts as title for a DVD anthology, “The Lumière Brothers’ First Films,” ed. Archives du Film du Centre National de la Cinématographie, Institut Lumière, and narrated by Bertrand Tavernier (Kino International, 1996).

<sup>15</sup> Dai Vaughan, “Let There Be Lumière,” in *Early Cinema: Space, Frame, Narrative*, ed. Thomas Elsaesser and Adam Barker (London: BFI Pub., 1990), 63.

<sup>16</sup> Thomas Elsaesser, “General Introduction: Early Cinema: From Linear History to Mass Media Archaeology,” *ibid.*, 4.

behind texts as well as films to testify to the subtle fascination wound about the visual presence of the Lumière cinema.<sup>17</sup> For both, these films evoke a reaction of wonder based, on the one hand, in a sense of the marvelousness of an originary case; but on the other, in a self-conscious appreciation of their aesthetic claim. Thus Frampton describes his first viewing of “the thirty-meter Lumière films” as a quasi-anthropological quest for an encounter with the history of a form, backlit by the wordless impact of a primal aesthetic experience:

I have gone through the Paper Print Collection at the Library of Congress like Lévi-Stauss went through the distant cultures of South America and the Pacific, desperately seeking primitive film. ... One is not impressed by their primitiveness but instead overawed by their subtlety, by their appalling depth of implication—to such an extent, of course, that one is left, to a certain extent, critically speechless.<sup>18</sup>

For Jean-Luc Godard, likewise, the wonder of the Lumières’ is the magic of a coincidence of names that folds associatively into a meditation on the slight causality that can endow a sequence of discrete facts with the aura of historical ontology. In a tribute to the film archivist Henri Langlois (to whose preservation work at the Cinémathèque Française the scholar Jacques Aumont credits a latterly canonization of the Lumières as *filmmakers*) Godard puns with understated gravitas on the multiple resonances of the word ‘Lumière’ as meaning ‘light’; extrapolating in wordplay what is, for him, the fundamental light of projection, the name of cinema’s original industrialists, and the vernacular referent for the city of nineteenth-century European modernity, Paris, *la ville-lumière*.<sup>19</sup> The seductiveness with which a layering of linguistic shades can seem to

---

<sup>17</sup> Sections of Frampton’s unfinished magnum opus, the *Magellan Cycle* (1977-1984), are explicitly influenced by the cinema of the Lumières. Godard reflects on the Lumières in several films, most explicitly in *La chinoise* (1967) and Episode IB of the meta-historical magnum opus *Histoire(s) du cinéma* (1988-1998).

<sup>18</sup> Hollis Frampton and Bill Simon, "Talking About 'Magellan': An Interview (1980)," in *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, ed. Bruce Jenkins (Cambridge, Massachusetts: MIT Press, 2009), 250-1.

<sup>19</sup> Jacques Aumont, "Lumiere Revisited," *Film History* 8, no. 4 (1996): 423. For a discussion of the Lumière tradition in the vernacular of French cinema see see Richard Armstrong, "The Living Image: French Cinema from the Lumieres to the Banlieux," *Screen Education*, no. 41 (2006).

elevate an accident of history to the status of myth comes together in a fable of darkness and light, so that invoking a treatise of Enlightenment (*les lumières*)—Goethe’s lyrical *Theory of Colors* (1810)—Godard narrates:

At school I learned that Goethe on his death-bed called for more light. It was therefore only logical that some years later Auguste and Louis should invent what we know today as the cinema, and that they should have first demonstrated it in Paris, since that city had long borne their name.<sup>20</sup>

Scholars of both Frampton and Godard acknowledge how the redolence of this name, an almost-allegorical literary nuance, plays a role in the historical aesthetics proposed by the praxis of each filmmaker. “This metaphor of light drawing itself out to form the world can be seen in terms of Frampton’s metahistory of representation,” writes Michael Zryd, because “film as a ‘vast metaphor for consciousness’ is grounded in a metaphysics of light—within which Lumière is a prime mover.”<sup>21</sup> In parallel vein Daniel Morgan notes that Godard evokes “some of the most basic symbolism in Western civilization: light giving form and order to the world, cutting it out from darkness,” and “appears to be suggesting that film, insofar as it projects, brings a world into being; projection, that is, gives form and order to the darkness (of the world, of the theater).”<sup>22</sup> I would argue further that Frampton, like Godard, is haunted by a sense that early film delivers to its inheritors an injunction to history, or to historical consciousness; but that the responsibilities of this task must be set against the *anti*-teleological implications of Charles Antoine Lumière’s aphoristic, endlessly ambiguous pronouncement—widely credited to his son, Louis—that “The

---

<sup>20</sup> Jean-Luc Godard, “Speech Delivered at the Cinémathèque Française on the Occasion of the Louis Lumière Retrospective in January 1966: Thanks to Henri Langlois,” in *Godard on Godard: Critical Writings* by Jean-Luc Godard, ed. Jean Narboni and Tom Milne (New York, N.Y.: Da Capo Press, 1972), 235.

<sup>21</sup> Michael Zryd, “History and Ambivalence in Hollis Frampton’s ‘Magellan’,” *October* 109(Summer 2004): 138, 39.

<sup>22</sup> Daniel Morgan, *Late Godard and the Possibilities of Cinema* (Berkeley and Los Angeles: University of California Press, 2013), 238-9.

Cinematograph is an invention without a future.”<sup>23</sup> The apparent tautology of this declaration as the discursive accompaniment to the cinema’s emergence becomes, for Godard and Frampton, retrospectively comprehensible as an inventor’s prescient foreknowledge of the inevitability of continued invention.<sup>24</sup> As a mixed form and a mass art from its very beginning, the cinema’s always-already imbrication in the newness of popular media establishes a genealogy and a context for the latterly emergence of television, video, and the full range of digital media. The figure of the Lumière patriarch is thus for each artist a paradoxical Cassandra—in Frampton’s elegant phrase “touched for a moment with an insight, newly implied if not original, about history”—who prophesied, as an inexorable reality, that the institution of the cinema will be challenged to renewal by new situations, new audiences and eventually a new technical frame.<sup>25</sup> “I might conjecture” Frampton writes, “that the photograph, and then the film, and now, heaven help us, that thing that begins with ‘v’ may eventually be seen not as a series of separate things but somehow mysteriously related.”<sup>26</sup> Godard also draws on this sense of the Lumière axiom as prediction in juxtaposing the strange fact that “the worthy industrialist from Lyons told journalists at the time that his invention was one without future” against an image of contemporary multitudes transfixed before moving images on an array of fixed and mobile screens:

I like to think that seventy years ago, roughly the same number of spectators assembled in the Grand Café as are gathered here tonight. Our slight advantage is that at this moment,

---

<sup>23</sup> Quoted in Bernard Chardère, *Le Roman Des Lumières* (Paris: Gallimard, 1995), 313.

<sup>24</sup> “Like Godard, Frampton is emphatic that cinema can become a genuine art only by establishing its own history,” Morgan notes and “to this end, both evoke and rework Louis Lumière’s famous (and famously wrong) prediction.” Morgan, *Late Godard and the Possibilities of Cinema*, 196.

<sup>25</sup> Hollis Frampton, “The Invention without a Future (1979),” in *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, ed. Bruce Jenkins (Cambridge, Massachusetts: MIT Press, 2009), 176.

<sup>26</sup> *Ibid.*



10.35 in the evening, some four hundred million others are doing exactly the same the world over. What are they doing, *whether in aeroplanes, in front of television sets, in film societies or in the local cinemas*. They are drinking words. They are fascinated by images. Like Alice in front of Cocteau's beloved looking-glass, they are, in other words, wonderstruck. [...] So we this evening are going to co-exist with 28 December 1895. Amazing duplex! The wonderful spectacle of a double point of view: historical and aesthetic.<sup>27</sup>

The notion that early cinema proffers to its non-contemporary viewers a pedagogic effect in the form of a heuristic of perspectival doubling—or to put it another way, thinking through the knowledge-effect generated by the multiple frissons of Lumière/ *lumière*—hinges in Godard's captivating imagining on the present-ness that film endows to a moment of historical time by animating it with movement in real time. More simply phrased, film's temporal structure duplexes historical presence by doubling *presence* with *the present*. The excess generated from this layering of distinct forms of time in the experience of spectatorship, and an excess that also compels the grand vision of Frampton's unfinished magnum opus the *Magellan Cycle* (1977-84), is at its core an effect of wonder in cinematic duration: wonder crystalized in the willingness to be re-amazed that one can co-exist, again, with that first screening in Paris at the Grand Café on 28 December 1895. Framed in this way, to view an actuality film, or perhaps any film, is to participate in a form of re-presence-ing predicated on a dialectical interplay of appearance and reappearance—in Godard's words the “spectacle of a double point of view: historical and aesthetic”—that also comprises an utterly fundamental dimension of film aesthetics. And, characterized as they are by a quality of unmediated observation and eager, scopic curiosity in an everyday world transformed by the slight narrativizing element of the camera's presence into something quite un-ordinary, the Lumière films are animated by precisely this quality of

---

<sup>27</sup> Godard, "Thanks to Henri Langlois," 235. Emphases mine.

luminous evanescence—of a presence that seems unfixable. The narrative slightness of these works tips a balance between the bounded coherence of a recognizable aesthetic structure and the unbounded flow of ordinary action. This dialectic articulates an interface between representation and life whose vacillation between the closed frame of a pictorial form and the open-form of experience describes a mode of perception oddly congruent with our contemporary experience of film in a world saturated by moving images, and so deliberately invoked in Godard's word-picture of four hundred million viewers absorbed before visual fictions in settings of daily life: drinking words, fascinated by images, wonderstruck.

## II. The Unencumbered Instant

It is worth foregrounding, then, something of the structure of that historical viewing experience. A Lumière film program in 1896 might run something like this: we open to a station as a man pulls a luggage trolley past the static camera. The eye follows tracks stretching perspectively into the background as the train rumbles into the foreground, smoke billowing, shadows racing underneath, syncopated against glints of reflection bouncing off the sides of carriages. The crowding of scenic detail in the film's first moments foreshadows a more overt splaying of objects and people as the train disgorges its human contents. Bodies and things spill into space: hats, shoes, arms, bags and faces erupting to crowd the screen with semi-autonomous diagonal animations that riotously overflow the edges of the frame, until, all too quickly, the visual cacophony of this fifty-second cinematic 'actuality' is over. Onwards, and we shift to a city street and an explosion of movement as firemen respond to a call—horses and carriages streaming past in near flight, hooves tracking lightly over an oblique angle of ground. At a scene

of recreation, the event is rambunctious play: a snowball fight (clearly staged) breaks out against a sober line of houses. The foreground erupts into sprays of powdery snow, flaring clouds of whiteness that streak the dark clothes of figures animated by action but reduced, by careful framing, to moving silhouettes on film—an Impressionism of black and white. In the sphere of the domestic parents and a young child (centered for our view) eat an al fresco breakfast at close range to the picture-plane: hands moving, expressions shifting, and all of it so possessed of a manifest bourgeois ordinariness that one's attention tugs away to the peripheral details—the edge of a ludicrously full, striped sleeve as it moves over coffee cups, or gusts of wind rippling through foliage in the background.

Another scenario, and the open sea. A boat moves diagonally into view propelled by the powerful undulations of the tide and the vigorous resistance of male occupants working against it in concerted effort. Women on the pier, tending children, are turned away toward the horizon, articulating a line of sight that extends the boat's trajectory into virtual space. The heaving ocean makes a moving plane of texture and light that fills a foreground evacuated by the rowers' incremental progress with the breathing, vital surface of sunlight glinting on water: an image of luminosity, just as the film ends.

Begin again, and we are in the non-space of an Orientalist fantasy. The Sphinx in the mid-ground punctuates the deep space of a desert plane at whose outer edge lurk the archetypal forms of Pyramids. The unreality of this Egyptian setting made almost unbelievably real by the encumbered camels and turbaned locals strolling through the foreground; their presence contributing a contrapuntal pulse to the otherwise stilled field of camera vision as they pace an

upward path to somewhere. And, perhaps, a re-creation of the Cinematograph's first recorded micro-event: day's end, and a dog sauntering past the frame as factory gates release workers from their labors. Many participants in this scene of work are women: a throng appareled in full skirts, boots, flowered hats. This last detail lends an anachronistic touch to the image—a reminder of its lineage from another time—that catches the attention, or maybe one's fancy, to make an impression in which perception and imagination have room to co-mingle; as in, say, Hollis Frampton's affectionate but fabricated description of "quitting time in a French factory, on a sunny afternoon toward the end of the century, as smiling girls waved and cheered."<sup>28</sup>

What vocabulary, except of description, is really adequate to the discursive conveyance of all this vitality of small parts?—the whirl of details, movements, micro-durations and heterogeneous materiality from which an 'actuality' film spins the representation of a setting by transforming an image of the phenomenal world into the spectacle of matter animated by time? The Lumière films frame familiar situations—implicitly 'real' spaces and times, often the locales of the audience themselves, in scenes of dailyness, of male and female spheres of labor, recreation, domesticity, urbanity, childhood and bourgeois delight in exploration by travel. It is a canon marked by durational brevity in a number of ways, since a fifty-second film might be shot, processed and projected in a single day.<sup>29</sup>

---

<sup>28</sup> Frampton, "For a Metahistory of Film," 135.

<sup>29</sup> As a low-tech and mechanically self-sufficient apparatus, the Lumière camera was perfect for local conditions at the turn of the century when electricity was not yet pervasive. Indeed, the Lumière operation was characterized by a pragmatics of efficiency in a number of ways that fed directly into its success: the camera's economy of operation and relative lightness of scale allowed for its deployment in outdoor settings, and beyond this, quite literally throughout the world via the routes of old and new forms of Empire. The mobility of scenery and variety of views made possible by this lightness is the fundamental difference—a difference of style—between the otherwise historically congruent Edison and Lumière cinemas.



Figure 1.2 (clockwise from top left): Frames from Lumière Company

—*Arrivée d'un train à La Ciotat (The Arrival of the Train at Coitot)*. Summer 1897. 35mm, b&w, silent.

Cameraperson: Louis Lumière. La Ciotat station, France. Collection of the Institut Lumière, Lyon.

—*Barque sortant du port (Boat Leaving the Harbor)*. Summer 1897. 35mm, b&w, silent. Cameraperson: Louis Lumière. La Ciotat, France. Collection of the Institut Lumière, Lyon.

—*Bataille de neige (Snowball Fight)*. 31 January 1897 - 7 February 1897. 35mm, b&w, silent. Cameraperson unknown. Cours Gambetta (today Cours Albert Thomas), Lyon, France. Collection of the Institut Lumière, Lyon.

—*Les pyramides (vue générale) (The Pyramids [General View])*. 12 March 1897 - [18 April 1897]. 35mm, b&w, silent. Cameraperson: Alexandre Promio. Giza, Egypt.

All Collection of the Institut Lumière, Lyon.



Figure 1.3 (clockwise from top left): Frames from Lumière Company

—*Pompiers: sortie de la pompe (Lyon Firemen)*. 11 October 1896. 35mm, b&w, silent. Cameraperson unknown. Quartier de la préfecture, Lyon, France. Collection of the Institut Lumière, Lyon.

—*Repas de bébé (The Baby's Breakfast)*. [22 March 1895] - 10 June 1895. 35mm, b&w, silent. Cameraperson: Louis Lumière. Lumière home, Monplaisir, Lyon, France. Collection of the Institut Lumière, Lyon.

—*Sortie d'usine, [III] (Workers Leaving the Factory III)*. [15 August 1896]. 35mm, b&w, silent. Cameraperson: Louis Lumière. Saint-Victor (today rue du 1er Film), Lyon, France. Collection of the Institut Lumière, Lyon.

—*Sortie d'usine, [I] (Workers Leaving the Factory I)*. [26 May 1895]. 35mm, b&w, silent. Cameraperson: Louis Lumière. Saint-Victor, Lyon, France.

All Collection of the Institut Lumière, Lyon.

Even when unleashed into unlikely locales around the world, the Cinématographe's team of combination cameramen-projectionists tended to depict the elsewhere through the diffusing lens of the already-narrated; so that to see other spaces though their view is to walk the paths of the French colonial enterprise and gaze upon sites framed a priori in the collective imaginary, as tropes of Orientalism—places “of romance, exotic beings, haunting memories and landscapes, remarkable experiences.”<sup>30</sup> The filmic address of this cinema is organized around an implicit conception of the apparatus as itself a sufficient narrativizing tool—a compositional principal in which what is captured by the camera eye in *actualité* forms the principal of selection on the level of visual form; so that contemporary audiences were offered a mediated vision of the material substrate of their own worlds. “Auguste Lumière filmed his own workers on many occasions and screened the efforts to his own workforce to constant exclamations of delight,” the editors of an anthology documenting early reception note, but “whether these reactions were motivated by delight at the process of the cinema, or more the result of seeing themselves represented is a matter of debate.”<sup>31</sup> In the extent that it is predicated on the demonstrative function of the camera-arts, however, the Lumière aesthetic is less concerned with an ethnographic impulse to isolate and frame otherness than it is preoccupied—even fascinated—

---

<sup>30</sup> Edward Said, *Orientalism: Western Conceptions of the Orient* (New York: Penguin Books, 1978, 1995), 1. The simultaneity of range and particularity in Said's discussion of Orientalism is useful here since it opens a way to appreciate the formal aesthetic qualities of the Lumière view as, on the one hand, *historical* (an imperialist gaze complicit with the nineteenth-century Franco-British colonial project) but on the other hand *discursive*—a scopic mode, and one with continued presence in a globalized world.

<sup>31</sup> “One of the earliest and most emulated films was the Lumière film of their workers leaving the factory. ... as well as offering up whole new worlds and experiences cinema was also directly focused on the individual. People saw themselves and the rest of humankind represented on the screen before them. Their own lives, occupations and circumstances were called into question by this new medium and the comparisons were not always favorable.” Colin Harding and Simon Popple, eds., *In the Kingdom of Shadows: A Companion to Early Cinema* (London & Madison, N.J.: Cygnus Arts & Fairleigh Dickinson University Press, 1996), 20.

with the discovery latent in the spectacle of the familiar made strange by the mediation of technical representation.

The visual presence of these films is a visuality suffused with a quality of lightness, of the unencumbered, because the Lumière aesthetic is an aesthetic of wonder. Grounded in spectatorial delight in cinema's ability to re-present the ordinary as extraordinary spectacle, their participation in the genre of the *actualité* allows these films to re-mediate what is too near—the tedium of labor, the dull weight of dailiness, the intimacy of fantasy—through the distancing effect of a representation enframed in time. Over and over, they depict repetitive acts of labor in scenes of work and ordinary bourgeois life re-imagined as 'views,' so that an *actualité* of working-class women washing clothes in a river—*Washerwomen at the River* (1897), a film entirely reliant on the careful formalism of its framing to claim even the minimal aesthetic status of a view—revisualizes the grinding, manual work that is its ostensible subject into a mise-en-scene dominated by the beauty of line and structure, modulating textures, animated shades, of movement. Such reframing offers the spectator a way to experience the deterministic structures of necessity and capitalist time-inscription that stamp the fabric of an experiential commons—which remains, crucially, always recognizable and present on these films' surface—as somehow unencumbered. The durational brevity that allows these films to seem to slip into and out of the flow of life articulates one mode of an aesthetic of presence whose specific power is a capacity to infuse the lightness of pleasure into the perception of ordinary, middle experiences. And this capacity for re-enchanting the known is contingent precisely on the slightness of a descriptive mode that does not attempt to narrate the phenomena it so demonstrably shows.



I want to develop a sense of this limpid aesthetic of the ‘view’ as emerging from a distention between two poles—cultural and technological, photographic and scientific. On the one hand, the films of the Lumière Company are marked by the late nineteenth-century European haute bourgeois context that framed its small-business model on every level, inflecting the design of its apparatus and its range of subject matter. On the other, their pictorial form is characterized by a quality of expansiveness that wells from the camera’s mobility, and that charges the cinematography with the distinctly light, airy motion of a *plein air* scene. These dimensions are fundamentally related.

Gunning has pointed out that the Lumières must be historicized by their embedding in a nineteenth-century culture of amateur photography—a tradition whose faith in the epistemological significance of technologies of vision was expressed in a fascination with the ‘scientific’ aspects of the photographic process *and* as a lighthearted enjoyment of visual spectacle.<sup>32</sup> New dry-plate photographic technology allowed a cohort of skilled, non-professional aficionados—mostly middle-class men—to fix the profile of fleeting phenomenal events (the suspended motion of leaps into mid-air, or the movement of water) into pictures whose visual intrigue seemed to provide a point of entry to the knowledge-effects understood to accrue to the image of things. Precisely this kind of belief in the epistemic weight of empirical observation is articulated in the Naturalism of Émile Zola, for example; not coincidentally himself a gifted and

---

<sup>32</sup> “Instantaneous photographs of bodies in motion reveal the interaction between these two modes of visual investigation: scientific observation and casual everyday curiosity.” Tom Gunning, “New Thresholds of Vision: Instantaneous Photography and the Early Cinema of Lumière,” in *Impossible Presence: Surface and Screen in the Photogenic Era*, ed. Terry Smith (Chicago, IL: University of Chicago Press, 2001), 72, 88, 89.



Figure 1.4: Lumière Company, frames from *Laveuses sur la rivière* (*Washerwomen at the River*). [Spring 1896] - 22 October 1897. 35mm, b&w, silent. France. Cameraman unknown. Collection of the Institut Lumière, Lyon.

prolific amateur photographer.<sup>33</sup> As a vernacular form of image-making that intertwined the philosophical tinge of a ‘scientific’ gaze and the uninhibited voyeurism of a non-specialist’s scopic curiosity into a single generic frame, instantaneous photography offered its participants a mode of access to the phenomenal world in which gravitas and exuberance could coalesce in a kind of imaginative free play. Indeed for the self-selecting players in this culture of visual mastery, to make an image of an instant and freeze motion in full flight was to participate in a much broader social preoccupation with an increment of brief time increasingly wound into the center of an interconnected raft of scientific, philosophical, and aesthetic concerns.

The historian of science Jimena Canales has argued recently that the late nineteenth- and early twentieth-century preoccupation with the question of micro-time had such a general epistemological scope that cultural histories of the social *mise-en-scene* into which the cinema erupted so categorically should account for simultaneous developments in the secluded spaces of the scientific laboratory. Probing into the nature of ‘the instant’ was a compacted meta-question for nineteenth-century scientists, she notes, because doubly directional: a question posed by scientists about scientific methodologies, and undergirded by the implication-filled fact that “starting in the mid-nineteenth-century scientists associated this value with the speed of thought.”<sup>34</sup> At stake in the intellectual potency of increments of brief time was a weighty question about the connection between vision, temporality and experience. As the temporal edge marking the lag-time of human physiological and perceptual response to stimulus, nineteenth-

---

<sup>33</sup> Zola’s literary manifesto describes “the introduction of observation and experiment into literature” as an aesthetic principal derived from the scientific method of Claude Bernard, recognizing “no authority but that of facts” since “in order to be able to foresee the unknown we must begin by studying the known.” Émile Zola, “The Experimental Novel,” in *The Experimental Novel, and Other Essays* (New York: Haskell House, 1964), 48, 44, 53. Also see: Zola *Photographie: 480 Documents*, ed. François Emile-Zola and Massin (Paris: Denoël, 1979).

<sup>34</sup> Jimena Canales, *A Tenth of a Second: A History* (Chicago: University of Chicago Press, 2009), 6, 1.



Figure 1.5: Émile Zola, *Crossroad in Paris*, c.1888-1902. Published in *Zola—Photographer*, ed. François Emile-Zola Massin, Seaver Books: New York, 1988.



Figure 1.6: Émile Zola, *Moving Pavement*, c.1900. Published in *Zola—Photographer*, 1988.



century scientists understood ‘the instant’ as an empirical fact—a quantitative unit of time—and an interruptive concept—an unruly physiological limit around which a reassessment of the body’s place in epistemological structures was playing itself out.

The scientific absorption of a concept of reaction-time, for example, contributed to the breakdown of a received eighteenth-century understanding of cognition as subtended by instantaneous nerve transmission, or the immediate connection of stimulus and response. The consequent reframing of the nervous system in temporal terms led to an emphasis on vocabularies of interface that, Canales writes, “increasingly described perceptual and communicative processes in terms of stimulus, message, transmission, reception, and response.”<sup>35</sup> A major outcome of this broadly readjusted sense of the human body as a plane of mediation between empirical reality and epistemological schemas was the incorporation of a notion of physiological lag—of the concrete duration of perception—into the methods and processes of nineteenth-century scientific inquiry.

In this reconfigured intellectual landscape, no increment of brief time, however infinitesimal, could continue to be conceived as truly static. Rather in the ferment of a discursive situation in which the notion of ‘instantaneous’ perception was evolving into a concept of perceptual process—with affective interference and the structural limits of physiology newly accounted as factors in quantitative analysis—the very idea of ‘the instant’ began to torque, in the thinking of scientists and their ilk, toward a concept of ‘the interval’: a contrapuntal span filled with flow, within which the lag time of human reaction is always-already accounted.

---

<sup>35</sup> *A Tenth of a Second: A History* (Chicago: University of Chicago Press, 2009), 8.

The eminent physiologist and photographer Étienne-Jules Marey, for example, was influential in framing the optical instantiation of the concept of reaction time in the principal of ‘visual persistence’; explaining that “‘because our retina is incapable of perceiving clearly more than ten images per second’ new instruments could provide a viewer with the illusion of movement if they were passed before the viewer’s eyes at this speed.”<sup>36</sup> This identification of a physiological basis for the impression of movement made visual persistence—the purported lag time of the eye—the ground for a nineteenth-century scientist’s understanding of the experience of film. Natural perception consequently became an attenuated point of debate in scientific assessments of photographic and early cinematic technologies. Indeed Marey’s description of visual persistence as the barrier around which “direct, subjective vision could not peer” presented a significant complication to claims for the reliability and visual exactitude of photo-cinematic technologies, since it located the perception of movement in the phenomenology and ineradicable physiology of a bodily fold.<sup>37</sup>

This nineteenth-century intellectual context forms the backdrop for Henri Bergson’s most influential discussion of visual media. In the fourth chapter of *Creative Evolution* (1905), titled “The Cinematographical Mechanism of Thought and the Mechanistic Illusion,” he uses the heuristic of ‘the cinematographic illusion’ to address the connection between perception, cognition, and physiological process.<sup>38</sup> The image is also a device with which Bergson critiques the representational veracity of a new media whose development through the discoveries

---

<sup>36</sup> A Tenth of a Second, 118, 19.

<sup>37</sup> A Tenth of a Second, 120.

<sup>38</sup> The full title of the crucial, conclusive fourth chapter is “The Cinematographical Mechanism of Thought and the Mechanistic Illusion—A Glance at the History of Systems—Real Becoming and False Evolutionism.” Bergson, *Creative Evolution*, 296-402.

of nineteenth-century science would have made its assessment in a contemporary scientific idiom seem to him both appropriate and self-evident.

Yet the wonderful tale of cinema's birth is neither a story of straightforward technological development nor a teleology of scientific progress. The social institution we know today as the seventh art made the irrevocable leap into projected movement only at that moment when visual technologies developed in scientific laboratories slid into the hands of a gifted non-scientist capable of submitting them to lateral reuse.<sup>39</sup> The historical figure presented by Louis Lumière is a beguilingly odd one: a melancholic French *haute bourgeois* who 'invented' the cinema in a bout of insomnia with something as prosaic as sewing machines on his mind. Drawing an intuitive connection between the manipulability of two kinds of machines scaled to the ordinary span of bodily movement, Louis Lumière devised a lightweight apparatus that consolidated the two essential camera functions— recording and playback—into a single device. The fundamental difference between his Cinematograph and its direct American predecessor and rival, Thomas Edison and William Dickson's Kinetoscope, was the addition of a clawed mechanism capable of transporting a perforated film-strip through the camera in an intermittent movement. It was a rearrangement of existing elements that the film historian Allan Williams has aptly characterized "one of the nineteenth century's most genial bits of *bricolage*."<sup>40</sup> All the differences between the otherwise congruent Lumière and Edison cinemas come down to inflections of this kind—

---

<sup>39</sup> The Lumière family business, based in Lyon, was the largest manufacturer of photographic plates in Europe by the 1890s. Charles Antoine Lumière, the founder and patriarch, attended an exhibition of Edison and Dickson's Kinetoscope in Paris in 1892. He took home a length of film he had procured from one of the concessionaires to show his sons, Louis and Auguste; suggesting they develop a cheaper, less bulky competing device that would allow more than one person to view the image at the same time. Louis' innovation was to incorporate a sewing machine-like claw that moved the filmstrip through the camera at an intermittent movement.

<sup>40</sup> Alan Williams, *Republic of Images: A History of French Filmmaking* (Cambridge, Mass.: Harvard University Press, 1992), 23.

variations not indicative of differences in technical prowess so much as symptomatic of divergent orientations. The Edison Company's Kinetoscope offered its audience films organized by a scientific instinct to isolate movement in the bodies of actors framed within a blacked-out studio, indicatively nicknamed 'Black Maria'; and took the material form of a peep-show to be viewed by individual spectators through a keyhole.

By contrast, the Lumière Cinematograph addressed a group from the onset by blowing its image up to a scale conducive to collective reception. The thematic concerns of the projected Lumière cinema are explicitly phenomenal: it is a cinema rooted in the spectacle of commonplace milieux brimming with the movement of inanimate things and the real time looseness of slight events. "The subjects of the Lumière's first films are those of a familiar everyday world, sights a middle-class family might see around it" Gunning writes; even as its space is allusive—"an expansive space which extends beyond the screen's border and in which movement circulates from foreground to background and past the frame's threshold, as does the mobile gaze or imagination of the spectator."<sup>41</sup> A frankly visual curiosity provides the principal of selection as Louis Lumière assumes the role of the first producer, guiding the eye of his cameramen, through their mobile camera, into the mapping of a lifeworld. This sensitive yet raking Lumière gaze is calibrated by the sensibility and light touch of a nineteenth-century photographer steeped in pictorial traditions that have permeated the popular imaginary. As a result the films of these cameramen-directors emerge authentically from the same attunement to resonant detail at work in an incipient modernist aesthetic of the everyday fragment. This is *the* cinema of the rustling of the trees in the wind and the smoke that billows from factories; "the

---

<sup>41</sup> Gunning, "New Thresholds of Vision: Instantaneous Photography and the Early Cinema of Lumière," 78.



soot that falls from chimneys,” “the cups, the marmalade, the tea”; a jar in Tennessee, a single blade of grass; and the potent concreteness of a particular wave filmed in intimate close-up as it “paused, and then drew out again, sighing like a sleeper whose breath comes and goes unconsciously.”<sup>42</sup> The characteristic Lumière prioritization of a filmic gaze moulded to the contour of a diffuse worldly movement—one lifted off the human body, to pervade the distributed field—is the indicator of a self-conscious and deliberate exploitation of the representational capacities of a technical frame newly endowed with duration. In this cinema of swirls of motion wrapped around the literal motility of the world, real movement extends the logic of ‘the instant’ into real time. Put differently, the Lumière view extends the temporal attenuation of the instantaneous photograph beyond the durational compact of a richly paused, pregnant moment. Movement *in* the image thus marks the edge against which the Lumière view, and its aesthetics, must be separated from the social and scientific history that forms its conditions of its emergence. As sites of description unfolding in real time, this cinema of the view is not concerned with suspending time so much as with allowing it to unfurl; focused, rather, on the observation and thematization of what happens *between* instants, in intervals of time co-extensive with a lived duration.

### III. The Stakes of Brief Time

For the Bergson of *Creative Evolution* (1907), writing at a moment contemporary with the early cinema, the claim for the fundamental status of movement emerges from an understanding

---

<sup>42</sup> T.S. Eliot, “The Love Song of J. Alfred Prufrock,” in *Collected Poems: 1909-1962* (London: Faber and Faber, 1974, 2002), 3; Virginia Woolf, *The Waves* (New York: Harcourt, 1959), 7. See also William Carlos Williams, *The Collected Poems of William Carlos Williams*, ed. A. Walton Litz and Christopher MacGowan, vol. 1 (New York: New Directions, 1986-1988).



Figure 1.7: Émile Zola, *After Lunch*, c.1888-1902. Published in *Zola—Photographer*, 1988.



Figure 1.8: Lumière Company, frames from *Repas de bébé* (*The Baby's Breakfast*). [22 March 1895] - 10 June 1895. 35mm, b&w, silent. Cameraperson: Louis Lumière. Lumière home, Monplaisir, Lyon, France. Collection of the Institut Lumière, Lyon.

of duration as the thick time that subtends experience in the world—an ongoingness that animates the materiality of life. “Form is immobility and *the reality is movement*” he writes, since “what is real is the continual change of form: form is only a snapshot view of transition.”<sup>43</sup> Yet the pervasion of duration, for Bergson manifested empirically in the variability and multiplicity of movement in the world, is an oddly incommensurate real.<sup>44</sup> Since ongoingness defines movement in the absolute and “movement is reality itself,” the terms of his model utterly repudiate representations of motion predicated on a fixing of durational flow into increments, however infinitesimal.<sup>45</sup> “Let the interval between two consecutive states be infinitely small,” Bergson points out, “*the movement slips through the interval*, because every attempt to reconstitute change out of states implies the absurd proposition, that movement is made of immobilities.”<sup>46</sup> It is a view, notes Gilles Deleuze, in which movement can never be represented in ways that fix or concretize, by “positions in space or instants in time: that is, with immobile sections,” since to do so is to miss the essential fact that “movement will always occur in the intervals between the two [instants]... however much you divide and subdivide time, movement will always occur in concrete duration.”<sup>47</sup> Understood in its Bergsonian framing, as the robustly material instantiation of *durée*, movement cannot be abstracted into symbolic, spatial or

---

<sup>43</sup> Bergson, *Creative Evolution*, 328. My emphasis.

<sup>44</sup> “The mobile flies forever before the pursuit of science,” writes Bergson, and to represent duration with singularities is a fool’s errand: “Call them *qualities, forms, positions, or intentions*, as the case may be, multiply the number of them as you will, let the interval between two consecutive states be infinitely small: before the intervening movement you will always experience the disappointment of the child who tries by clapping his hands together to crush the smoke.” *Creative Evolution*, 327, 34. Bergson’s writing brims with such analogical efforts to convey the full elegance of *durée*’s paradoxical intangible presence—its intuitive, affective reality—by verging into poetic metaphor.

<sup>45</sup> “The Perception of Change (1920),” 119.

<sup>46</sup> *Creative Evolution*, 334-5. My emphasis. “In the smallest discernible fraction of a second, in the almost instantaneous perception of a sensible quality, there may be trillions of oscillations which repeat themselves,” Bergson explains, and “the permanence of a sensible quality consists in this repetition of movements, as the persistence of life consists in a series of palpitations.” *Creative Evolution*, 327.

<sup>47</sup> Deleuze, *Cinema 1: The Movement-Image*, 1.

epistemological registers; and the notion of instantaneous time is merely descriptive of the illusions by which natural perception attempts to tame phenomenal multiplicity into manageable, but insidiously transparent singularities.

A full-bodied insistence on the experiential nature of movement thus locates the core of the Bergsonian distinction between the abstraction implicit in spatializations of time (the symbolic logic of mathematics, Euclidian geometry or the instant of an instantaneous photograph) and the indivisible fullness of duration as the very stuff of the real—reality itself, accessed in intuition, creativity and common sense. Indeed Bergson reframes and extends the implications of Marey’s description of visual persistence as a bodily lag into a much broader claim. “Preoccupied before everything with the necessities of action,” he writes, “the intellect, like the senses, is limited to taking, at intervals, views that are instantaneous and by that very fact immobile of the becoming of matter ... Thus, we pluck out of duration those moments that interest us [and] *these alone we retain*.”<sup>48</sup> The dilation of an ambiguous line between ‘reality’ and ‘illusion’ that propels *Creative Evolution*’s remarkable exploration of “true evolution, the radical becoming” moves into a conception of ordinary epistemology as comprised no more or less than by acts of fixing: utilitarian modes of attention that, like the pausing of a kaleidoscope, extract in stasis “what stability and regularity there is in the flow of reality.”<sup>49</sup> In a subtle contemporaneous commentary Karin Costello writes that Bergson posits that the intellect is not essentially speculative “but was developed in living beings as a specialized organ of choice ... primarily with a view to action upon matter [understood as] the part of reality whose changes can be regarded as taking place by

---

<sup>48</sup> Bergson, *Creative Evolution*, 297. My emphasis.

<sup>49</sup> Ibid. “The Possible and the Real,” 76.

the rearrangement of old elements in a new order.”<sup>50</sup> And Bergson moves to concretize what is otherwise a profoundly counterintuitive claim about how mediation, repetition, and the new come together in experience by locating his argument within its seeming exemplification in the film technology immanent to his time—that is, by specifying a defense of real movement against the negative description of a recognizable Lumière view.

“Suppose we wish to portray on the screen a living picture such as the marching past of a regiment,” Bergson asks, “how could it, at its best, reproduce the suppleness and variety of life?” This question is not a rhetorical one, and the solution offered by the photographic synthesis is as follows:

to take a series of snapshots of the passing regiment and to throw these instantaneous views on the screen, so that they replace each other very rapidly. This is what the cinematograph does. With photographs, each of which represents the regiment in a fixed attitude, it reconstitutes the mobility of the regiment marching. It is true that if we had to do with photographs alone, however much we might look at them, we should never see them animated: with immobility set beside immobility, even endlessly, we could never make movement. In order that the pictures may be animated, there must be movement somewhere. *The movement does indeed exist here; it is in the apparatus.* It is because the film of the cinematograph unrolls, bringing in turn the different photograph of the scene to continue each other, that each actor of the scene recovers his mobility; he strings all his successive attitudes on the invisible movement of the film. The process then consists in extracting from all the movements peculiar to all the figures an impersonal movement abstract and simple, movement in general, so to speak: we put this into the apparatus, and we reconstruct the individuality of each particular movement by combining this nameless movement with the personal attitudes. Such is the contrivance of the cinematograph. And such is also that of our knowledge.<sup>51</sup>

At the heart of Bergson’s denouncement of cinema lies this claim: that in cinematic representation, movement resides “*in the apparatus.*” The Cinematograph’s reliance on a

---

<sup>50</sup> Karin Costelloe, “What Bergson Means by ‘Interpenetration,’” *Proceedings of the Aristotelian Society* 13(1912-1913): 140.

<sup>51</sup> Bergson, *Creative Evolution*, 331-2. Extended emphasis mine.



sequence of instantaneous views—the photographic sub-structure of a filmstrip—seems to provide the basis for an absolutist rejection of cinema’s representational veracity, since however apparently variegated the motion on-screen, for Bergson it will never confirm anything other than the tenacity of the illusions flowing from visual persistence. Film offers a deceptive verisimilitude that materializes not true worldly multiplicity but its mere simulation: “*impersonal movement abstract and simple, movement in general.*”

Paradoxically, if Bergson’s phenomenology offers a thick philosophical conception of movement as “physical reality in the external world,” in Deleuze’s evocative paraphrase, it is precisely *not* in the cinema that he allows the potential for an encounter with movement’s concrete duration.<sup>52</sup> Rather, in a position that compacts a diverse set of late nineteenth-century preoccupations with time, perception, and the body’s place within that dialectic—a fulcrum that pushes, in Canales’ account, radically “*against* the grain of Enlightenment master narratives where quantification appears as one of the salient features of modern progress”—Bergson articulates a repudiation of the cinema that prioritizes a consideration of the technology underneath the image over an engagement with its spectacle qualities.<sup>53</sup>

A point of view that structures the primary experience of a film through a cogent deconstruction of the mechanics of its supporting technology, that is to say—and revealed by descriptive language that evokes an actor “string[ing] all his successive attitudes on the invisible movement of the film”—attests to Bergson’s location within a scientific and philosophical discourse that saw an epistemological correlation between technologies of vision and the

---

<sup>52</sup> Deleuze, *Cinema 1: The Movement-Image*, xiv.

<sup>53</sup> Canales, *A Tenth of a Second*, 13. My emphasis.

organization of bodily perception. Positing movement *in the apparatus* draws the structure of natural perception into a direct and intimate correlation with photographic media; with both ‘seeing’ and ‘seeing film’ now understood as mutually predicated on a reification of instantaneous time. As Deleuze notes, Bergson’s claim that “*the mechanism of our ordinary knowledge is of a cinematographical kind*” makes film an exemplar of the errors of natural perception.<sup>54</sup> Bergson’s critique of ‘cinematographic illusion’ consequently rests on an understanding of natural perception as fundamentally cinematic; or more precisely, on the quite radical proposition that film and photography function, in varying degrees, as exteriorizations of natural perception.<sup>55</sup>

It is worth noting, emphatically, that this diagnostic emerges from a manifest distrust of the machine. Flagging an anti-technological bias across the full breath of Bergson’s project allows a separation of the stakes of his intellectual advocacy from a far more limited and neutral question: what figuration could provide Bergson’s conception of movement with an adequate discursive correlate, given that the claim for *durée* is sketched against a deliberately utopian horizon? I would suggest that, in fact, no figure could possibly do. Only a process (and even then a highly particular one) could really hope to syncopate with those fundamental movements that comprise “the suppleness and variety of life,” because the significance of movement in Bergson’s

---

<sup>54</sup> Bergson, *Creative Evolution*, 332. “When the cinema reconstitutes movement with mobile sections, it is merely doing what was already being done by the most ancient thought (Zeno’s paradoxes), or what natural perception does. In this respect, Bergson’s position differs from that of phenomenology, which instead saw the cinema as breaking with the conditions of natural perception.” Deleuze, *Cinema 1: The Movement-Image*, 2.

<sup>55</sup> Canales writes that for some scientists “photography’s perceived inferiority in revealing movement, especially when compared to drawings, distanced it from the primeval source of empirical science: the senses. ... During [the 1880s] direct observation and handmade drawings continued to be strong contenders for recording and visualizing short periods of time.” Canales, *A Tenth of a Second*, 130. By comparison, Bergson’s repeated references to “the cinematographical instinct of our thought” posits an understanding of photography as an intimate correlative to embodied vision: “the vision that a systematic intellect obtains of the universal becoming when regarding it by means of snapshots, taken at intervals, of its flowing.” Bergson, *Creative Evolution*, 343.



philosophy is bound up with its incommensurability.<sup>56</sup> The reality of duration marks the claim of organic becoming to be unencumbered, to be encountered in experience; and Bergson's comments on instantaneous photography are illustrative on this essential point.

Contemplating a series of photographic motion captures, likely by Marey, Bergson offers a robust rejection of the technical image; but not on the basis of its technological character. Rather, these elegant comic book-like sequences—visually powerful in ways that have sized the popular imagination for a century—are judged to be inadequate temporal inscriptions. In Bergson's view the representation of an action through a series of temporally adjacent photographs advances a strong claim to represent the duration of movement, yet lacks a system of overlay sophisticated enough to actually install the viewer into the duration of the depicted event. He elaborates in the following way:

Of the gallop of a horse our eye perceives chiefly an attitude, a form that appears to radiate over a whole period and so fill up a time of a gallop. It is this attitude that sculpture has fixed on the frieze of the parthenon. But instantaneous photography isolates any moment; it puts them all in the same rank, and thus the gallop of a horse spreads out for it into as many successive attitudes as it wishes, instead of massing itself into a single attitude, which is supposed to flash out in a privileged moment and to illuminate a whole period.<sup>57</sup>

This word picture deems the representation of movement by an ancient relief sculpture more technically acceptable than that proffered by the new media of instantaneous photography, because the technical image is deemed too overtly convincing to the human eye. The sheer concreteness of the detail in the photographic image seems to Bergson to divert attention from the camera's essentially random selection of any-moment-whatever from a temporal continuum.

---

<sup>56</sup> Creative Evolution, 331.

<sup>57</sup> Creative Evolution, 361.

By comparison, the Parthenon relief offers the viewer a summative gestalt—the plastic consolidation of “the gallop of a horse” into a visual comportment that masses “itself into a single attitude”—that Bergson understands to illuminate the animal’s loping cantor in its “whole period.” Neither ancient nor modern mode of representation correlates with the actual duration of experience, but the crucial difference concerns their degree of representational fidelity to the *unrepresentability* of ongoingness. The clarity with which an imaging technique discloses its inadequacy to *durée*’s elegant manifold is the criteria against which Bergson will judge its representational adequacy, because this dimension of avowal—an open display of made-ness—seems to him the determining factor in the spectator’s access to the incommensurate fullness of time welling behind any representation of the real.

Thus Bergson refuses photographic realism as a deceptively reductive form of mimesis, and makes instantaneous photography the symbol and very exemplar of the aspirations of a modern scientific regime whose basically instrumental attitude to movement Deleuze summarizes thus: “the modern scientific revolution has consisted in relating movement not to privileged instants, but to any-instant-whatever”; and “cinema seems to be the last descendent of this lineage which Bergson traced.”<sup>58</sup> Framed simply as the technical extension of instantaneous photography, itself not placed into a chronology of scientific devices devoted to the unselfconscious reification of flux into the any-instant-whatever, *Creative Evolution* brings the cinema into focus as the inheritor and most insidious contemporary expression of an ancient human drive to quantify the incommensurability of flux into symbolic abstractions.

---

<sup>58</sup> Deleuze, *Cinema 1: The Movement-Image*, 4.



Figure 1.9: Block IX of the Parthenon's west frieze. 442-438 B.C. Marble relief. 1010 x 1400 m. Collection of the Acropolis Museum, Athens.



Figure 1.10: Étienne-Jules Marey, *Horse and Rider*; *Chronophotographic Film*. 1893-94. Silver gelatin print. 76 x 9 cm. Collection of the Museum of Modern Art, New York.

Yet a genealogy and flat teleology that places film and photography into a deterministic role as scientific puppet is a contestable construction, because far too literal. The razored incisiveness with which Bergson breaks down “the contrivance of the cinematograph” or the photographic representation of “the gallop of a horse” erases the aesthetic texture of both the film and the photograph. By moulding to the technical logic of his target apparatus with a thoroughness that strips the materiality of the image into a nakedness bereft of all presence, for example, Bergson reduces the Lumière view to this mechanical operation—“It is because the film of the cinematograph unrolls, bringing in turn the different photograph of the scene to continue each other, that each actor of the scene recovers his mobility.” This descriptive annihilation is a rhetorical tactic that deploys language with a rationalist precision that should remind us of Bergson’s formation in the same nineteenth-century scientific context that produced photography and viewed its implications from the point of view of research. The aggression of his philosophical judgement, deliberately calibrated to counter what it perceives as the quantifying aspirations of a powerful scientific regime, does no justice—indeed, barely perceives—the pleasures and sentimental affects that imbibe a technical image apprehended as visual spectacle with the moody, playful recalcitrance and enjoyment that is the amateur’s utterly essential contribution to the history of our image technics.

But the Bergson of my original scene of spectatorship is at a site of theatrical performance; and however explicitly under-acknowledged by his philosophical description, an aesthetic dimension is engaged by this context. Returning to the guiding implications of Miriam Hansen’s declaration that the stakes of film spectatorship engage “a question of how one defines—and confines—the concept of cinema as an institution,” I want to turn here to the film scholar Yuri Tsivian for a

definition of cultural reception as “reflective rather than reactive response... a response that is active, creative, interventionist, or even aggressive.”<sup>59</sup> Since for Tsivian “it is scarcely worth discussing the evolution of film discourse if we think of discourse as something restricted to the films themselves,” his analysis grants the notion of reception an explicitly Bakhtinian discursive range—one that allows critical access to a thicker, more contradictory sense of film spectatorship as a socially bounded aesthetic experience; one that includes both filmic and extra-filmic dimensions.<sup>60</sup> It is in this expanded sense of cultural reception as a reflective response spread over a non-continuous range of cultural situations, types of media, and moments in time that I want to consider *Creative Evolution*’s account of the Lumière program. Situated in the intermedial situation of cultural reception, Bergson’s reading of film can be grasped as a spectatorial response: one that participates in a history of engagements with the cinema of attractions teeming with variously troubled, compelled, disturbed, impassioned, and lyrical reaction.

More specifically, I want to suggest that the pertinent frame of reference for the encounter between film and philosopher is spectatorial, not scientific. What is at stake in the description of Bergson’s experience of viewing concerns not only quantified time, or the reified any-instant-

---

<sup>59</sup> Hansen, *Babel & Babylon*, 88; Yuri Tsivian, *Early Cinema in Russia and Its Cultural Reception*, trans. Richard Taylor (London; New York: Routledge, 1994), 1. “Reception works like a diffusing lens,” Tsivian writes, and “one ought to think of it as an ensemble rather than as consisting of discrete art forms,” because “intertextuality is not always the property of the text itself. Sometimes we find it only in post-textual images.” *Early Cinema in Russia and Its Cultural Reception*, trans. Richard Taylor, *Soviet Cinema* (London ; New York: Routledge, 1994), 11-2.

<sup>60</sup> The experiential thickness of film reception in Tsivian’s broader sense of the term is attested to by the heterogenous range of trace evidence his readings draw upon—contemporary accounts of film viewing sourced from newspaper reviews, literary narratives, details of sound and acoustic practice, popular imagery, the views of Symbolist poets and modes of acculturation to film traced in sources ranging from trade journals to comic strips. Equally significant is his nuanced attention to the multiple phenomenal structures that organize film experience: theatre architecture, the figure of the projectionist, previous literary experience and the original strangeness of the film cut to a spectator’s sense of space, to name a few examples.

whatever, but also the presence and durational present of an absorbed contemplation that Jacques Rancière has called “the suspended time of aesthetic experience, and that towards which it makes time deviate.”<sup>61</sup> In place of a philosophical description limited to an account of the Cinematograph’s mechanical operation, then, I want to pose the following question about this philosopher at the movies: How does Bergson understand his own pleasure in visuality in that concrete durational interval during which the first program of moving images unfurled its *mise-en-scène* of presence?

#### IV. The Status of Description

The discursive specificity of *Creative Evolution*’s description of a Lumière film speaks to the inextricability with which a judgement on visual spectacle emerges from a local situation of viewing and a situated phenomenology of perception. At stake in the located quality of this judgement is the status we are to ascribe to practices of reading, and the knowledge-effects that accrue to different kinds of description. The holistic perspective of a Bergsonian apprehension perceives movement in all things, as a vital manifold, and for this reason is remarkably unobtrusive in distinguishing between the reality effects of quite heterogeneous durational inscriptions: the film, the snapshot or instantaneous photograph, and the kaleidoscope. Bergson’s discussion of perceptual illusion slides between and around these optical technologies in a manner that implies

---

<sup>61</sup> Rancière, “Thinking between Disciplines: An Aesthetics of Knowledge,” 8.

his sense of their interchangeability; and this logic of equation undergirds his transference of a judgement about *science* onto photography, and then cinema.<sup>62</sup>

But a conscious deployment of language that conjures a dubious rhetorical equivalence between three temporally distinct forms of visual capture engages language in a slide; using rational description as metaleptic substitution for a full-bodied account of the experience of mediation that would have to acknowledge the spectatorial difference between the apprehension of a still, a re-arrangeable, and a moving image. Bergson's overly-generalized treatment of visual media in fact anticipates a bias in the twentieth-century philosophical project of thinking the impact of the technical in experience that Mark Hansen has named "*technesis*, the putting-into-discourse of technology."<sup>63</sup> The claim that "the contrivance of the cinematograph ... is also that of our knowledge" torques the experience of film into an ideological trope, first by rendering cinema into an always-already insufficient shadow of the real, and then submitting it to a second misuse by making film the ideally adequate *negative* exemplar of the incommensurability of movement. Put differently, the literality of Bergson's analytic description is entirely effective in fulfilling its agenda of stripping the moving image of robust durational presence, by virtualizing this presence into an order of symbolism. "Bergson seems to have refuted the cinema as someone who holds a piece of film in their hands" the French art historian Georges Didi-Huberman has written; and in this posture "movement is reduced to the 'immobile sections' of a photogram, as

---

<sup>62</sup> The claim about cinema is immediately followed by this analogy: "There is between our body and other bodies, an arrangement like that of the pieces of glass that compose a kaleidoscope picture," so that "we may say, if we are not abusing this kind of illustration, that *the cinematographical character of our knowledge of things is due to the kaleidoscopic character of our adaption to them.*" Bergson, *Creative Evolution*, 332-3.

<sup>63</sup> In the terms of Hansen's argument, the Bergson of *Creative Evolution* can be seen to treat the technical spectacle "descriptively," in a manner that instantiates a "dogmatic stripping away of its robust materiality." Hansen, *Embodying Technesis: Technology Beyond Writing*, 27. See also Martin Jay's intellectual history of an anti-optical tradition in French thought: Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of California Press, 1993).



opposed to a projected film.”<sup>64</sup> Such a discursively accomplished sleight of hand reorients the apprehending gaze not only of the reader, but also—and perhaps more insidiously—of the writer. Both are turned deterministically away from the material present and presence of another perceptual real that has always grounded film spectatorship in the affective valences of a visual pleasure that I will refer to, after Christian Metz, as “the reality of the impression, the real presence of motion.”<sup>65</sup>

The aesthetic *dispositif* of early cinema includes a durational frame that can re-conjugate the outcome of the encounter between film and philosopher. Between the living body and the living image, the cinema of attractions inserts a temporal pulse in the open solicitation of the viewer by an exuberant, flirtatious gaze that speaks to “the novel ways [early] cinema took hold of its spectator” and “the potential energy” of this address.<sup>66</sup> These exhibitionist films, utterly willing to demonstrate and exploit their made-ness, flaunt the co-presence of viewer and recording eye, audience and spectacle; because the cinema of attractions is constituted along lines that install the viewer in real time through a set of aesthetic strategies. In the sphere of this aesthetic specification of time, further, ‘the instant’ coincides with what Edmund Husserl calls the literal duration of a temporal object that contains its own time.<sup>67</sup> Bergson failed to acknowledge that in watching the Lumière program *he was installed in its concrete duration*.

---

<sup>64</sup> Didi-Huberman, “The Eye Opens, the Lamp Goes Out: Remarks on Bergson and Cinematography,” 428.

<sup>65</sup> Christian Metz, “On the Impression of Reality in the Cinema,” in *Film Language: A Semiotics of the Cinema* (Chicago: University of Chicago Press, 1965/1991), 9.

<sup>66</sup> Tom Gunning, “Attractions: How They Came into the World,” in *The Cinema of Attractions Reloaded*, ed. Wanda Strauven (Amsterdam: Amsterdam University Press, 2006), 32.

<sup>67</sup> Edmund Husserl, *On the Phenomenology of the Consciousness of Internal Time (1893-1917)*, trans. John Barnett Brough, vol. 4, *Collected Works* (Dordrecht, Boston Kluwer Academic Publishers, 1991).

A hint of this evasion surfaces in the fact that, by locating movement in the *apparatus*, Bergson is forced into the odd position of insisting upon a non-phenomenological form looking without seeing; by repudiating the reality of a viewer's imaginative experience of the spectacle manifestly undulating before her eyes. The claim that an *actualité* film images only “movement in general” is a reduction contradicted by accounts of other early viewers who saw the screen as presenting, by contrast, an almost overwhelming abundance of variable detail.

“When the lights go out in the room in which Lumière’s invention is shown,” writes Maxim Gorky in one of the most evocative textual records of a Lumière program to have survived, “there suddenly appears on the screen a large grey picture, ‘A Street in Paris’—shadows of a bad engraving.”<sup>68</sup> The ordinariness of the subject-matter and the apparent familiarity of its media (a *bad* engraving) predominate in his impression until “a strange flicker passes through the screen and the picture stirs to life. Carriages coming from somewhere in the perspective of the picture are moving straight at you ... bicycles tear along, and pedestrians cross the street ... All this moves, teems with life and, upon approaching the edge of the screen, vanishes somewhere beyond it.”<sup>69</sup> In the dilated time of this deliberately literary narration, we have preserved the shape of a subtle psychological shift—one absolutely contingent on the perception of movement. As the image unfreezes and begins to unfurl in time, the stability of the perceiver’s referential frame becomes inflected with a suggestive precarity—moving from the evocation of various representational similitudes to the ambiguous zone of life “somewhere beyond” the frame. This

---

<sup>68</sup> Maxim Gorky, “Newspaper Review, Nizhegorodski Listok, 4 July 1896,” in *In the Kingdom of Shadows: A Companion to Early Cinema*, ed. Colin Harding and Simon Popple (London & Madison, N.J.: Cygnus Arts & Fairleigh Dickinson University Press, 1996), 5.

<sup>69</sup> *Ibid.*

radical relocation of phenomenal markers perturbs, prompting the perceiver to decry an image in which “a life is surging, [but] a life deprived of words and shorn of the living spectrum of colors.”<sup>70</sup> The plenitudinous presence of movement in the frame asserts a forceful sense of the parallel between the quotidian experience of a recognizable place and its filmic representation as *setting*; and the aesthetic power of this juxtaposition generates an expectation of experiential fullness set disquietingly against the absence of sound and color in a film “where no rumble of wheels is heard, no sound of footsteps or of speech.”<sup>71</sup>

In this moment Gorky’s text, an important account of reception, demonstrates the sheer complexity of that referential intertwining invoked by the psychological effect of the perception of movement in film. It is an impression so redolent with a wholly aesthetic range of reference that, in Tsivian’s words, “where one would expect a description of a deficient image, one finds a sophisticated description of a world ‘made strange’.”<sup>72</sup> Gorky’s slide here between the known and the unknown, his descriptive layering of familiarity and strangeness, reminds us of “the unclear cognitive status of the screen” for an early viewer to whom this imagistic plane seemed “an ambiguous and elusive membrane, a boundary between ‘us’ and ‘them’ that—at the same time—insisted that no boundary existed at all.”<sup>73</sup> The blurring between cinematic and phenomenal reals contingent on this quality of screen-interface imbibes the mixed verisimilitude of the filmic representation with the texture of a remembered or imagined experience. In this, the intertextuality of cultural reception becomes ringed with a density more extensive and

---

<sup>70</sup> Ibid.

<sup>71</sup> Ibid.

<sup>72</sup> Tsivian, *Early Cinema in Russia and Its Cultural Reception*, 2.

<sup>73</sup> *Early Cinema in Russia and Its Cultural Reception*, 135, 55.

emotionally amplified than Bergson's judgement will allow. Gorky's viewing of the Lumière program unfolds in that gap which Miriam Hansen, citing Alexander Kluge, calls the space between "the film on the screen and 'the film in the spectator's head'"; and its richness expands the scope and stakes of 'cinematographic illusion' into the fully dialectical terms of an aesthetic illusion.<sup>74</sup>

The emphasis on questions of spectatorship required to rescue the aesthetic reality of cinematic movement from the absolutist timbre of the Bergsonian indictment has contemporary implications. The degree of reality we are willing to grant the materiality of viewing practices is a fundamentally political question, one with implications for what claims can be viably advanced about the creative and expressive scope latent in media technologies. Resisting Bergson's foreshortened collapsing of technics into perception itself, I posit that the mediation of a technical frame always retains the potential to act as a defamiliarizing device by inserting an intersubjective or intra-subjective interstice between an image of the real and the real of the subject's experience. Such a temporally nuanced conception of media spectatorship clears room for an indispensable third term to rear into life at the moment when, in Miriam Hansen's words, "reception can gain a momentum of its own, can give rise to formations not necessarily anticipated in the context of production."<sup>75</sup> At stake in the question of the phenomenal materiality acknowledged to subtend acts of engagement with media, then, is this nub: the agency of the viewing subject.

---

<sup>74</sup> Hansen, *Babel & Babylon*, 13.

<sup>75</sup> *Babel & Babylon*, 7.

To this extent questions of reception remain absolutely pertinent to our lives as participants in a digital media paradigm coextensive, more or less, with every domain of living. “The political issue,” Hansen summarizes, “is whether and to what extent a public sphere is organized from above—by the exclusive standards of high culture or the stereotypes of commodity culture—or by the experiencing subjects themselves, *on the basis of their context of living (Lebenszusammenhang)*.”<sup>76</sup> If her phrasing here invokes that experiential substrate Benjamin calls “the hidden necessities governing our lives,” it more broadly engages a Frankfurt School tradition of thinking experience (*Erfahrung*) with a dialectical fullness delineated in this gestalt: “experience as that which mediates individual perception with social meaning, conscious with unconscious processes, loss of self with self-reflexivity; experience as the capacity to see connections and relations (*Zusammenhang*), experience as the matrix of conflicting temporalities, of memory and of hope, including the historical loss of these dimensions.”<sup>77</sup> In this emphatic, Bergsonian sense of experience, the perceiving, restless, desiring, perhaps suffering, but always-implicitly cognizing subject who imaginatively reorganizes the information presented to her in images moving autonomously on a screen is not merely duped by an illusion stemming from the physiology of vision.

Rather, this spectator participates actively in a form of agential play within an expanded field of aesthetics wherein an illusion rooted in the knowledge of the body refracts dialectically

---

<sup>76</sup> Babel & Babylon, 7, 12. My emphasis. The German word *Lebenszusammenhang* has a rich history in literary critical philosophy, variously meaning for Ricoeur, Heidegger, Gadamer and Habermas “context of experience,” “holistic life-connection,” “narrative coherence,” “life connections,” or more simply, ‘the way things are put together in life.’ A French translation of *Being and Time* renders *Lebenszusammenhang* with “*enchaînement de la vie*.”

<sup>77</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1936),” 117; Hansen, Babel & Babylon, 12-3. My emphasis.

between fantasy and the real to engage a disruptive power Rancière calls dissensus.<sup>78</sup> In Bertolt Brecht's formulation, the alienation effect is a deregulating perceptual device that "must amaze its public," via a de-familiarization routed first and foremost through the senses; because "nothing needs less justification than pleasure."<sup>79</sup>

"And *pleasure* is the issue here, even if pleasure of a particularly complicated sort" Gunning reminds us of the aesthetic of astonishment that rules the cinema of attractions. "Far from being placed outside a suspension of disbelief," the viewer of an attraction is bound by the incremental temporal thrall of a presentation that "acts out the contradictory stages of involvement with the image, unfolding, like other nineteenth century visual entertainments, a vacillation between belief and incredulity [that] reverses and complicates the trajectory of experience solicited by a trompe l'oeil still life."<sup>80</sup> Within this concrete duration of perception, the reciprocal potentiality built into the very structure of cultural reception connects the viewing subject with what remains beyond herself in experience and the social—"the other viewer, the audience as collective, the theatre as public space, part of a social horizon of experience."<sup>81</sup> In this respect the magic of a cinematic illusion is deeply implicated in a very old power of artistic and literary genres to spin out the representation of a setting that *seems* real, in the Bakhtinian sense of a chronotopic space-time weave where "time, as it were, thickens, takes on flesh, becomes artistically visible;

---

<sup>78</sup> Benjamin's 'hidden necessities governing our lives,' writes Rancière, is the social a priori, "an arrangement [*dispositif*] that aesthetic experience deregulates." Aesthetic experience disrupts the transparent identification of subject with subject-position through the expression of an agency connected in important ways to bodily knowledge that Rancière calls "the sensible rupture of the relation between a body and what it knows." Rancière, "Thinking between Disciplines: An Aesthetics of Knowledge," 4, 7.

<sup>79</sup> Bertolt Brecht, "A Short Organum for the Theatre," in Brecht on Theatre: The Development of an Aesthetic, ed. John Willett (New York, London: Hill and Wang, Methuen, 1947-8/1964), 192, 87.

<sup>80</sup> Gunning, "An Aesthetic of Astonishment," 121, 19. My emphasis.

<sup>81</sup> Hansen, Babel & Babylon, 13.

likewise, space becomes charged and responsive to the movements of time, plot and history.”<sup>82</sup>

The intersubjectivity of aesthetic participation that forms the ground of reception can amount even to a strategy of psychic survival, since fantasy, as Lauren Berlant writes, “always expresses a desire for continuity with a better world than yet exists. In this is it always utopian and critical, a measure of a lack that, at the same time, is often expressed in an attachment to objects that do already exist and that therefore misrepresent inevitably the desires that bring people to them.”<sup>83</sup>

Spectatorship is then no neutral or static thing—as an analytical rubric moulded on the evidence of empirical practices, it describes a situation of reading in which the temporal gap between body and technics enfolds the interval of a processual unfolding: a concrete time of perception during which ‘viewing’ is enactment as a tension filled, inherently creative meaning-making activity.

I want to counter the conclusions offered by *Creative Evolution* with another set of readings, since Bergson’s description of the Lumière program is only a rather more privileged instance of ‘the film in the spectator’s head.’ And the *actualité* genre of the cinema of attractions, emerging from an intermedial mix of old and new traditions, is saturated with a quality of ordinariness that makes its films unusually open to the mediation of imaginative projection.

Watching these movies, I am struck over and over again at the way they seem to hold a self-effacing posture that points past the frame, to the situation of life from which they so palpably emerge.

This sense of permeability draws partly from the constant eruption of real-time contingencies in the frame, to which one attends differently at different viewings. In *Workers Leaving the Factory*,

---

<sup>82</sup> M. M. Bakhtin, “Forms of Time and of the Chronotope in the Novel: Notes toward a Historical Poetics,” in *The Dialogic Imagination: Four Essays*, ed. Michael Holquist (Austin: University of Texas Press, 1981), 84.

<sup>83</sup> Lauren Berlant, *The Female Complaint: The Unfinished Business of Sentimentality in American Culture* (Durham: Duke University Press, 2008), 213-4, 16. My emphasis.

for example, dogs pop out of nowhere to disrupt the directional flow of human bodies, introducing a touch of the slapstick to the film's visual cacophony. As the increasing orderly exit of every progressive remake registers the workers' awareness of the camera's gaze, these ever-present dogs remain resolutely animal. Patently in everyone's way, they contribute the kind of unrefined disruption to the structure of predetermined action that endears a spectacle to the popular imagination because, in Siegfried Kracauer's words, "it [has] elicited from the flow of everyday life a proper story with a funny climax to boot."<sup>84</sup> This quality of the relatable, to be found everywhere in the Lumière corpus, imbibes its *mise en scène* with a middleness that is not only the romanticized liminality of in-between that Deleuze, ventriloquizing the task of the avant-garde, calls "setting out to catch things where they were at work, *in the middle*: breaking things open, breaking words open."<sup>85</sup> The Lumière 'middle' also crystalizes the flatter, more prosaic sense of middle experience as unremarkable ordinary life that Walt Whitman called the "bulk average."<sup>86</sup> It is this latter valence of the ordinary that Kracauer validates in categorizing the Lumière films under the genre of the found story: as "stories found in the material of actual physical reality," seemingly "discovered rather than contrived," "part and parcel of the raw material in which it lies dormant," "drawn straight from upstaged everyday life"—in a phrase: '*slight narratives*'. "If put into words," he concludes wryly, slight narrative "would be something like an interpretative account bordering on poetry."<sup>87</sup>

---

<sup>84</sup> Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality*, Introduction by Miriam Bratu Hansen (Princeton, N.J.: Princeton University Press, 1960, 1997), 30.

<sup>85</sup> Gilles Deleuze and Robert Maggiori, "Breaking Things Open, Breaking Words Open," in *Negotiations, 1972-1990* (New York: Columbia University Press, 1986/1995), 86. My emphasis.

<sup>86</sup> Walt Whitman, "America's Bulk Average," in *Complete Poetry and Collected Prose* (New York: Literary Classics of the United States, Viking Press, 1982), 1299.

<sup>87</sup> Kracauer, *Theory of Film*, 245-6, 49. My emphasis.



And there an effortless poetry to the discovery latent in the found-quality of the Lumière micro-events, in their cinematic mediation. They bristle with contingencies, like the straggler with the luggage trolley who interrupts the cameraman's carefully composed one-point perspective in the opening frames of *The Arrival of a Train*; or the loiterers of *Washerwomen on the River* whose languorous poses parody Baudelaireian strolling in their comic obliviousness to the motion running in bands above and below them: the women's ceaseless labor, and the carriages moving contrapuntally across the screen.

Even a manifest awkwardness can become a meaning-filled detail. An impeded composition that cuts the heads off people in the foreground of *The Pyramids and the Sphinx* seems initially ungainly, the obvious result of the cinematographer's concern with framing the monuments in deep space. Yet one is invited by this visual fumble to consider the contingencies of travel and the labors of production that buttress this moving snapshot; and the reflection layers the *longue durée* of ancient forms with the tremulous contemporaneity of tourist-time and the present tense of ordinary locals going about their business. This imaginative palimpsest entirely remakes the image by rendering the 'view' a film *of time*: an inscription with light imbued with a philosophical ache amplified by the mediation of a technical distance that lets us see, through the camera, that "this new art of writing makes any subject matter equal to any other."<sup>88</sup> To put it another way, we might say that the Lumière view's narrative slightness means that the accidents captured inadvertently in its frame seem less like failures than as the record of the vicissitudes of experience; and as such, they invite identification.

---

<sup>88</sup> Jacques Rancière, "Why Emma Bovary Had to Be Killed," *Critical Inquiry* 34, no. 2 (Winter 2008): 237.

Just such a comprehending sympathy is evoked when the force of a windy day stalls the *Boat Leaving the Harbor* and turns it around into an inept horizontality, to the visible discomfiture of the rowers.<sup>89</sup> In an episode like this the contingency of the actuality genre erupts into sight to render a moving image already thick with worldly motility seem even “more fluid, more collective, more mobile.”<sup>90</sup> An unplanned ‘wrong’ turn, further, draws attention to the near-invisible skill with which the Lumière cameramen pace their films on the duration and tempo of the micro-event. Paradigmatically in *Policeman’s Parade, Chicago* (1897), the length of the film-reel is made to syncopate with the time needed for the whole company to appear before the lens; so that Bergson’s regiment marches across the screen as an organic unit. The formal slightness of this fidelity to a temporality inherent in the grain of ordinary action has, upon closer examination, an extremely powerful effect. The film scholar Jacques Aumont expresses its amplification of presence by asking a rhetorical question:

Is this a ‘narrative’? I would not use that term, but there is unquestionably *mise en scène*. It is just that the *mise en scène* is already in the things [because] the art of representation in the Lumière view is to capture this *mise en scène* of the real, which the simplicity of the event does not prevent from being elaborate.<sup>91</sup>

And it is worth remembering that production and reception were not separate functions in 1896; so that if the aesthetic of the Lumière view seems to proffer a *mise en scène* of the real, then this sense of a cinema infused with the phenomenal must be tied to the state of a film

---

<sup>89</sup> Dia Vaughan also notices this ‘accident’: “What is different about *A Boat Leaving the Harbour* is that, when the boat is threatened by the waves, the men must apply their efforts to controlling it; and, by responding to the challenge of the spontaneous moment, they become integrated into its spontaneity. The unpredictable has not only emerged from the background to occupy the greater portion of the frame; it has also taken sway over the principals. Man, no longer the mountebank self-presenter, has become equal with the leaves and the brick-dust—and as miraculous.” Vaughan, “Let There Be Lumière,” 65.

<sup>90</sup> Rancière, “Why Emma Bovary Had to Be Killed,” 244.

<sup>91</sup> Aumont, “Lumière Revisited,” 427.

*dispositif* in which the co-presence of maker and viewer was allowed to float limpidly to the surface of the screen. It is the radical avowal of coequality that imbues the Lumière view with so many marks of its situational *a priori*—those ‘pro-filmic’ elements that precede the camera’s framing.<sup>92</sup> This direct address of the cinema of attractions draws the viewer into a tight compact between ‘see-er’ and ‘seen’ by breaking an illusionistic picture-plane in a manner utterly antithetical to a Classical film language predicated on the denial of its made-ness.<sup>93</sup> Yet “it’s easier to remember a gesture or a laugh than a date,” Deleuze has remarked; an off-hand comment that can help us understand something of the mesmerizing force of intimacy that can cloud around an acknowledging glance.<sup>94</sup> The affective jolt that rises from the simple avowal of co-presence contributes in important ways to the Lumière cinema’s strong timbre of emotional charge. It is to this unambiguous pathos of direct address that Hollis Frampton attests when he remembers *Workers Leaving the Factory* with absolute inaccuracy as a celebration for the cinema’s beginnings: “quitting time in a French factory, on a sunny afternoon toward the end of the century, as smiling girls waved and cheered.”<sup>95</sup>

But because Bergson maneuvers to describe cinema as the device of scientific homogenization—a machine for extracting “from all the movements *peculiar* to all the figures an *impersonal*

---

<sup>92</sup> I am drawing on Gunning’s discussion of filmic narrative as composed of “three different levels that interrelate and express narrative information: the pro-filmic, the enframed image, and the process of editing,” as these levels “are perceived by viewers.” Gunning, *D. W. Griffith and the Origins of American Narrative Film*, 18-9.

<sup>93</sup> The Classical Hollywood cinema predicated its ‘transparency’ on a denial of the direct glance at the camera/viewer, or of the coequality of camera and actor. The classic text on the denial of coequality to the construction of a discourse is Johannes Fabian, *Time and the Other: How Anthropology Makes Its Object* (New York: Columbia University Press, 1983).

<sup>94</sup> Deleuze and Maggiori, “Breaking Things Open, Breaking Words Open,” 83.

<sup>95</sup> Frampton, “For a Metahistory of Film.”

movement abstract and simple, movement in general”—the visual proof he selects to exemplify its purported effect yields a particularly exaggerated image of regimentation and uniformity.<sup>96</sup>

In *Policeman's Parade, Chicago* (1896), for example, the typically diagonal line of a Lumière composition takes on an atypical extremity, swooping across the picture-plane to carve out a shallow depth of field that pulls the marching figures into a tight proximity with the lens. The bodily movement that comprises this film's subject is isolated by this oblique, though the extreme foregrounding makes for a rather tamed version of the Lumière view since it blocks out most of the city scene. But the unusual framing also opens up a different order of allusion, accentuating what Livio Belloi calls “a sort of *ballet mécanique*, a choreography and an automatization of movement at regular intervals.”<sup>97</sup> The fundamental point here is that the restricted range of camera vision is a patently formal device; one that works to thematize the subject matter—a group of men reduced to figures by a uniform and their military unison. Indeed, if this compositional structure brings *Policeman's Parade* into closer alignment with the Edison films shot in Black Maria with the explicit intent of tracking bodily motion than with the breezy expansiveness characteristic of the Lumière repertoire, the framing of this *actualité* anticipates an important theme in the early classical cinema's exploration of the real effects of Fordist and Taylorist industrialization on the modern subject—in King Vidor's *The Crowd* (1928) or Charles Chaplin's *Modern Times* (1938)—by picturing a social unit of individuals ordered and regulated by an externally imposed authority, “the *defilement* of disciplined male bodies

---

<sup>96</sup> Bergson, *Creative Evolution*, 331, 32. My emphasis.

<sup>97</sup> Livio Belloi, “Lumière and His View: The Cameraman's Eye in Early Cinema,” *Historical Journal of Film, Radio & Television* 15, no. Journal Article (1995): 468.



Figure 1.11: Lumière Company, first and last frames from *Défilé de policemen (Policeman's Parade)*. 11 September 1896 - 20 September 1896. 35mm, b&w, silent. Cameraperson: Alexandre Promio. Michigan Avenue, Chicago, United States. Collection of the Institut Lumière, Lyon.

marching past the camera in cadence.”<sup>98</sup>

Yet Bergson’s account of the film as “the contrivance of the cinematograph,” and not of its *operator*, untenably discounts these crucial elements of framing and pacing. Alexandre Promio’s *Policeman’s Parade*’s gives us a view of the oncoming regiment in the first frame, while the last frame shows us its end; in this drawing a neat circle around the unfolding of an avowedly militaristic event. To suggest that an actuality film is “either naive or an unmediated record of reality as it happened to occur before the camera ignores the conscious arrangement of the beginning and ends of the action to coincide with the physical beginning and end points of the film,” observes Marshall Deutelbaum, “and fails to recognize the expressive use of space to both clarify the action presented and to focus the viewer’s attention.”<sup>99</sup> Deutelbaum’s phrase ‘conscious arrangement’ points us to the limpid fact that the Promio’s view is moulded, in composition and in tempo, on the organic unit of action proffered by its micro-event. The parade marches before the camera in an interval of time coextensive with the duration of the action and the length of the film reel: a dexterous syncopation that speaks to the skill of an experienced cinematographer. Aumont also sees this careful temporal weaving of filmic and pro-filmic as significant. “To regulate to relationship between the camera, the film and the subject filmed, was also to estimate and manage the duration of that ‘subject’,” he observes, so that as “the view

---

<sup>98</sup> Gunning, “Loie Fuller and the Art of Motion,” 87.

<sup>99</sup> Marshall Deutelbaum, “Structural Patterning in the Lumière Films,” in *Film before Griffith*, ed. John L. Fell (Berkeley & L.A.: University of California Press, 1983), 305.

begins with the entrance into the visible field of a moving object, it ends with its exit.”<sup>100</sup> In Gunning’s account such a temporality is paradigmatic of “the solicitation of viewer curiosity and its fulfillment by a brief moment of revelation typical of the cinema of attractions”; because “this is a cinema of instants, not of developing situations.”<sup>101</sup> The Lumière representation of micro-events as *whole* units of visual display—singularities indifferent to suturing within a subsuming narrative—thus demonstrates with a particular clarity that within the temporal order of a cinematic representation, ‘the instant’ and ‘the interval’ weave together to form an interdependent, mutually reinforcing temporal category.

And the precision with which we are to understand the temporal increments of ‘the instant’ and ‘the interval’ is deeply pertinent to my reading of Bergson’s encounter with the movies. Against Gunning’s claim that the cinema of attractions is “a cinema of instants, not of developing situations,” I would suggest that the Lumière view offers a film corpus not of instants, but of *intervals*.<sup>102</sup> The aesthetic of display is not devoid of duration, and Gunning’s own description of the temporality of the attraction as “a time that seemed to escape from a linear or successive configuration of time,” “an intense interaction between astonished spectator and the cinematic smack of the instance, the *flicker* of presence and absence,” suggests a proto-conceptualization of the interval *in* the instant; in the contradictory time of suspended flow.<sup>103</sup> The intervallic span of

---

<sup>100</sup> “One often has the feeling that the obligatory fifty seconds, corresponding to the materially imposed length of the film in the magazine (seventeen meters, not one meter more or less), also corresponded, by virtue of some mysterious arithmetic, with ‘something’ in the duration of the event—that the latter ends, returns to its starting point, or seems in some way to come to a climax. . . . Broadly speaking it is this sense of duration that has so encouraged people to analyze the Lumière views as little stories or embryonic stories: many of them seem to have a beginning, a middle and an end and thus to ‘tell’ what they show.” Aumont, “Lumiere Revisited,” 426.

<sup>101</sup> Gunning, “An Aesthetic of Astonishment,” 123. My emphasis.

<sup>102</sup> Ibid. My emphasis.

<sup>103</sup> “The Temporality of the Cinema of Attractions,” 49.

the attraction's *showing* establishes a temporal mid-point between the durational polarities of 'the instant' and narrative; as a kind of middle point between "the drive towards display, rather than creation of a filmic world."<sup>104</sup> Understood as they must be, as a cinema of self-contained, sufficiently-developed situations, then, the Lumière films do not need a concept of narrative even distantly derived from the classical film paradigm. This poetic cinema, organized by the centrifugal power of resonant detail and by the movement of the interval, narrates the real in Kracauer's vocabulary—as *slight* narrative.

## V. The Bergsonian Interval

"As to what happens *in the interval between the moments*," Bergson writes of this foundational increment of brief time, "science is no more concerned with that than are our common intelligence, our senses and our language: it does not bear on the interval, but only on the extremities."<sup>105</sup> The fetishization of singularities condemned as the predilection of not only science but, in breathtaking sweep, our ordinary intelligence, senses and language, is a reductive impulse to quantification that Bergson sees as continuous with mathematical spatializations of

---

<sup>104</sup> "Attractions: How They Came into the World," 36.

<sup>105</sup> Bergson, *Creative Evolution*, 358. My emphasis. There is a vast secondary literature on the Bergsonian interval, as befits a concept whose density and range of implication has been taken up critics in relation to questions of newness, feminism, aesthetics, technology, and most recently, new media's re-conjunction of technics and life. For some points in this broad field see: Costelloe, "What Bergson Means by 'Interpenetration'"; Paola Marrati, "Time, Life, Concepts: The Newness of Bergson," *MLN* 120, no. 5 (2005); Dorothea Olkowski, "The End of Phenomenology: Bergson's Interval in Irigaray," *Hypatia* 15, no. 3 (Summer 2000); Elizabeth Grosz, "Deleuze, Bergson and the Concept of Life," *Revue internationale de philosophie* 3, no. 241 (2007); Mark B. N. Hansen, "Movement and Memory: Intuition as Virtualization in Gps Art," *MLN* 120, no. 5 (2006); *Bodies in Code: Interfaces with Digital Media* (New York & London: Routledge, 2006); Eugene Thacker, *Biomedica* (Minneapolis: University of Minnesota Press, 2004); "Biophilosophy for the 21st Century," *CTheory* <http://www.ctheory.net/articles.aspx?id=472>(2005); "Networks, Swarms, Multitudes " *CTheory* (Two Parts)(2004). For an instance of its lateral application in contemporary art relative to issues of globalization, postmodernism and second-world citizenship see Mirela Duculescu and Alina Șerban, eds., *The Seductiveness of the Interval: Ștefan Constantinescu, Andrea Faciu, Ciprian Mureșan, Romanian Pavilion, 53rd International Art Exhibition, La Biennale De Venezia* (7th June-22nd November 2009) (Stockholm: Romanian Cultural Institute, 2009).



time. It is a paradigm whose most egregious effect is to ignore the *middle*: the interval between the demarcated points that accommodates experience, movement, and so life itself. Against these deterministic pressures, Bergson's interval insists on an acknowledgment that:

actual reality is never wholly one thing or the other. *Quâ durée* it is indivisible and admits no repetition.<sup>106</sup>

Fundamental to this conception is the fact that *durée* endures in brevity. The interval is a temporality which absolutely repudiates measurement: a between-space that no infinitely small division of increments could encounter because it traces the span of movement's indivisibility. As a 'middle' it is flux and not a point, and as a pulse of continuity it refutes even the digital vector's claim to endless scalability, remaining indivisible at any rate of brief time. In this, the interval can be understood as a limit against which quantification falters. Yet because it is available to intuition, and "intuition, if it is possible, is a simple act," its effect in experience is far from difficult to grasp.<sup>107</sup> Still, as the temporal structure that locates Bergson's philosophy of intuition, always incommensurably fuller than the sum of parts, to really comprehend the interval's given beauty does indeed require a certain aesthetic perception. "When I speak of an absolute movement, it means that I attribute to the mobile an inner being and, as it were, states of soul; it also means that I am in harmony with these states and enter them *by an effort of imagination*," Bergson explains in a text studded with literary and painterly examples; because "the movement will not be grasped from without and, as it were, from where I am, but from within, *inside it*, in what it is in itself."<sup>108</sup> Calanes reminds us that "by the first decade of the

---

<sup>106</sup> Costelloe, "What Bergson Means by 'Interpenetration'," 146.

<sup>107</sup> Bergson, "Introduction to Metaphysics," 136.

<sup>108</sup> "Introduction to Metaphysics," 133-4. My emphasis.

twentieth century Bergson has reversed the orthodox relation of form to movement: reality was primarily determined by movement.”<sup>109</sup> The stakes of this reversal pivot on the question of how we are to understand the interface of experience and consciousness. ‘The interval’ carves a space in which Bergson can defend aesthetic perception as the path to an epistemological appreciation of the holistic coequality of things. It is worth returning in this context to *Creative Evolution*’s most explicit discussion of film and illusion:

... Such is the contrivance of the cinematograph. And such is also that of our knowledge. Instead of attaching ourselves to the inner becoming of things, we place ourselves outside them in order to recompose their being artificially. We take snapshots, as it were, of the passing reality, and, as these are characteristic of the reality, we have only to sting them on a becoming, abstract, uniform, and indivisible, situated at the back of the apparatus of knowledge, in order to imitate what there is that is characteristic in this becoming itself. Perception, intellection, language so proceed in general. Whether we could think becoming, or express it, or even perceive it, we hardly do anything else than set going a cinematograph inside us. We may therefore sum up what we have been saying in the conclusion that the *mechanism of our ordinary knowledge is of a cinematographical kind*.<sup>110</sup>

How to visualize the counterintuitive real time of true duration, radical becoming, of creative evolution? Real *durée* permits no reduction, and Bergson must find away to concretize the inadequacy of available epistemological models to the real flow of time. The sheer difficulty of his task is summarized in the observation that the fallacies arrayed against an authentic synthetic perception of *durée* include our ordinary intelligence, senses and language—“perception, intellection, language so proceed in general.” The tendency of the mind to misconstrue *intervals* for *instants* is at root an illusion that mistakes a deterministic form of temporal inscription for time’s fullness—one that accepts the limited in place of the potential, the reduced in place of the

---

<sup>109</sup> Canales, *A Tenth of a Second*, 187.

<sup>110</sup> Bergson, *Creative Evolution*, 332.

multitudinous, fixity instead of movement, because “we take snapshots, as it were, of the passing reality.” As a description of an opacity in human cognition, the ‘cinematographic illusion’ pulls the quantifying effects of the intellect, the abstractions of science and mathematics, and the reductive schematizations of language into a fulcrum. The illusions that lead us to locate the real in intellectual constructs are also those that situate movement “at the back of the apparatus of knowledge, in order to *imitate*” becoming. And because the interval always slips away from representational fixity, this misapprehension seems to lend itself to figuration as a movie camera: “whether we could think becoming, or express it, or even perceive it, we hardly do anything else than set going a cinematograph inside us.”

Against this determinism, Bergson pits the holistic power of a fundamentally aesthetic perception: one defined by its capacity to see synthetic connections and relations beyond the sum of the parts, and subtended by an appreciation of the incommensurability of experience to schematizations of any kind. This intuitive mode maps onto movement and the interval, and as such, is available only to experience. Authentic synthetic perception construes a way of grasping the world that “no metaphor can express”; that “cannot be expressed by images”; because “it must transcend concepts to arrive at intuition.”<sup>111</sup>

There is a politics at work in this argument, whose real stakes include a more capacious way to understand the cinema’s effect as *aesthetic* deregulation, and so rescue it from the charge of stultifying illusion. Bergson’s reiterative insistence on the incommensurable nature of time stakes a humanistic claim to a nexus of experience increasingly vulnerable to co-option by twentieth

---

<sup>111</sup> "Introduction to Metaphysics," 138, 39, 41.

century physics' assertion of vocational authority and "'special competence' on questions of time and relativity."<sup>112</sup> In the face of a growing pressure for a separation of disciplines linked to the rise of physics as the twentieth-century's master scientific discourse, Canales writes, Bergson's positing that "a philosophy of science and technology was just as important as science and technology themselves" asserted the continued significance of time thought "in relation to consciousness, individuals and life."<sup>113</sup> The robustness of this defense is fundamentally linked to the persistence with which Bergson's thinking of the technical refers to visual persistence; because the time required for moving images to fuse in a viewer's perception provided him with an indispensable reference to the temporality of perception.<sup>114</sup> Thus brief time grounds the direction of Bergson's thought that leads to the denouncement of cinema. It is critical to appreciate that while the Bergson of *Creative Evolution* might seem to collapse photographic media into perception itself, he does so only within the terms of an argument that rests on an acknowledgement of the duration of perception. Without the reaction time of the eye there would be no cinematic synthesis, no cinematographic illusion; so that the thickness of the body that

---

<sup>112</sup> Canales, *A Tenth of a Second*, 197.

<sup>113</sup> *A Tenth of a Second*, 183, 81, 83.

<sup>114</sup> It proved, Canales summarizes, "that something about the passage of time was intimately connected to human consciousness." *A Tenth of a Second*, 180-1.

nineteenth-century science understood as a new horizon of knowledge introduced an *interval* into the temporality of media perception that Bergson appreciated.<sup>115</sup>

In as much as my broad project for a renewed description of media aesthetics rests upon a claim for the necessity of cinema it is not my intention to reject Bergson: an advocate par excellence of movement, agency, creativity and spontaneity; a humanist who saw as his central task the reconnection of newly explosive ways of thinking time “back to philosophy”; and in Canales assessment, “the single most politically committed intellectual of his time.”<sup>116</sup> This stature demands that his critique of film be encountered on its own terms, which I have tried to do by approaching its premises with a deconstructive eye.

In fact, I would suggest that Bergson’s injunction against the cinema articulates a singularly delicate, rather beautiful paradox. Like so many myths of origin that cluster around the emergence of this heterogeneous form, Bergson’s repudiation is replete with discursive contradiction: a fitting parallel to Plato’s deployment of the allegory of the cave as an argument against mimesis, or the everlasting hermeneutic enigma of by Antoine Lumière’s declaration that “the Cinematograph is an invention without a future.”<sup>117</sup> The sheer intensity of Bergson’s resistance to the interpellation of cinematic illusion testifies to the disorienting depth of cinema’s

---

<sup>115</sup> This concrete time of perception in the moment of a subject’s engagement with media is the interval that brings the Bergson of *Matter and Memory* into necessary correlation with the Bergson of *Creative Evolution*. The refutation of the later Bergson in favor of the earlier has, in some sense, fueled the contemporary philosophical project of thinking the effects of media on experience: Deleuze argues for the Bergson of *Matter and Memory* throughout *Cinema 1: The Movement Image*. Mark Hansen submits the Deleuzian argument to a crucial critique: “Despite his own condemnation of cinema in *Creative Evolution*, Bergson’s theory of perception, and specifically his understanding of the body as center of indetermination, furnishes the basis for a philosophical understanding of image media. ... [But] Deleuze’s neo-Bergsonist account of the cinema [...] suspends the crucial function accorded the living body on Bergson’s account.” Hansen’s intervention is to “deploy Bergson’s embodied understanding of the center of indetermination as the theoretical basis for our exploration of new media art.” Hansen, *New Philosophy for New Media*, 5-6, 7.

<sup>116</sup> Canales, *A Tenth of a Second*, 191, 86.

<sup>117</sup> Bernard Chardère, *Le Roman Des Lumières* (Paris: Gallimard, 1995), 313.

imaginative power. Henri Bergson has bequeathed us a latter-day Platonic injunction against illusion, therein setting up a problem that scholars of media may need to overcome reiteratively; in a manner not unlike that with which the classical discourse of aesthetics, in its long *durée*, has had to beat against the Platonic injunction—again and again, with new vocabulary in different historical moments.

But the Bergsonian critique is much less absolute. Gilles Deleuze approaches the puzzle it presents by asking this question: “Does this mean that for Bergson the cinema is only the projection, the reproduction, of a constant, universal illusion? ... Or did he fall victim to another illusion which affects everything in its initial stages? We know that things and people are always forced to conceal themselves, have to conceal themselves when they begin. ... The essence of a thing never appears at the outset, *but in the middle, in the course of its development*, when its strength is assured.”<sup>118</sup> Yet the sheer persistence of the cinematographic metaphor in Bergson’s thought—a fact of which Deleuze is hardly unaware—makes this formulation patently ridiculous.<sup>119</sup> The cinematic trope is already present in *Matter and Memory* (1896), and receives its final articulation in Bergson’s last book, translated into English as *The Creative Mind* (1934).<sup>120</sup> The film production encompassed by this temporal span includes D.W. Griffith’s *Intolerance* (1916), Fernand Léger’s *Le ballet mécanique* (1924), Sergei Eisenstein’s *October* (1927), Dziga Vertov’s *Man with a Movie-Camera* (1929), Carl Dreyer’s *La Passion de Jeanne*

---

<sup>118</sup> Deleuze, *Cinema 1: The Movement-Image*, 2-3. My emphasis.

<sup>119</sup> Deleuze published an exegetical book on Bergson in 1966: *Bergsonism*.

<sup>120</sup> “The whole difficulty of the problem that occupies us comes from the fact that we imagine perception to be a kind of photographic view of things, taken from a fixed point by that special apparatus which is called an organ of perception—a photograph which would then be developed in the brain-matter by some unknown chemical and physical process of elaboration.” Henri Bergson, *Matter and Memory*, trans. Nancy Margaret Paul and M. E. Dowson (New York: Zone Books, 1896/1988), 95.

*d'Arc* (1928) and Fritz Lang's *M* (1931), to pick only potent examples from the catalog of masterworks claimed by *Cinema I*.<sup>121</sup> Deleuze's suggestion that the Bergsonian indictment is rooted an aversion to *early* cinema is thus no more than a gloss; and one that reverts to cliché in re-assigning 'primitive' film its rudimentary place within a teleology of development to conclude with the flowering of a redemptive post-war "time-image."<sup>122</sup> It is an evasion that allows Deleuze to ignore a period of cinematic practice manifestly other to that which he narrates through the opus of the *Cinema* books, and a rhetorical move that assists his argument by minimizing the importance of pre-montage cinema and tempering the reiterative urgency of Bergson's critique.

Most unsatisfying of all, this dodge leaves unanswered the question of what positive work the cinematographic metaphor does as a constitutive, generative pivot in the articulation of Bergson's thought. To casually refute the significance of the films most contemporary to the development of a philosophy of movement is to misrecognize the import of early cinema's intermedial, mixed reality: its practical connection with the science as well as the philosophy of its day, and its brief life in the laboratory before the separation of camera functions sundered twentieth-century film from a serious place in the processes of scientific inquiry.<sup>123</sup>

---

<sup>121</sup> All films discussed as exemplary cases in *Cinema I: The Movement Image*.

<sup>122</sup> "The movement-image of the so-called classical cinema gave way, in the post-war period, to a direct time-image." Deleuze, *Cinema 2: The Time-Image*, xi. In my opinion Deleuze's logic does not reveal a fundamental basis against early cinema—much of the research now available on the early period was being undertaken in parallel with the composition of the *Cinema* books. What the gloss *does* reveal, however, is the teleology implicit in the construction of the *Cinema* books. Deleuze sees the movement image as essentially a prior stage of the cinema's full realization in neo-Realism: as a *time* image emerging into the traumatized post-WW2 1960's and 70's European social landscape. The vocation of cinema as time-image is to refract and restore the assault on experience levied by the atrocities of the Second World War.

<sup>123</sup> As Gunning puts it: "If Henri Bergson can supply a new insight into the nature of cinema, as Deleuze proposes, I would claim Bergson's relevance should not be divorced from the historic horizon of expectation at the turn of the century, which occasioned a new understanding of motion." Gunning, "Loïe Fuller and the Art of Motion," 86.

Yet it is justified to propose, as Deleuze does, that the early cinema alone seems pertinent to Bergson's thought. It is almost as if, having decided on its status as a negative example, the philosopher's attention to the actual development of film in his lifetime was always filtered through the reductive lens of the cinematographic illusion. This fact, however, makes it all the more critical that we specify the productive value of film to Bergson's philosophical enterprise. The riddle of the injunction against cinema can only be resolved by a careful attentiveness to the specific case presented by the earliest body of films. In advancing this claim, I align with Deleuze's judgement that film "at the outset" was a qualitatively different entity. The interdiscursive disciplinary mesh that forms the cinema of attractions' *habitus* preserves the contours of an alterity resolutely other to the montage-oriented narrative cinemas that so hegemonically exemplify film aesthetics in the Deleuzian model.<sup>124</sup>

The early cinema serves Bergson as an instrumental analogy. The cinematographic camera and figures of the kaleidoscope and snapshot photograph are tropes for a much more fundamental misapprehension: *the misrecognition of the interval*. Film furnishes Bergson with a seemingly ideal illustration for an illusion so trenchant, so pervasive that he waged battle against it over the whole course of his long career. The repudiation of cinema does not stem from a consideration of film as an aesthetic, or even a minimally expressive medium. Rather, Bergson sees cinematic as no more or less than a scientific device: a reduced, representationally closed system of

---

<sup>124</sup> Left out of this reckoning is not only early film and the ongoing legacy of the cinema of attractions as an undercurrent in classical and post-classical film, but also animation, experimental film and expanded cinema traditions; film deployed in the intermedial practices of visual, audio and performance arts; cinema's diffuse influence on literature and architecture; forms of documentary and ethnographic film; colonial and global film cultures; the use of film as archival tool in scientific, engineering, psychological and medical research; television; advertising; and the full range of lighthearted and sentimental use in amateur and domestic settings, where films becomes the archive of private life. If cinema is to be accounted the backdrop for a digital aesthetics, the unruliness of all these modes of practice and participation must be explicitly acknowledged to fall within its scope, and as such, be worthy of attention.



quantification governed by the simulation of that transformative potential inherent in authentic synthetic perception. Contextualized by the mammoth endeavor of thinking real contingency and of conceiving how the eruptive, emancipatory force of newness can be aided in its emergence, Bergson takes as his most persistent trope for the sheer difficulty of his task this exemplar: a sensible phenomena that could scarcely seem more forcefully, intuitively real—the perception of movement in representation.

Yet this is no simple case of an aesthetic form being instrumentalized in the service of ventriloquizing a discursive claim. For Bergson, cinema as art simply does not exist. Indeed the aesthetic is a lesser, even negligible category in *le bergsonisme* as compared with art's more fundamental distillation in the principal of creativity. As the creative impulse, however, the aesthetic dimension is a Bergsonian universal: an *élan vital* imminent to duration, movement and the perception of change; an animate force permeating laughter and the comic, expressed in the non-existence of repetition on the surface of the earth; and the source of that instinct to common sense which philosophical intuition so staunchly defends. The Bergson of *Matter and Memory* reminds us that “it would greatly astonish a man unaware of the speculations of philosophy if we told him that the object before him, which he sees and touches, exists only in his mind and for his mind.”<sup>125</sup> As a philosophy of intuition Bergsonian metaphysics validates this skepticism of a reasonably intelligent man by sketching out terms for a *common* sensorium. It is consequently only within the generalized sphere of the creative that philosophical intuition can build inclusive modes of access to an expanded field of aesthetics. “Satisfactions which art will never give save to those favored by nature and fortune, and only then upon rare occasions, philosophy thus

---

<sup>125</sup> Bergson, *Matter and Memory*, 10.

understood will give *to all of us, at all times*,” Bergson wrote late in life, “by breathing life once again into phantoms which surround us and by revivifying us.”<sup>126</sup> Thus as photographic techniques grew more sophisticated, this voice of protest and resistance grew stronger, because the cinematographic illusion is a figuration, almost a literary trope, pressed into the service of the pragmatic task of articulating an attainable form of freedom in modernity. For Henri Bergson in the early part of the last century, the pathways available to a collective quest for practical knowledge seemed to present a clear choice between utility and expression:

With its applications which aim only at the convenience of existence, science gives us the promise of well-being, or at most, of pleasure. But philosophy could already give us joy.<sup>127</sup>

The injunction against cinema is thus, in an important sense, a side-note in Bergson’s defense of the incommensurate excess of experience from quantification by numerous forms of early twentieth-century rationalism. As much as the dawn of cinema might retrospectively seem to have defined the very texture of aesthetic modernism, it is no more than the corollary, or perhaps the constitutive blind-spot, to *le bergsonisme* as a metaphysics occupying the midpoint between rationality and idealism; a vantage from whence its author can advance the observation that “metaphysics has nothing in common with a generalization of experience, and yet it could be defined as the whole of experience (*l’expérience intégrale*).”<sup>128</sup> This vision of an experiential philosophy specific in its local particularity and general in its inclusive scope harmonizes with irreducibly multiple resonances of what Martin Jay has deemed “the auratic term

---

<sup>126</sup> "Philosophical Intuition," 106. My emphasis.

<sup>127</sup> Ibid.

<sup>128</sup> "Introduction to Metaphysics," 169.

‘experience’.”<sup>129</sup> I want to engage here both the emphatic sense of experience, *Erfahrung* foundational to the Frankfurt School’s conceptualizing of the intertwining of modernity, media and mass culture and the historiographic sense of experience as archive laid out in Michel Foucault’s philosophical project. For Foucault, who knew that the archive has always been audiovisual, the temporality governing an orientation to *archives of experience* is of a comportment turned to the present-tense implicit in an inquiry into the nature of contemporary life. “For the attitude of modernity,” Foucault observes, “the high value of the present is indissociable from a desperate eagerness to imagine it, to imagine it otherwise than it is, and to transform it not by destroying it but by grasping it *in what it is*.”<sup>130</sup> In this conception to seek a relation with the world of one’s own *actualité* is to adopt a stance: to assume the posture of a willing ceding to acts of “extreme attention” that “transfigure” the world through an engulfment in the affect of a direct address that is also an experience of mediation—not “an annulling of reality but a difficult interplay between the truth of what is real and the exercise of freedom.”<sup>131</sup>

Precisely this combination of affect and impetus charges through the double Bergsonian claim for intuition, or that we already know, and the contingency of true newness, erupting in worldly time. It is in a late lecture titled “The Possible and the Real” that Bergson explicitly maps out this counter-intuitive temporality of the new.

---

<sup>129</sup> Martin Jay, *Songs of Experience: Modern American and European Variations on a Universal Theme* (Berkeley and LA: University of California Press, 2005), 2.

<sup>130</sup> Michel Foucault, “What Is Enlightenment?,” in *Ethics: Subjectivity and Truth*, ed. Paul Rabinow (New York: New Press: Distributed by W.W. Norton, 1978/1997), 311. My emphasis.

<sup>131</sup> My emphasis. “Baudelairean modernity is an exercise in which extreme attention to what is real is confronted with the practice of a liberty that simultaneously respects this reality and violates it.” Ibid.

When a phenomenon is concretized in the world as real, he explains, its possibility becomes established in the past—in a sense, backwards. This is because we cannot ever predict the new. Rather, while newness is always imminent in *durée*, it is specified only upon its instantiation as ‘the real.’ When a new thing becomes real its emergent contour is established: rendered at *that* moment traceable as ‘the possible,’ and inscribable into history as such. Thus newness remakes the old, and it is the pressure of present actuality that reshuffles the thickets of the historical archive, *ad infinitum*. It is only to amplify the striking radicality of this claim to note that Bergson’s logic is partly intuitive to memory and the ordinary hydraulics of the unconscious. “That one can put reality into the past and thus work backwards in time is something I have never claimed,” he clarifies:

but that one can put the possible there, or rather that the possible may put itself there at any moment, is not to be doubted. As reality is created as something unforeseeable and new, its image is reflected behind it into the indefinite past; thus it finds that it has from all time been possible, *but it is at this precise moment that it beings to have been always possible*.<sup>132</sup>

The unusual beauty of this conceptual gestalt as an approach to the occlusions and agencies implicit in the historical process invokes Foucault’s description of the mood of Baudelairean modernity as exemplified in an instinctive grasp of “the discontinuity of time”; “a feeling of novelty, a vertigo in the face of the passing moment”; a “transfiguring play of freedom with reality.”<sup>133</sup> It is in a shared feel for worldly movement, indeed, that the Baudelairean *flâneur* should be linked with a philosopher who claimed that “philosophy stands to gain in finding some absolute in the moving world of phenomena ... it can be preparation for the art of living.”<sup>134</sup> In

---

<sup>132</sup> Bergson, “The Possible and the Real,” 82.

<sup>133</sup> Foucault, “What Is Enlightenment?,” 310, 12.

<sup>134</sup> Bergson, “The Possible and the Real,” 86.

this judgement on future time Bergson inaugurates a perspective that will allow me to ground media aesthetics in the Lumière cinema; and more fundamentally, in an aesthetics of movement, by refusing the letter of his judgement on film without attempting to diminish the spirit and gravitas of his intended critique.

We need to take into real account the perturbing and epistemologically indeterminate status of technologies of vision at the nineteenth-century *fin-de-siècle*: the extent to which photographic representation had already begin to pose a fundamental epistemic challenge to *science* as well as to philosophy and culture. The very momentum of scientific inquiry()that gave rise to the multi-faceted technologies that in turn produced the cinema had as correlative a tendency to determinism that Bergson's enterprise as a whole strenuously resists. In evaluating his import for our time, it is consequential that we consider the implications of his formation within an environment ruled by "the heavy atmosphere of rationalistic biology."<sup>135</sup> "There is explanation, the nineteenth century discovered explanation," Gertrude Stein observes as a Modernist figurehead also born in the nineteenth-century. Against the scientific impulse Stein proposed *composition as explanation*, or a process philosophy.<sup>136</sup> Stein is exemplary of a Modernist aesthetic centered by the realization that "in composition one thing was as important as another thing. Each part was as important as the whole," because "after all, to me one human being is as important as another human being, and you might say that the landscape has the same values, a

---

<sup>135</sup> Per Hallström, "Award Ceremony Speech," in Nobel Lectures, Literature 1901-1967, ed. Horst Frenz (Amsterdam: Elsevier Publishing Company, 1969 ).

<sup>136</sup> Gertrude Stein, "What Is English Literature (1934)," in Look at Me Now and Here I Am: Gertrude Stein, Writings and Lectures 1911-1945, ed. Partica Meyerowitz (London: Peter Owen, 1967), 47; "Composition as Explanation (1926)," in Look at Me Now and Here I Am: Gertrude Stein, Writings and Lectures 1911-1945, ed. Partica Meyerowitz (London: Peter Owen, 1967).

blade of grass has the same value as a tree.”<sup>137</sup> It is a point of view with which Bergson’s long battle against “the facile, cinematographic distinction between the discrete and the continuous in life and in logic” harmonizes precisely.<sup>138</sup>

Indeed, it is the paradox of Bergson’s aversion to film that is so implication-filled for the field of new media theory, because it demonstrates with an almost pedagogic clarity the nature of the challenge posed by the sensorial demands of a fundamentally new technical paradigm. The mixed environment that leaves its imprint on the bristling visual texture of the cinema of attractions is symptomatic of a broader historical temperature, not unlike our own, wherein a fundamental epistemic reordering made the relative status of disciplines newly contingent. Canales traces this movement through the exemplar of “the *scientific* Bergson-Einstein debate and the *political* Bergson-Einstein debate,” unfolding simultaneously.<sup>139</sup> At stake in the battle of relativity versus *durée*, she writes, “was the status of philosophy *vis à vis* physics” and the question of “who could speak for nature.”<sup>140</sup> Einstein claimed publicly that Bergson did not understand the physics of relativity; a rhetorical gesture that reframed their argument to appropriate an absolute vocational authority on matters of time.<sup>141</sup> And Bergson was, in other ways, far from immune to the savage sway of European political life in the first half of the twentieth-century. His work was marginalized in the period leading to the Second World War

---

<sup>137</sup> "A Transatlantic Interview 1946," in *A Primer for the Gradual Understanding of Gertrude Stein*, ed. Robert Bartlett Haas (Los Angeles: Black Sparrow, 1971), 15.

<sup>138</sup> Canales, *A Tenth of a Second*, 187.

<sup>139</sup> "Einstein, Bergson, and the Experiment That Failed: Intellectual Cooperation at the League of Nations," *Modern Language Notes* 120(2005): 1169. Here Canales challenges a historical judgement that has accused Bergson of misunderstanding relativity.

<sup>140</sup> *Ibid.*

<sup>141</sup> *A Tenth of a Second*, 197.

during which humanistic optimism seemed synonymous with blind naivety.<sup>142</sup> Bergson was awarded the Nobel Prize for Literature in 1927, an honor accepted with a gesture of dissemblance unsurprising in light of the Nobel Committee's description of *Creative Evolution* as "a poem, if one looks at it that way"; or a Milton-esque "drama" charged with "a strong aesthetic impression."<sup>143</sup> A reductive aestheticization of the import of the twentieth-century's most preeminent philosophy of movement is the mark of a coupling of the philosophy of technology with culture in a manner that is also the indicator of the marginalization of both discourses from authoritative positions in public life. In his spread between biology and physics, Bergson straddles two phrases of an episteme in technological modernity in ways that offer a meaningful object lesson now, as the surface of the knowable world shifts again.

## VI. An Aesthetics of Movement

It is important to acknowledge, in the context of a Bergsonian critique of closed systems, that the experience of spectatorship was indeed highly codified following the separation of camera functions and the rise of the film industry.<sup>144</sup> Miriam Hansen poses the conundrum presented by

---

<sup>142</sup> Adorno writes (collaboratively) in 1944: "In wrong society laughter is a sickness infecting happiness and drawing it into society's worthless totality. Laughter about something is always laughter at it, and the vital force which, according to Bergson, bursts through rigidity in laughter is, in truth, the irruption of barbarity, the self-assertion which, in convivial settings, dares to celebrate its liberation from scruple." Adorno and Horkheimer seem here to describe the reception of Nazi film propaganda and in this provide Bergson's refusal of film with another, deeply meaningful valence of gravitas. Adorno and Horkheimer, *Dialectic of Enlightenment: Philosophical Fragments*, 112.

<sup>143</sup> Bergson's acceptance speech, delivered by proxy, accepts the honor less as personal tribute than as "for France" in the inter-war period; and observes also that "if the nineteenth century made tremendous progress in mechanical inventions, it too often assumed that these inventions, by the sheer accumulation of their material effects, would raise the moral level of mankind." Henri Bergson, "Banquet Speech," in *Nobel Lectures, Literature 1901-1967*, ed. Horst Frenz (Amsterdam: Elsevier Publishing Company, 1969); Per Hallström, "Award Ceremony Speech," *ibid.*

<sup>144</sup> The spectator called into existence by the classical film system (whose emergence imposed a closing bracket on the cinema of attractions) was interpellated into a prescriptive position by an address to her subject-position and moulding of her gaze. See Laura Mulvey, "Visual Pleasure and Narrative Cinema (1975)," in *Feminisms: An Anthology of Literary Theory and Criticism*, ed. Robyn R. Warhol and Diane Price Herndl (New Brunswick, N.J.: Rutgers University Press, 1996), 432.

the rhetorical unification of the screen when she asks how “the cinema, which by its very technology has eliminated the conditions of participation, interaction, and self-representation [can] ... be considered public in the emphatic sense?”<sup>145</sup> Her answer, significantly, begins with a turn to cinema’s aesthetic lights; because the aesthetic dimension is the exception in a closed system: the one frame within which a synthetic mode of perception can render a thing more than the sum of its parts, so that “new forms of auratic experience have entered the movie theatre as a result of the particular relationship between film and audience.”<sup>146</sup>

Against the letter of the Bergsonian injunction against cinematic illusion, then, my claim is that the Lumière cinema is an aesthetic *dispositif* predicated on an absorptive response to the perception of movement. A spectator in the thrall of this *dispositif* of intensity is gripped by an emotion that Tom Gunning calls astonishment, and whose long history intertwines with reactions to animate effects in artistic verisimilitudes as the ultimate sign of life. When, for example, Shakespeare’s king Leontes interjects with amazement: “the fixture of her eye has motion in’t,/ as we are mocked with art,” he articulates a response that Maxim Gorky describes in another key by narratively dilating the interval between the Lumière projection’s transition from stillness to quickened, unstoppable motion.<sup>147</sup> Yet the effect of movement in the Lumière *dispositif* has an experiential impact unique to the cinema’s particular kind of verisimilitude, in which “rather than mistaking the image for reality, the spectator is astonished by its transformation through the new illusion of projected motion. Far from credulity, it is the incredible nature of the illusion itself

---

<sup>145</sup> Hansen, *Babel & Babylon*, 13. Hansen is describing Alexander Kluge’s intervention into some elements of Benjamin, Habermas and Adorno’s positions on mass culture that I will take up from the next chapter onwards.

<sup>146</sup> *Ibid.*

<sup>147</sup> Shakespeare, *The Winter's Tale*, 227: 5.3.60-1, 67-8.



that renders the viewer speechless.”<sup>148</sup> It is in the context of an *avowed* dialectical interplay of unfixable presence that Gunning invokes the manifest dramaturgy of the first film program’s attenuation of the transformational hinge between stillness and movement:

But this still projection takes on motion, becomes endowed with animation, and it is this unbelievable moving image that so astounds. The initial projection of a still image, withholding briefly the illusion of motion which is the apparatus’s *raison d’être*, brought an effect of suspense to the first film shows. ... By delaying its appearance, the Lumière exhibitor not only highlights the device but signals his allegiance to an aesthetic of astonishment which goes beyond a scientific interest in the reproduction of motion.<sup>149</sup>

*Conscious deployment* extends the resonance of the first film spectacle well beyond scientific synthesis. The camera operator is aware that he wields a display in which the evidence of the eyes is confronted by a reality that seems to push against knowledge, expanding its sensible range. But in place of ‘astonishment,’ I will pick another term to name this effect of unutterable absorption: wonder. Wonder is a passion, and as such has an etymology that reverberates among the affects. “As theorized by medieval and early modern historians,” write Lorraine Daston and Katherine Park, “wonder was a cognitive passion, as much about knowing as about feeling”; and it is as a passion, an emotional limit, that “wonder limed cognitive boundaries between the natural and the unnatural and between the known and the unknown.”<sup>150</sup> The emotional intensity of wonder sits behind both ‘astonishment’ and ‘amazement,’ yet as a passion it retains an appealing, because irreducible heterogeneity. Its “texture as felt experience” certainly does change with context and time; but wonder is a somewhat a-historical affect: a temporality of emotional suspension whose historical appearance is “nonlinear and non-progressive,” unfolding

---

<sup>148</sup> Gunning, “An Aesthetic of Astonishment,” 118.

<sup>149</sup> “An Aesthetic of Astonishment,” 119.

<sup>150</sup> Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York: Zone Books, 1998), 14, 13.

“a long, sinuous” line of relative continuity.<sup>151</sup> If the “notable passion of wonder,” in Shakespeare’s phrase, addresses a group by sounding the consistent imperative to “strike all that look upon with marvel”; it still remains an intensely personal reaction—a response of virtual immobility to something exterior that utterly locates the self within the primacy of perception.<sup>152</sup> The mind’s vacillation between the known and the unknown in the thrall of wonder engages something outside the aesthetic as *techne*, or the human made. Instead, wonder is provoked by the same quality of marvelous unknowability that grounds the human perception of natural beauty, that Adorno, almost alone in the twentieth-century, appreciated as a repressed dimension of Kantian aesthetics.<sup>153</sup>

Like Bergsonian *durée*, wonder invites the subject into imaginative correlation with its object through the effort of “a *sympathy* by which one is transported into the interior of an object in order to coincide with what there is unique and consequently inexpressible in it.”<sup>154</sup> Precisely this dimension of exteriority is identifiable in André Bazin’s enigmatic claim, laced with wonder, that the photographic index “affects us like a phenomenon in nature, like a flower or a snowflake whose vegetable or earthly origins are an inseparable part of their beauty.”<sup>155</sup> Consistent along all these differently refracting conceptual lines is that wonder fractures the smooth relay between

---

<sup>151</sup> Wonders and the Order of Nature, 1150-1750 (New York: Zone Books, 1998), 17, 19.

<sup>152</sup> Shakespeare, *The Winter's Tale*, 219, 25: 5.2.15-6, 5.3.100.

<sup>153</sup> “Since Schelling, whose aesthetics is entitled the *Philosophy of Art*, aesthetic interest has centered on artworks. Natural beauty, which was still the occasion of the most penetrating insights in the *Critique of Judgement*, is now scarcely even a topic of theory. The reason for this is not that natural beauty was dialectically transcended ... but, rather, that it was repressed. The concept of natural beauty rubs on a wound, and little is needed to prompt one to associate this wound with the violence that the artwork—a pure artifact—inflicts on nature.” Theodor W. Adorno, *Aesthetic Theory*, ed. Robert Hullot-Kentor, Gretel Adorno, and Rolf Tiedemann, trans. Robert Hullot-Kentor (London: Continuum, 1999), 61-2.

<sup>154</sup> Bergson, “Introduction to Metaphysics,” 135.

<sup>155</sup> Bazin, “The Ontology of the Photographic Image,” 13.

knowing and perceiving by dilating the concrete time of perception that mediates between language and the senses. Wonder “undoes description” by breaking vision from speech, ushering in its stead a semiotics of bodily gesticulation wherein “there was speech in their dumbness, language in their very gesture.”<sup>156</sup> Wonder suspends language in the power of a visual signifier, because the wonderstruck subject *sees* but cannot *speak*. It is the late Shakespeare who best expresses this inexpressible thing, by circling it with language; framing wonder in the break between two lines:

Behold, and say ‘tis well.  
I like your silence; it the more shows off  
Your wonder.<sup>157</sup>

The Lumière cinema’s aesthetic *dispositif* installs its viewer in the Bergsonian interval. Enframed in time and thickened by the motility of worldly duration, these images hold an unbelievable power of absorption hinged on the raw fact of their *movement*. Simultaneously present and refusing fixity, this movement stunned early spectators and viewers through the twentieth-century who, if they knew how to look, have been left “critically speechless” in the contemplation of the first films.<sup>158</sup> In its most ontological reduced sense, as images moving in time, the cinema is an aesthetic form structured on the appearance and reappearance of movement; and my claim is that this vacillation invokes belief as the suspension of disbelief by disclosing something nakedly recognizable about the opacities of our experience, the limits of our knowledge, and the contingencies that rule our grasp of consequence and events. In its representation of dailiness and labor, its framing of ordinary time in unlikely situations around

---

<sup>156</sup> Shakespeare, *The Winter's Tale*, 220, 19: 5.2.57, 14.

<sup>157</sup> *The Winter's Tale*, 225: 5.3.20-2.

<sup>158</sup> Frampton and Simon, "Talking About Magellan," 250-1.

the world, the Lumière cinema is a *dispositif* of wonder that *shows* this world: an archive of experience that demonstrates life in *actualité*, as it is actually visible. “The Cinématographe was the first to offer pictures of moving objects” Aumont meditates, and as such its operators possessed a unique freedom to invent a stylistic mode by which to convey their sense of the world as saturated with movement:

*Mobilis in mobile*, like Jules Verne’s ‘Nautilus,’ it had no need to divide succession in order to render it, to fragment duration to represent it. In other words, it was a picture in motion, and knew it. ... the filmmakers of the Cinématographe, Lumière and his cameramen alike, knew, without having the concept, that they were working with the moving-image.<sup>159</sup>

There is nothing static, nothing abstract or symbolic about the spectacle unleashed by the Cinématograph. Rather, the Lumière affirmation of real time points to a ‘before’ and an ‘after’ in avowed excess to the scope of the screen; so asserting an imaginative continuity with a profilmic real beyond spatial and temporal demarcations in the frame. In this, the density of worldly movement granted representation by the Lumière corpus suggests a Bergsonian question: “Is not the world a work of art incomparably richer than that of the greatest artist?”<sup>160</sup> To counter Bergson’s peremptory dismissal of the early cinema, then, we can echo Paulina’s injunction to a skeptical king:

It is required  
you do awake your faith.<sup>161</sup>

---

<sup>159</sup> Aumont, “Lumière Revisited,” 428.

<sup>160</sup> Bergson, “The Possible and the Real,” 84.

<sup>161</sup> Shakespeare, *The Winter’s Tale*, 225: 5.3.94-5.

It is a bold claim to assert that the very films that seemed to Bergson a tailor-made metaphor for the most pervasive blindness in human knowledge are full instantiations of the *interval*, that most potent and ferociously protected of his concepts. Yet I proffer this claim as an aesthetic judgement, whose very nature it is to assert the objective truth value of a subjective impression—one formed, in this instance, by the mediation and clarifying distance of over a century of historical separation from the cinema's original moment. The innumerable multitudes of moving images that have played out on screens between then and now are an audiovisual archive whose weight should be allowed to reframe our view of that past; and no-one knows better than Bergson that “backwards over the course of time a constant remodeling of the past by the present, of the cause by the effect, is being carried out.”<sup>162</sup>

Going further, I propose that the reframing of experience set into motion by the aesthetic deregulation of the Lumière interval lets us adjust the model of cinematic *dispositif* offered by Baudry and Metz in necessarily phenomenological ways. Where their literalistic application of Freudian structures posits the cinematic arrangement as a determining techno-social *dispositif*, the cinema of attractions demonstrates the functionality of an imperfect model of perceptual relay. Baudry's implicitly spatialized model of perfect perception makes the cinema into “a sort of psychic apparatus of substitution, corresponding to the model defined by the dominant ideology.”<sup>163</sup> But the expanded sense of the aesthetic made comprehensible by the spectatorial model offered by the cinema of attractions describes an experiential synthesis *identical* in texture and aspiration to Bergson's model of intuitive, unencumbered movement. Reflecting on his

---

<sup>162</sup> Bergson, “The Possible and the Real,” 84-5. My emphasis.

<sup>163</sup> Jean-Louis Baudry, “Ideological Effects of the Basic Cinematographic Apparatus,” in *Narrative, Apparatus, Ideology: A Film Theory Reader*, ed. Philip Rosen (New York: Columbia University Press, 1986), 296.

aspirations for the concept of ‘the attraction’ for a then-incipient discipline of cinema studies, Gunning writes that while the energy of the notion was intended to designate “an approach to spectatorship that I felt *dominated* early cinema ... its value lies ultimately in how it opens up films and generates discussion, in a historically specific and analytically detailed manner, of the nature of film spectatorship.”<sup>164</sup> The contextualization of many kinds of historical distance, I would suggest, means that it is now possible to route a claim for the philosophical import of the cinema of attractions through early apparatus theory, in a manner that will strategically expand the disciplinary implications of the earliest of films for media theory both new and old.

Metz himself inaugurates this line of thought in an important early essay addressed to the medium’s cardinal traits. “In the days in which cinema was a novel and astonishing thing and its very existence seemed problematical,” he reflects, “the literature of cinematography tended to be theoretical and fundamental.” An invocation of the mood of classical film theory marks an appeal to the shaping effect of wonder as the heuristic by which Metz will attempt to delineate the most general modalities by which film, taken as the mass cultural form par excellence, enacts its “very direct hold on perception.”<sup>165</sup> The cinema is for Metz “first of all a *fact*, and as such it raises problems of aesthetics, of sociology, and of semiotics, as well as of the psychologies of perception and intellection”; so that the project of assessing a medium by its most extensive contours turns to an attempt to specify the nature of its affective claim.<sup>166</sup>

---

<sup>164</sup> Gunning, "Attractions: How They Came into the World," 36.

<sup>165</sup> Metz, "On the Impression of Reality in the Cinema," 4.

<sup>166</sup> "On the Impression of Reality in the Cinema," 3.

“Films release a mechanism of affective and perceptual *participation* in the spectator,” writes Metz, because “there is a filmic mode, which is the mode of presence, and to a great extent it is *believable*.”<sup>167</sup> This turn to a vocabulary of participation and belief reengages a question of the demonstrative function of the camera arts: the capacity of photographic representation to show the world that surrounds through descriptions whose visual—and for new media, increasingly tactile—presence draw the spectator into an interpellation charged with the proximity of “a *feeling* that we are witnessing an almost real spectacle.”<sup>168</sup> Mobilized in this sense, ‘belief’ implies a participation undergirded by willingness: an agential, even erotic involvement charged with an edge of restless curiosity. The concatenation of comparisons to a variety of representational media in Gorky’s review of the Lumière screening, for example, suggests precisely such receptivity in its image of an amazed but cognizing viewer quickly thumbing through a mental catalogue of reality effects in search of the most adequate correlate he can lay his hands on by which to grasp the disorienting spectacle unfolding before his eyes. This viewer is bated, curious, tense, highly aware, suspiciously reactive, and that his overwhelming by an astonishment that “undoes description” should end with the uneasy comparison of the film on the screen to *life* would not surprise Metz. “The objects and the characters we see in a film are apparently only effigies, but their motion is *not* the effigy of motion” he writes, because the cinema’s psychological effect is subtended by this paradigmatic fact:

The strict distinction between object and copy, however, dissolves on the threshold of motion. Because movement is never material but is *always* visual, to reproduce its appearance is to duplicate its reality. In truth, one cannot even “reproduce” a movement; one can only re-produce it in a second production *belonging to the same order of reality*,

---

<sup>167</sup> “On the Impression of Reality in the Cinema,” 4.

<sup>168</sup> Ibid.

*for the spectator, as the first.* It is not sufficient to say that film is more “living,” more “animated” than still photography, or even that filmed objects are more “materialized.” In the cinema the impression of reality is also the reality of the impression, the real presence of motion.<sup>169</sup>

This claim for the reality of movement repudiates Bergson on the aesthetic level elided by *Creative Evolution*. The affirmation of “the reality of the *impression*” takes the contours of an aesthetic judgement predicated on the acknowledged subjectivity of an imaginative reaction “by means of which nothing at all in the object is designated, *but in which the subject feels itself affected by the representation.*”<sup>170</sup> Claiming movement’s unrepeatability, its always-already re-presenting in a second production belonging, for the spectator, to the same order of reality as the first, relocates the reality of film movement from the apparatus to its just place in the embodied experience of a cognizing subject. Where *Creative Evolution* dismisses cinematic synthesis as an exteriorization of occluded perception, Metz’s attention to the real psychological effect of spectatorial experience inserts the psychic and physical opacity of a cognizing body—one specified by time and space—into the gap between technics and spectacle. The reclamation of an embodied subjectivity implicit in this intervention nuances Bergson’s foreshortened correlation of film with natural perception by allowing a proprioceptive dimension of viewing to assume its just, constitutive, and *intervallic* space in the mechanics of spectatorship.

---

<sup>169</sup> “On the Impression of Reality in the Cinema,” 8, 9. First and extended emphases mine.

<sup>170</sup> My emphasis. Kant states as an opening principal of the aesthetic judgement: “In order to decide whether or not something is beautiful, we do not relate the representation by means of understanding to the object for cognition, but rather relate it by means of the imagination (perhaps combined with the understanding) to the subject and its feeling of pleasure or displeasure. The judgement of taste is therefore not a cognitive judgement, hence not a logical one, but is rather aesthetic, by which is understood one whose determining ground cannot be other than subjective.” Immanuel Kant, *The Critique of the Power of Judgment*, ed. Paul Guyer, trans. Eric Matthews Paul Guyer (Cambridge, UK; New York: Cambridge University Press, 2000), 89.



In this reframing, the physiological mediation of visual persistence that so vexed nineteenth-century science becomes re-calibrated, porously, into the generative ground of an epistemological participation whereby “the movie spectator is absorbed, not by a ‘has been there,’ but by a sense of ‘There it is’.”<sup>171</sup> Metz’s clarification of the aesthetic texture of the impression of movement sounds a reminder that ‘illusion’ can mean something vastly more than falsification or deceit: that there is a positive, world-creating power implicit in the willing ceding to illusion. Metz differentiates between the experiential impact of photography and film more subtly than Bergson, for whom the temporal order of instantaneous photography predetermines the materiality of a real engagement with images moving in time. Yet if a photographic image is tinted by the retrospection of a backward pointing, a film’s literal duration layers then and now, prerecorded event and real time of viewing, into a structure of co-presence. This doubled duration draws the cinema’s temporal aesthetic format into a tight compact with the participatory appeal of movement, and together they effect an aura so strong as to be almost impossible to look away from: asserting “the *appeal* of a presence and a proximity that strikes the masses and fills the movie theaters.”<sup>172</sup> Thus Metz generalizes the temporality and direct-address of the cinema of attractions—framed now as a particularly visible case of the reality of the impression—into a broad claim about the phenomenology of film movement *per se*. The affective participation engendered by the real presence of movement must be understood to subtend *all* modes of cinematic spectatorship.

---

<sup>171</sup> Metz, "On the Impression of Reality in the Cinema," 6.

<sup>172</sup> "On the Impression of Reality in the Cinema," 5.

Henri Bergson did not take cinema to be a social institution; and as such he did not account for the material practice of spectatorship. He was not a cultural critic; and so did not attend to the early cinema's intermedial *habitus*—its “audiovisual battle.”<sup>173</sup> Yet Bergson's value for the twenty-first-century rests in the fact that, against the grain of scientific discourses re-calibrated from the ground up by new understandings of mental processes as measurable, he grounded *real time* in the unencumbered incommensurability of the interval. At the same time, I have tried to show that Bergson's significance for new media theory is exemplary also in its negative valence. The puzzle presented by the Bergsonian injunction against film at the very moment of this art's enunciation demonstrates how univocally deep are the epistemic challenges presented by a fundamental shift in a configuration of social media; and it is on this level, also that history of film, and particularly the earliest film, offers hints on a media aesthetics reworked for a digital vernacular.

---

<sup>173</sup> Deleuze, Foucault, 112.



Figure 2.1: Jean-Luc Godard, frame from *Goodbye to Language 3D*. 2014. 3D digital video, color, sound. 70 mins.

## Chapter Two

### The Technicity of Experience

*You know the story of the psychologists who went to make a little film test in a village in darkest Africa. They then asked the spectators to tell the story in their own words. Well, only one thing interested them in this story involving three characters: the movement of the light and shadow through the trees.*

Michel Foucault<sup>1</sup>

This anecdote about a psychological film test, narrated in the opening to an anonymous interview, describes the subversion of an anthropological expectation triggered by the unpredictability of its subjects' gaze. "In our societies, characters dominate our perceptions and our attention tends to be arrested by the activities of faces that come and go" Michel Foucault goes on to note of the point intended by his parable; whose resonance pivots on what is surprising about the spectators' lack of fascination, "in this story involving three characters," with the unfolding of a narrative or the actions of human agents.<sup>2</sup> Instead, subjects magnetized by a cinematic image of animated shadow and light linger over another dimension of the film's representation schema: its ability to focalize details in the mise-en-scène that are not implicated by the drama of human presence. A pictorial rendering of "the movement of the light and shadow through the trees" by a screen image seems to open up, for these viewers, a familiar aspect of the phenomenal world to a new regime of visual analysis.

---

<sup>1</sup> Foucault, "The Masked Philosopher," 194.

<sup>2</sup> Ibid.

In suggesting this possible interpretation, Foucault's story of recalcitrant attention is useful for my purposes—as a fable about media and perception. The film in this psychological experiment was not explicitly intended to provoke an aesthetic reaction, and yet the flaring of an aesthetic perception among subjects asked to account for their viewing experience is hardly surprising. I will argue through this chapter that the aesthetics of visual media are never wholly demarcated by technical inscriptions, nor contained within mechanical devices. Rather, media aesthetics emerges from a complex spectatorial interface between the experiential impositions of a technological apparatus and the agency of perceiving subjects. Media aesthetics, in my conception, is a form of mediation involving a located transaction between an image, a subject, and an experiential setting.

In my first chapter I attempted to address, on the level of both history and aesthetics, the context for Henri Bergson's apparent refusal of cinematic movement. "In order that the pictures may be animated, there must be movement somewhere" he argues in *Creative Evolution*; and "*the movement does indeed exist here: it is in the apparatus.*"<sup>3</sup> I have counter-argued that the image of cinema offered by this text is a reductive abstraction—a strategic figuration intended to illustrate Bergson's claim about the utilitarian cast of natural perception, and so to make a much broader argument about the body and experience more intuitively graspable. Further, *Creative Evolution*'s definition of cinematic movement as a movement located "in the apparatus" is rooted in an understanding of visual media informed by nineteenth-century science; a context whose agenda and premises are far from transferable to the situation of cultural reception. The

---

<sup>3</sup> Bergson, *Creative Evolution*, 331-2. My emphasis.

fundamental and intended effect of Bergson's description of film in *Creative Evolution*, however, is to corral the aesthetics of the cinematic experience within the circumference of the machine.

But the Foucauldian spectator drawn to the imagistic resonance of the "movement of light and shadow through the trees" is not struck by a 'mechanic' effect, reductively defined, so much as by a perception of cinema's capacity to re-stage a category of ephemeral motion explicitly tethered to the reality of movement in the world. Taking inspiration from this image of spectatorial pleasure in a picture of the outside, my argument in this chapter will attempt to deconstruct the logic subtending of *Creative Evolution*'s effort to confine media aesthetics to the sphere of the apparatus; and more fundamentally, to invalidate the spectator's aesthetic experience of a technical image on the basis of its mechanic ontology. Bergson's clear negative bias against technology is an outcome of his resistance to all forms of mechanism, and it generates a paradox: an ensuing ongoing insensitivity to the manifestly real, material, and phenomenal character of 'the apparatus' encountered in the settings of lived experience.

In overview of his project written approximately twenty years after *Creative Evolution*, for example, Bergson advances the following discordant claim about "the images on a cinematographic film" (that is, the *filmstrip*):

the film could be run off ten, a hundred, even a thousand times faster with the slightest modification in what was being shown; its speed were increased to infinity, if the unrolling (this time, away from the apparatus) became instantaneous, the pictures would still be the same.<sup>4</sup>

---

<sup>4</sup> "Introduction I: Growth of Truth, Retrograde Movement of the True (1922)," 7.

The strangeness of this analogy centers on the speaker's apparent lack of knowledge of the cinematic interface—that is, the fact that a spectatorial experience of projected film is manifestly impacted if playback is “instantaneous” or at a speed “ten, a hundred, even a thousand times faster” than the standard rate of frames-per-second. But if ‘film’ is intended to function here as nothing more than a straw-man against which the philosopher can drive home a rhetorical point—that “a real evolution, if ever it is accelerated or retarded, is entirely modified within”—then the facts of spectatorial experience, of what is materially and phenomenally articulable when a projection is set off, are indeed irrelevant.<sup>5</sup> Bergson's deliberate mischaracterization of the nature of the cinematic experience in this passage is symptomatic of his tendency to repress something essential about the spectacle of a technologically subtended image. This repression often takes the form of a metalepsis: an ostensible description of the spectacle that actually looks away from its pictorial and experiential character by emphasizing, instead, the mechanical operation of the underlying device.

But well before the coming into being of a lived situation in which media is “disseminated and diffused into the fabric of everyday life,” the concept of mediation could not be plausibly circumscribed within the sphere of ‘the machine’ in this way.<sup>6</sup> Bergson's tendency to describe the ‘mechanical’ as a contaminating value—a insidious property that can infiltrate and overlay human perception—actually circles the *atmospheric* dimension of media aesthetics that my argument will attempt to conceptualize. The dominating visual media, I hope to demonstrate, impose a material footprint on our perceptual experience so fundamental that their impact, far

---

<sup>5</sup> "Introduction I: Growth of Truth, Retrograde Movement of the True," 9.

<sup>6</sup> Jon Dovey and Helen W. Kennedy, *Game Cultures: Computer Games as New Media* (Maidenhead, Berkshire, England; New York, N.Y.: Open University Press, 2006), 149.

from being containable, is not wholly assimilable to the frameworks of conceptual representation. What is actually at work in Bergson's strategically limited account of specific films and photographs is in fact the negotiation of an interpellation by media: of an involvement-effect that originates from technological things, but does not remain tethered to them.

Consequently, I argue that to account adequately for the unsettlingly atmospheric phenomenology of mediation's sensory address requires an enlargement, rather than a reduction, of the theoretical scope that should be attributed to the domain of 'the apparatus.' I will attempt to do this by lifting my analytical gaze off the borders of the machine, to consider technological devices and their attendant inscriptions as historical objects situated in a lifeworld. I will proceed through an inductive close reading of a set of strategic textual examples, aiming to describe a difficult-to-grasp, even evanescent transaction: the interface between the technical image, the perceiving subject, and an experiential setting. I will jettison the pejorative connotations of a language of infection and contamination to describe visual media's atmospheric aspect in the language of perceptual 'bleeds,' or as a 'tinting.' Most significantly, I will seek to keep two facts about technological mediation constantly in play: on the one hand, an appreciation that visual media impose a partly inassimilable material footprint on our experience; and on the other, that this imprint is often experienced as a kind of diffusive atmospheric leak.



## I. Intermediality: Movement in the Air

A literary extract corresponding to a early moment in the public life of photography can offer an initial example by which to concretize some of these ideas:

Sometimes squalls blew up, winds that suddenly swept in from the sea over the plateau of the *pays de Caux* and filled the countryside with fresh, salt-smelling air. The whistling wind would flatten the reeds and rustle the trembling beech leaves, while the tops of the trees swayed and murmured. Emma would pull her shawl close about her and get up.<sup>7</sup>

In this passage of suspended visual description, taken from an early section of *Madame Bovary* (1856), Gustave Flaubert maps a setting through the minimal scenario of this slight event: the rustling of the trees in the wind. As literary commentators have observed from the moment of the novel's publication, in word pictures such as this Flaubert does not advance the action of his fictional diegesis, nor propel the movements of his human agents. Rather, the delineation of an ephemeral sensory event—the sound of the wind, its contingency and mobility in the scene, which veritably visualizes the scent and sensual imprint of another place—*stalls* narrative time. Emma Bovary's gesture of withdrawal in the last sentence is a reaction to a movement in the air that indexes something of the exteriority of what has been described by foregrounding her subjection, as a character, to a temporality that is not one of human action; and that presses on her from the outside.

What is pertinent to my argument in the formal qualities of this brief extract is its attentiveness to nuances of animated worldly detail: a sensitivity to exteriority and an independent life of things that infuses the passage with a sense of “fresh, salt-smelling air”;

---

<sup>7</sup> Gustave Flaubert, *Madame Bovary*, trans. Francis Steegmuler (New York: Random House, 1991), 51.

and lends Flaubert's style such an unusual degree of imagistic specificity. Reading his depiction of the wind through the lens of Roland Barthes' influential conceptualization of this novel as exemplary of a "reality effect," one could say that the literary aesthetic operates here through an obdurate refusal to synthesize elements of concrete information into plot; or to "functionalize all details."<sup>8</sup> Rather, descriptive concreteness is used to locate the reader in the spatio-temporal weave of a quite particular lifeworld, by recounting its phenomenal presence with a kind of photographic exactitude.

But in relating literary realism to the depictive features of photographic representation I do not mean to suggest that Flaubert actually describes a photograph.<sup>9</sup> The connection is more intangible; concerning not only creative intent, but the spheres of allusion triggered in the wake of virtuosic style. "Exterior reality must enter into us, almost make us cry out with it, if we are to reproduce it well" this writer declared of his aspiration, so that the language of his stylistic twist toward exteriority demonstrates something more akin to a textuality that has become inflected with the perceptual effects of a mode of description capable of delineating worldly detail with a high degree of technical, or mechanical, specificity.<sup>10</sup>

Flaubert writes at a moment in which photography was becoming a popular media. I have noted that the invention of a dry-plate photographic technology in the late nineteenth-century

---

<sup>8</sup> Roland Barthes, "The Reality Effect," in *The Rustle of Language* (New York: Hill and Wang, 1986), 147.

<sup>9</sup> Writing of "the stubborn persistence of a certain faith in the power of observation in 'the literature of images' that became known as realism," the intellectual historian Martin Jay characterizes Flaubert as "perhaps the most visually acute of their number"; possessing a "dispassionate, pitiless gaze [that] has often been compared to that of a photographer or even a filmmaker, with his montage of successive perspectives." While it is precisely Flaubert's originality as a literary stylist that "make[s] it impossible to accept uncritically his famous claim, 'I am an eye,'" Jay concludes, "his novels do reflect the heightened visual sensibility of his age." Jay, *Downcast Eyes*, 110-11, 12.

<sup>10</sup> Flaubert, Letter to Louise Colet, July 8, 1853 (III, 269), in Gustave Flaubert, "On Realism," in *Documents of Modern Literary Realism*, ed. George Joseph Becker (Princeton, N.J.: Princeton University Press, 1963), 93.

streamlined darkroom processes to a degree that made the camera accessible to an expanded cohort of amateurs: a skilled collective of bourgeois enthusiasts, mostly male, who embraced this new medium's capacity to be turned upon the spectacle presented by daily life.<sup>11</sup> Émile Zola is a notable member of this type of practitioner, and his body of images from the turn of the nineteenth-century are a photographic archive whose preoccupations are strikingly correlated with the themes of French realist fiction: depicting workers, children, mealtimes, boats, trains, and city streets with a fine-grained sensitivity to a visual drama immanent in ordinary surfaces. In its subject matter and pictorial flair, further, this genre of nineteenth-century amateur photography forms a direct cultural antecedent to the stylistics and thematics of the inaugural French moving image archive, the Lumière cinema.

The historian of photography Joel Snyder has observed that, in the cultures surrounding nineteenth-century photography in Europe, England, and the United States, the idea of 'the mechanical' was applied in such a shifting range of semantic contexts that the scope and malleability of this term should be understood to "affect, in different ways, the sense of the general claim that photography is a mechanical method of depiction."<sup>12</sup> A widespread, now dormant resonance of the word associated the idea of the 'mechanical' with manual work: the work of the hands; as in the manual trades. This particular etymological valence delimited a class-bound notion of naive literalism grounded in the bodies of laboring workers; and in the

---

<sup>11</sup> Of the connections between nineteenth-century photography and cinema Tom Gunning writes: "While still a teenager, Louis Lumière devised a formula for a dry plate process that was economical and extremely sensitive to light. ... These plates allowed a wide range of photographers to achieve the latest and greatest of photographic novelties, the seizing of an instant, the suspending of time in its courses." Gunning, "New Thresholds of Vision: Instantaneous Photography and the Early Cinema of Lumière," 72, 73-4.

<sup>12</sup> Joel Snyder, "Res Ipsa Loquitur," in *Things That Talk: Object Lessons from Art and Science*, ed. Lorraine Daston (New York: Zone Books, 2008), 199.



Figure 2.2: Émile Zola, *From the Tower*, c.1900. Published in *Zola—Photographer*, 1988.



Figure 2.3: Émile Zola, *Boats on the Seine*, c.1888-1902. Published in *Zola—Photographer*, 1988.

regime of images it was used to describe a pedagogical method of drawing based on copying.<sup>13</sup>

“The mechanical trades were the manual trades, and a mechanic was not someone who worked on machines but someone who earned his living by the skill of his hands or simply through bodily labor” Snyder writes of the background to an artistic context in which a reference to ‘the mechanical’ was a way to connote the ungifted painter’s “ability to repeat the rules of correct drawing through the disciplining of the hand and the education of the eye, each achieved by the endless, monotonous, step-by-step operations.”<sup>14</sup> Encompassed here is both an incipient idea of the industrial *and* an older valence of attentive, manual depiction: a referential range so fungible that the nineteenth-century sense of ‘the mechanical’ should be grasped as delimitating a much broader conceptual field than its twentieth-century denotation can suggest. “The placement of daguerreotypy (and, a bit later, photography as a whole) within the realm of the mechanical,” Snyder continues, also obscured the the fact that “the term ‘mechanical’ had long been entrenched in the curricular of art academies and schools, was constantly referenced in artists’ practice itself, and was standard fare in the discourse of art criticism.”<sup>15</sup> Indeed in a social context within which the process of mechanical drawing was understood to produce “pictures precisely representing the details of their subjects in all their particularity,” early photographic images were manifestly un-

---

<sup>13</sup> This etymological layer is indicated in the Shakespearean reference to “rude mechanicals”: “What hempen homespuns have we swagg’ring here...?” William Shakespeare, *A Midsummer Night's Dream*, ed. Peter Holland, Oxford Shakespeare (Oxford & New York: Oxford University Press, 1994), 181. Lorraine Daston and Peter Galison note that “‘mechanical’ had long referred to an inferior brand of human labor executed with the hands, not the head (Shakespeare’s ‘rude mechanicals’.” Lorraine Daston and Peter Galison, *Objectivity* (New York, Cambridge, Mass.: Zone Books, Distributed by the MIT Press, 2007), 137.

<sup>14</sup> Snyder, “Res Ipsa Loquitur,” 200-01, 01.

<sup>15</sup> “Res Ipsa Loquitur,” 199.

mechanical: *less* adequate to the depiction of empirical subtleties—visual details, temporal events, and movement—than a whole gamut of refined plastic techniques.<sup>16</sup>

Historians of science, for example, record that nineteenth-century scientists tended to regard drawings made meticulously by hand in pastel or graphite a far more ‘mechanically’ accurate method for depicting fleeting or fugitive phenomena, such as astronomical configurations or electric sparks.<sup>17</sup> “However arduous preparing the apparatus, composing the picture, operating the camera, and developing the image were” Lorraine Daston and Peter Galison write, “the [photographic] process was (in the particular cultural context of the time) perceived as requiring negligible labor compared to the task of putting pencil to paper.”<sup>18</sup> A 1839 popular magazine article concurs with this judgment; describing the limitations of photography to its audience by noting “fixed objects only can be delineated: ‘the foliage of trees...from its always being more or less agitated by the air, is often but imperfectly represented.’”<sup>19</sup> It is striking to observe that, in both scientific and vernacular instances, the *technical* dimension of the photographic image can be understood to stand quite independently from the image’s *mechanical* qualities. Even used in direct reference to the photographic apparatus, the term ‘mechanical’ was capable of denoting a

---

<sup>16</sup> “Res Ipsa Loquitur,” 201. For Snyder “the claims, made from 1839 through the late 1850s, about the mechanical character of daguerreotypy and then of photography need to be understood as attempts to assimilate photographic production into the habits of artists and illustrators, regarding the production of pictorial copies (and specifically not in the production of art).” “Res Ipsa Loquitur,” 203, 04.

<sup>17</sup> See Canales, *A Tenth of a Second*, 87-115. Canales notes that “during the decades immediately following the invention of photography, exposure times were regrettably slow. It took an average of two minutes to expose most daguerreotypes.” *A Tenth of a Second*, 104.

<sup>18</sup> “When the term ‘mechanical’ was applied to prior to *circa* 1880,” they explain, “it referred to the process by which light imprinted an image on specially prepared metal, paper, or glass. Because the image was likened to a drawing or engraving, the absent human hand implied by the word ‘mechanical’ was that of the *artist*, not the *photographer*. Fixated upon the delineation of the image itself, early photographers and their audiences compared photography to drawing.” Daston and Galison, *Objectivity*, 137. My emphasis.

<sup>19</sup> “Self-Operating Processes of Fine Art: The Daguerreotype,” *Spectator* 12, no. 553 (Feb. 2, 1839), p. 18, cited in Snyder, “Res Ipsa Loquitur,” 202-3. Daston and Galison note that “‘photographs’ in the scientific and popular press were often wood engravings from photographs, carrying the assurances that they had not been retouched.” Daston and Galison, *Objectivity*, 137.



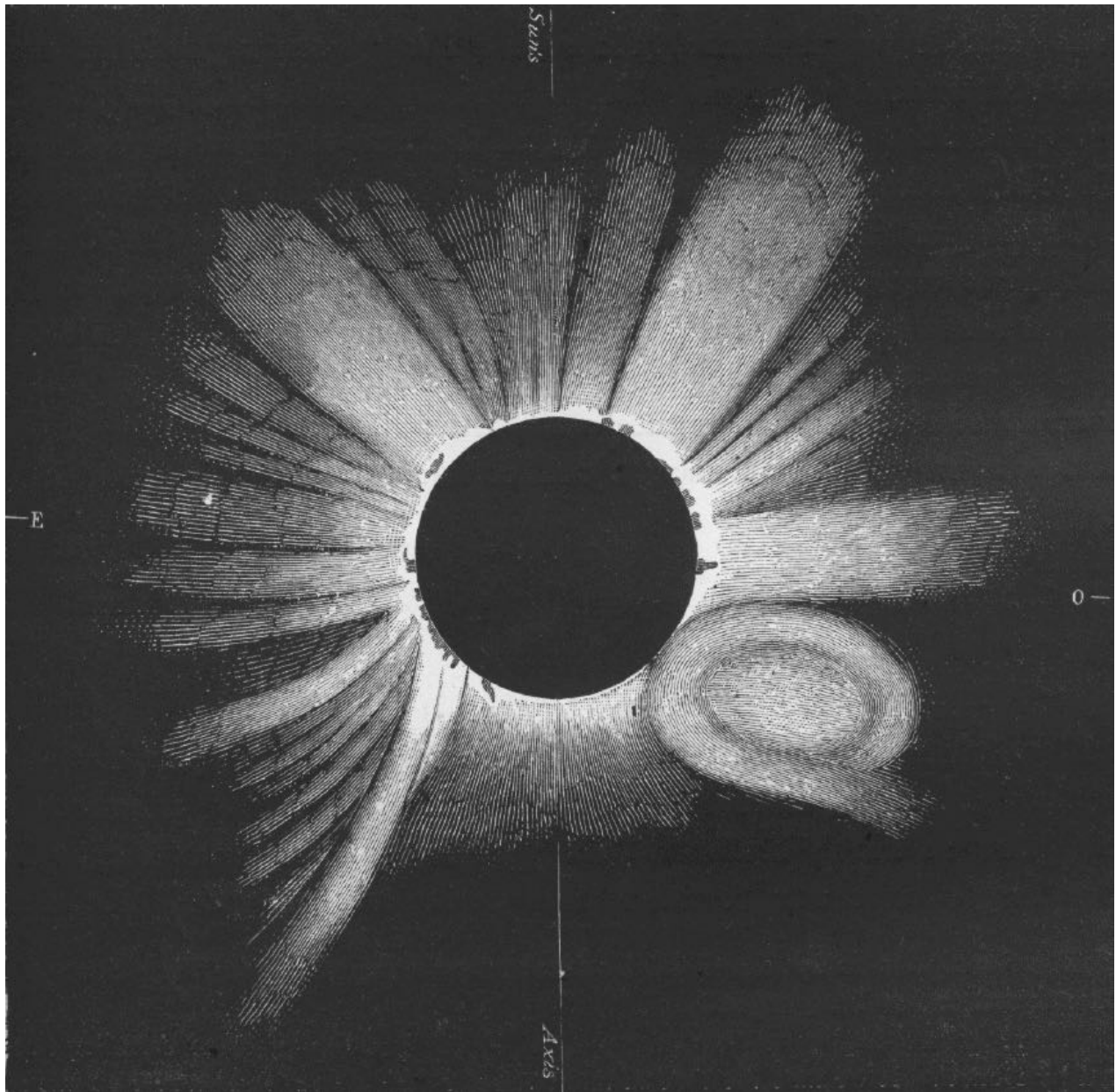


Figure 2.4: Gughemo Temple, *Total solar eclipse, observed on 18 July 1860 at 3.13 p.m. from a site near Torreblanca, Spain.* Drawing. Source: Fisher, R. R. (1982). "Lindau Workshop on the Source Region of the Solar Wind, 9th, Lindau, West Germany." *Space Science Reviews* 33 (1-2): 9-16.



Figure 2.5: Étienne Léopold Trouvelot, *Plate II, Solar Protuberances*. Observed on May 5, 1873 at 9h, 40m. A.M. Pastel drawing reproduced as chromolithograph. Published in *The Trouvelot Astronomical Drawings Manual*, C. Scribner's Sons: New York, 1882. Collection of the University of Michigan Shapiro Science Library. ([Source](#)).





Figure 2.6: Étienne Léopold Trouvelot, *Plate XI, The Great Comet of 1881. Observed on the night of June 25-26 at 1h. 30m. A.M.* Pastel drawing reproduced as chromolithograph. Published in *The Trouvelot Astronomical Drawings Manual*, 1882. Collection of the University of Michigan Shapiro Science Library. ([Source](#)).



Figure 2.7: Étienne Léopold Trouvelot, *Direct Electric Spark*, 1885. Silver gelatin print. 29 x 23.9 cm. Private Collection.

sphere of practice, rhetoric, and interpretation—an epistemological field—in no way delimited to the technical specificity of technological media. As Snyder summarizes, to describe daguerreotypes as ‘mechanical’ within the hermeneutic context of early photography was to assert no more than that:

they are correct, particular, and precise in their details; it is to qualify them as copies of some thing or group of things. The machinery of photographic production is in no way central to this use of ‘mechanical.’<sup>20</sup>

A 1857 review of *Bovary* opens with this line: “*Madame Bovary*, a novel by Gustave Flaubert, shows obstinacy in description. It makes one think of a line drawing, to such degree that it is made with a compass and meticulous exactitude: calculated, worked over, everything at right angles, and totally dry and arid.”<sup>21</sup> In 1936, and invoking the same, now thoroughly anachronistic sense of ‘mechanical’ pedanticism, George Lukács observes that in *Madame Bovary*:

The “setting” has an independent existence as an element in the representation of the environment. The characters, however, are nothing but observers of this setting. To the reader they seem undifferentiated, additional elements of the environment Flaubert is describing. They become dabs of colour in a painting... The painting has assumed an importance which does not arise out of the subjective importance of the events, to which it is scarcely related, but from the artifice in the formal stylization.<sup>22</sup>

Here Lukács focalizes a negative judgment on Flaubertian description through an assessment of style: specifically, the deliberate attention to empirical detail through which *Madame Bovary* awards its background “an independent existence as an element in the representation.” The

---

<sup>20</sup> Snyder, “Res Ipsa Loquitur,” 202.

<sup>21</sup> Edmond Duranty, “Two Views of Madame Bovary (Réalisme, No. 5, pp. 79-80, March 15, 1857),” in Documents of Modern Literary Realism, ed. George Joseph Becker (Princeton, N.J.: Princeton University Press, 1963), 98.

<sup>22</sup> Georg Lukács, “Narrate or Describe? (1936),” in Writer and Critic, and Other Essays, ed. Arthur D. Kahn (London: Merlin, 1970), 115.

reconfiguration of compositional hierarchies implicit in Flaubert's reversal of the priority usually granted to characterization over *mise-en-scène*—that is, the self-conscious equalization of the depiction of human action with the delineation of a *setting*—is for this critic the sign of the novelist's abdication of literary values.

In Lukács' view 'narration' and 'description' are philosophies of composition, rather than neutral devices; and a novelist may either narrate or describe.<sup>23</sup> Narration is deemed the mark of an orientation to experience in (and of) the world, because the narrative stylist is seen to engage in an artful synthesization of characterization and events. By comparison, Lukács accuses proponents of the descriptive mode of prioritizing an observation of the world over an effort to experience or synthesize it. In a literature dominated by description, he warns, "something much worse than mere leveling results—a reversed order of significance... since both the important and the unimportant are described with equal attention."<sup>24</sup> The tone of this judgement suggests, on the one hand, the speaker's reliance on an explicitly nineteenth-century sense of 'mechanical' representation as a labored, overly literal, aesthetically negligible transcription of the real. But the specificity and reiterative force with which Lukács aims his critique at the overt visuality of Flaubert's style also suggests the operation of a distinctly twentieth-century sense of 'the mechanical' as technological automation. A sense of frustration with the unsynthesized proliferation of detail in *Bovary*, for example, is repeatedly conveyed by the critic's turn to visual metaphor: "the 'peripheral' beings to bloom everywhere and the mud on Napoleon's boot at the moment of the hero's abdication is as painstakingly portrayed as the spiritual conflict in his

---

<sup>23</sup> "Narrate or Describe? (1936)," in *Writer and Critic, and Other Essays*, ed. Arthur D. Kahn (London: Merlin, 1970), 116.

<sup>24</sup> "Narrate or Describe? (1936)," 131.

face”; so that “the characters become dabs of colour in a painting.”<sup>25</sup> When description is elevated to the status of a compositional philosophy, Lukács summarizes:

writers attempt a vain competition with the visual arts. When men are portrayed through the descriptive method, they become mere still lives. Only painting has the capacity for making man’s physical qualities the direct expression of his most profound character qualities. And it is no accident that at the time descriptive naturalism in literature was degrading human beings to components of still lives, painting was losing its capacity for intensified perceptual expression. Cézanne’s portraits are mere still lives compared to Titian’s or Rembrandt’s with their sense of individual and spiritual totality; even as the characters of the Goncourts or of Zola are still lives compared to those of Balzac or Tolstoy.<sup>26</sup>

I want to join with Lukács’ in claiming an aesthetic correlation between a literature and art of radical detail preoccupied with de-figuration, and a conception of ‘the mechanical’ that foregrounds “the ability to repeat the role of correct drawing through the disciplining of the hand and the education of the eye.”<sup>27</sup> A telling point of overlay between these conceptual clusters is indicated by the intuitiveness with which literary critics couch their accusations of Flaubert’s literal-minded exactitude analogically; by using line drawing or painting (academic or otherwise) to figure the non-subjective effects of a literature of descriptive showing. Even Barthes’ sympathetic reading of *Bovary* performs this gesture in the observation that Flaubert’s “descriptive fabric is constructed so as to connect Rouen to a painting ... it is a painted scene which the language takes up.”<sup>28</sup>

---

<sup>25</sup> "Narrate or Describe? (1936)," 132. The danger of description, Lukács continues, is “the danger of details becoming important in themselves. With the loss of the art of narration, details cease to be transmitters of concrete aspects of the action and attain significance independent of the action and of the lives of the characters.” For Lukács, then, “description, as we have discussed it, becomes the dominant mode in compositions in a period in which, for social reasons, the sense of what is primary in epic construction has been lost.” "Narrate or Describe? (1936)," 132, 27.

<sup>26</sup> "Narrate or Describe? (1936)," 138. In an account of Lukács’ film criticism Tom Levin notes that the late Lukács described film as “*incapable* of expressing the serious material characteristics of drama and literature due to the primacy of its visual component: ‘an intellectual problem cannot be expressed by a picture.’” Tom Levin, "From Dialectical to Normative Specificity: Reading Lukács on Film," *New German Critique* 40(Winter 1987): 59.

<sup>27</sup> Snyder, "Res Ipsa Loquitur," 201.

<sup>28</sup> Barthes, "The Reality Effect," 144.



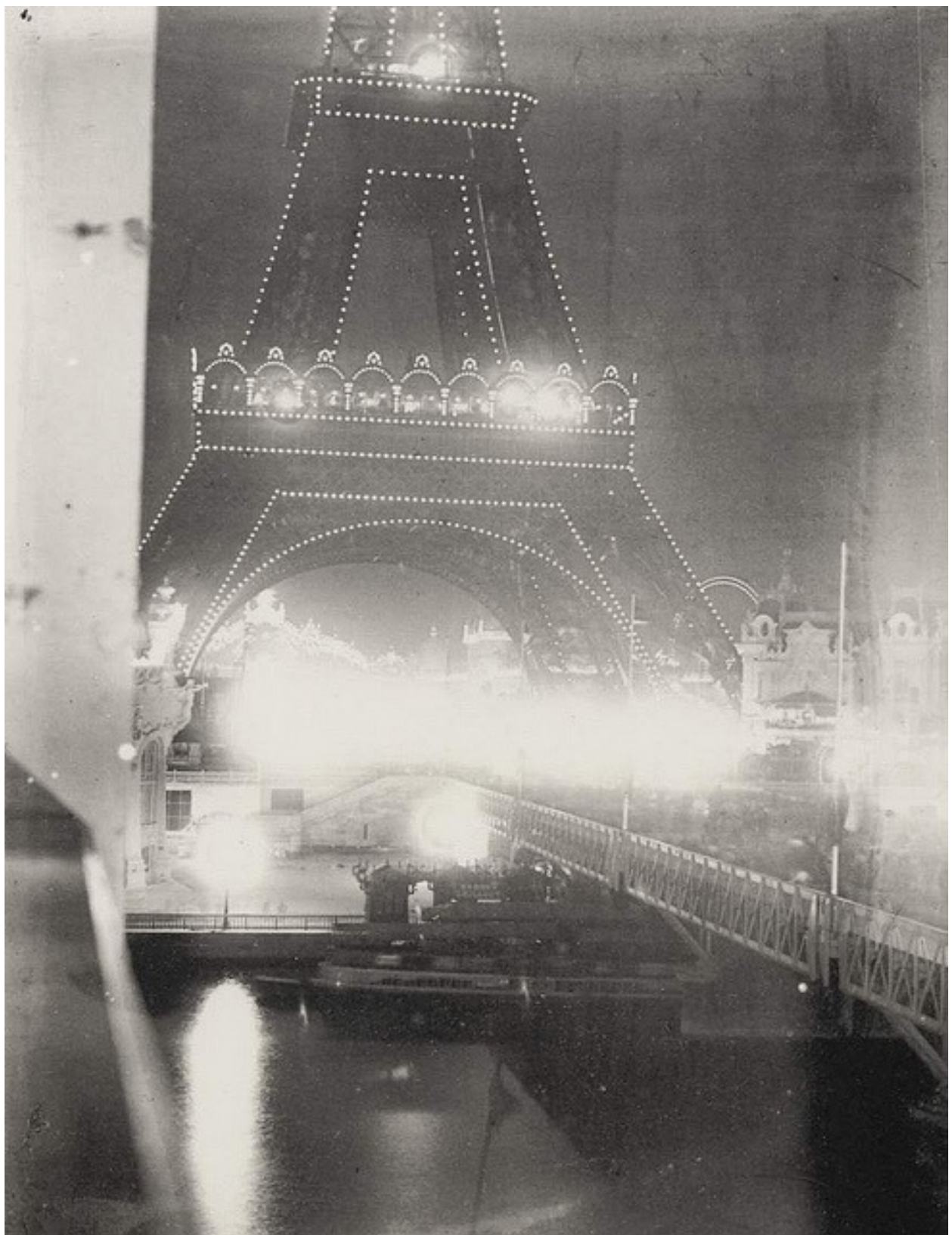


Figure 2.8: Émile Zola, *Paris at Night*, c.1900. Published in *Zola—Photographer*, 1988.



Figure 2.9: Paul Cézanne, *Madame (Hortense Fiquet) in a Red Dress*. c.1888–90. Oil on canvas. 116.5 x 89.5 cm. Collection of the Metropolitan Museum of Art, New York.

Fundamentally, of course, these acute literary critics are correct. There is an explicit otherness to Flaubert's descriptive fabric that wells from a stated desire to externalize a mode of perception fused with empirical observation. "I am in a completely different world now, that of attentive observation of the dullest details" he wrote of his creative process; "I write in an entirely different manner. In my book I do not want there to be *a single* movement, or *a single* reflection of the author."<sup>29</sup> But to correlate the effect of Flaubertian description with painting and drawing does not account, or not quite adequately, for the sheer independence granted to unsynthesized detail in his word pictures. Rather closer to home is Barthes' summative opinion, later in the Reality Effect essay, that "it is logical that literary realism should have been—give or take a few decades—contemporary with the regnum of 'objective' history...[in which] the 'real' is supposed to be self-sufficient."<sup>30</sup> What Barthes and Lukács are really troping by comparing virtuosic description to 'mechanical' representation is a concept of visual exactitude deployed in the manner of an apparatus, or a device.

As the Industrial Revolution wore on, Daston and Galison write, the word "'mechanical' retained its pejorative, manual associations, but now referred dismissively to actual machines and the workers who tended them, suggesting they were repetitive, mindless, automatic."<sup>31</sup> This transposition of a set of cultural values once attached to human bodies to the domain of technology is a historical inflection also discernible in Bergson's 1911 essay on *Laughter*. "The comic is that side of a person which reveals his likeness to a thing" Bergson observes in

---

<sup>29</sup> Flaubert, Letter to Louise Colet, February 8, 1852, in Flaubert, "On Realism," 91.

<sup>30</sup> Barthes, "The Reality Effect," 146-7.

<sup>31</sup> Daston and Galison, Objectivity, 137.



this text; designating by the arena of ‘things’ “that aspect of human events which, though its peculiar inelasticity, conveys the impression of pure mechanism, of automatism, of movement without life.”<sup>32</sup> It is striking, however, that *Laughter* proposes the distinction between ‘mechanization’ and ‘movement’ as easy and uncomplicated, within the context of an argument that posits a mechanical effect within the very interior of the human body: “*the attitudes, gestures and movements of the human body are laughable in exact proportion as that body reminds us of a mere machine.*”<sup>33</sup> The central image of *Laughter* is one of technological contamination—“something mechanical encrusted on something living.”<sup>34</sup> The fluidity with which this image juxtaposes the distinguishes qualities of ‘mechanization’ and ‘life’ is an indication that, by the early twentieth-century, the term ‘mechanical’ had expanded to encompass an unambiguously technical dimension, even as an older, more explicitly embodied connotation lingered.

Against this fact of etymological layering, I want to suggest that what is at stake in the particular tenor of Flaubertian visuality is a suggestively full range of the nineteenth-century meanings attached to the term ‘mechanical’: a sense of media, as well as of mediation; covering the literal transcription of empirical detail by manual means *and* an incipient sense of the camera-device as an agent in the creation of a technological image. The aesthetic significance of detail in Flaubert’s word pictures is specified by the strange concreteness of its materiality; it is a style that bears the trace of its author’s location in a social regime of the

---

<sup>32</sup> Henri Bergson, *Laughter: An Essay on the Meaning of the Comic*, trans. Cloudesley Brereton and Fred Rothwell, Authorised Translation (New York: The Macmillan Company, 1911), 48.

<sup>33</sup> *Laughter: An Essay on the Meaning of the Comic*, trans. Cloudesley Brereton and Fred Rothwell, Authorised Translation (New York: The Macmillan Company, 1911), 22.

<sup>34</sup> *Laughter*, 34.

technical image. We can begin to conceptualize this subtle bleed of the technical into literary style—in the form of an effect contingent on what André Bazin has called “the essentially objective character of photography”—by noting that, for Bazin, the world-historical significance of the advent of the photographic image is located in this fact:

For the first time, between the originating object and its reproduction there intervenes only the instrumentality of a nonliving agent. For the first time an image of the world is formed automatically, without the creative intervention of man.<sup>35</sup>

In addressing the mediation effects of vernacular media we are dealing with a fact of collective experience and a quality of pervasion. Literary descriptions can create pictures in a spectator’s head that seem to take the form of a dominant media; because the technical specificity of a technological real has concrete experiential effects on the human sensorium. Thus Flaubert and his critics reveal, with varying degrees of self-consciousness, their locatedness within a shifting technological situation by the choice of a particular analogy or figuration, and not another.

Yet the desire to map the fugitive and the mobile is an aesthetic impulse, not a technical one; so that an orientation to the representation of phenomenal detail should be acknowledged to transcend categorization by media. We should hear an authentic echo of the Baudelaire who declared, in *Paris Spleen*, “I love clouds... clouds that go by...out there... over there...marvelous clouds!” in the wondering reactions of early film spectators struck by the Lumière cinematograph’s adequacy to the depiction of subtle motions: “They would say,

---

<sup>35</sup> Bazin, “The Ontology of the Photographic Image,” 13. My emphasis. Hugh Gray’s translation is controversial—see Bazin’s original phrasing: “Aussi bien, le groupe de lentilles, qui constitue l’œil photographique substitué à l’œil human, s’appelle-t-il précisément un objectif.”——, “Ontologie De L’image Photographique,” in *Les Problèmes De La Peinture*, ed. Gastib Diehl, *Forward by René Tavernier* (Lyon: Confluences, 1945), 408.

‘See, the leaves on the tree move!’ ‘Smoke comes out of the chimney.’”<sup>36</sup> The obdurate tenor of Flaubert’s proclamation of absolute fidelity to “the dullest details” can be elevated to the status of a keynote moment in an aesthetic genealogy that cuts across the mediums of expression, by articulating the desire for a mode of representation that can depict the experiential impress of the empirical world, *du monde extérieur*, in and for itself. But to flesh out the social stakes of this tradition, in which the setting comes into focus through the atmospheric intervention of an apparatus, will require a theoretical model that can conceptualize it within that “regnum of ‘objective’ history” Barthes understood to be inaugurated by the advent of industrialization and the widespread dissemination of devices of reproducibility.

## II. Media innervation and the *dispositif*

In turning to literature to describe the impact of technical mediation I am arguing a counterintuitive idea: that the experiential effects of a vernacular media paradigm can be traced with a certain priority outside the material boundary of the technological frame. It is for this reason that I have looked for initial exemplification to Flaubert rather than to Zola; as perhaps to Baudelaire and Mallarmé over Proust or Poe.<sup>37</sup> By this choice I do not intend to discount the significance of an artist’s self-conscious comportment to the media paradigm of

---

<sup>36</sup> Charles Baudelaire, *Paris Spleen: Little Poems in Prose*, trans. Keith Waldrop (Middletown, Conn.: Wesleyan University Press, c2009), 5. Francis Doublier, "Reminiscences of an Early Motion-Picture Operator," in *Image on the Art and Evolution of the Film: Photographs and Articles from the Magazine of the International Museum of Photography*, ed. Marshall Deutelbaum (New York and Rochester: Dover and International Museum of Photography, 1979), 23.

<sup>37</sup> “I believe that in his anxiety Baudelaire thought profoundly about photography. ... [he] speaks against the use that was being made of photography—the industry of the portrait—but in so doing he makes a case for a *thinking of photography*.” Hubertus von Amelunxen, in Jacques Derrida, Hubertus von Amelunxen, and Michael Wetzlar, *Copy, Archive, Signature: A Conversation on Photography* trans. Jeff Fort (Stanford, Calif.: Stanford University Press, 2010), 20.

their time; whether of skepticism or embrace. But *collective experience* is fundamental to the effect of proximity to technology I am attempting to name, so that what matters to the local stakes of this argument is less a matter of conscious intent than the fact of an individual's embedding within the historical setting constituted by a pervasive technological scenario.

Returning to the idea that the relation between media and perception is usefully figured as a 'bleed' or a 'tinting,' I turn now to Michel Foucault and Walter Benjamin for a set of potentially interlaced heuristics by which to conceptualize the subtle movement by which a technological effect can seem to lift off the apparatus, to become distinct and palpable in extra-technological arenas.

In *Madness and Civilization* (1961), the initiating volume of his 'experience-books,' Foucault ruminates that:

There must have formed, silently and doubtless over the course of many years, a social sensibility, common to European culture, that suddenly began to manifest itself in the second half of the seventeenth century; it is this sensibility that suddenly isolated the category destined to populate the places of confinement. To inhabit the reaches long since abandoned by the lepers, they chose a group that to our eyes is strangely mixed and confused. But what is for us merely an undifferentiated sensibility must have been, for those living in the classical age, a clearly articulated perception. It is this mode of perception that we must investigate in order to discover the form of sensibility to madness in an epoch we are accustomed to define by the privileges of Reason.<sup>38</sup>

Central to the philosophical resonance of this experiential description is the significance granted to sense-perception as epistemology. In the idea of "a social sensibility" that builds accretively over historical time, to eventually find general expression in the terms of "a clearly

---

<sup>38</sup> Foucault, "Remarks on Marx; *Madness and Civilization*, 42.

articulated perception,” Foucault traces the formation, emergence, and actualization of a *dispositif*.

What is a *dispositif*? The term is imperfectly translatable from the French, where its diverse etymological significations tend to a sense of configuration; or the informal architecture of an ensemble.<sup>39</sup> For Foucault ‘*dispositif*’ means ‘apparatus’ in a broad and technical sense: it is the philosophical device, almost literary in its conception and application, by which he designates an interaction between contemporaneous social elements that bind loosely into functional forms of living.

“What I’m trying to pick out with this term is, firstly a thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions” Foucault clarifies—“in short, the said as much as the unsaid. Such are the elements of the apparatus. The apparatus itself is the *system of relations* that can be established between these elements”; and “I am trying to identify ... *the nature of the connection* that can exist between these heterogeneous elements.”<sup>40</sup> Understood as a concrete social apparatus—a relational assemblage or epistemological network emergent in the co-presence of its constitutive parts—a *dispositif* is a “heterogeneous ensemble” comprised of

---

<sup>39</sup> For a Deleuzean exegesis on this concept’s meaning for Foucault see Gilles Deleuze, “What Is a Dispositif?,” in Michel Foucault, *Philosopher*, ed. T. J. Armstrong (New York: Routledge, 1992). The translator Daniel W. Smith writes: “*dispositif*, from the verb *disposer* (to arrange [flowers], to set [the table], to range [troops] and so on), is generally used to describe a mechanical device or apparatus, such as an alarm or a safety mechanism, and more particularly to describe a military plan of action (for example, *dispositif d’attaque*, ‘attack force’; *dispositif de défense*, ‘defense system’; *dispositif de combat*, ‘fighting plan’).” Daniel Smith, translator’s note in “Desire and Pleasure,” in Foucault and His Interlocutors, ed. Arnold Ira Davidson (Chicago: University of Chicago Press, 1997), 183.

<sup>40</sup> Foucault, in Michel Foucault et al., “The Confession of the Flesh,” in *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon (New York: Pantheon Books, 1977/1980), 194. My emphasis.

both implicit and explicit knowledge, conceptual and preconceptual articulation, “*the said as much as the unsaid*.” This designation of the concept as containing an encompassing breath of intrinsic features is a strategic choice.

By describing ‘the apparatus’ as imminent in an interaction between discursive *and* prediscursive statements and practices, Foucault awards this heuristic the unusual flexibility to account the significance of tacit knowledge: that difficult-to-articulate yet functional domain of what “goes without saying” which is usually blanketed by the invisibility of habituation, hegemony, or emergence.<sup>41</sup> Its inclusion of a comprehensive catalog of articulate and inarticulate features, that is to say, permits the framework of the *dispositif* to grasp transformations of lived experience enacted at the meta-historical level of the general social apparatus; or the positivist operation of what Paul Veyne has called “*history as a whole*.”<sup>42</sup>

This conceptual scale is an indication that Foucault’s motivating preoccupations did not end with the analysis of determination, but aimed at the possibility of radical transformation through a description of the conditions of possibility for social change. Foucault’s thinking of determination is shot through with an awareness of contingency in its effort to identify the concrete means by which subjects who cannot hope to subsume their own historical situation can

---

<sup>41</sup> “What I should like to do now is to try and show that what I call an apparatus is a much more general case of the *episteme*; or, rather, that the *episteme* is a specifically *discursive* apparatus, whereas the apparatus in its general form is both discursive and non-discursive, its elements being much more heterogeneous.” Foucault, in “The Confession of the Flesh,” in *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon (New York: Pantheon Books, 1977/1980), 197.

<sup>42</sup> Veyne contextualizes the meaning intended by his phrase ‘history as a whole’ with this example: “It was not Christianity that led the emperors to adopt a paternalistic practice and made them ban gladiators; rather, it was history as a whole (the withering away of the senate, a new ethic according to which the body is not a toy, and so on) that brought about a change in political practice, with dual consequences: because they were paternalistic the emperors quite naturally adopted Christianity, and because they were paternalistic they put an end of gladiatorship.” Paul Veyne, “Foucault Revolutionizes History,” *ibid.*, 158, 53. My emphasis.

nonetheless “think otherwise” and “become other.”<sup>43</sup> “Foucault was concerned not with the formal possibilities of a linguistic system” Arnold Davidson summarizes, but rather:

with the accumulated existence of discourses, with the archive of statements that have been uttered, and especially with those statements that, at a given time, claim the status of knowledge. His aim was to do nothing less than attempt to describe the rule-governed structures whose elements were knowledge-statements and then to describe the transformations that had to take place in order for new structures of knowledge to have emerged. Foucault’s descriptions of epistemic changes are to be located at this level of transformation.<sup>44</sup>

On the one hand, then, the operation of a *dispositif* is to unite its collective under a transparent umbrella; like a goldfish bowl holds together clear water. Gilles Deleuze paraphrases the term’s meaning for Foucault in this way:

We belong to social apparatuses [*dispositifs*] and act within them. The newness of an apparatus in relation to those which have gone before is what we call its actuality, our actuality.<sup>45</sup>

As a functional arrangement of habituation and habituation, a *dispositif* forms the sensual weave of an ensemble of living; so inevitably gives rise to certain perceptual tendencies—“the *form of sensibility*” of a moment, its “*clearly articulated perception*.” As the general experiential apparatus immanent in the details that ground the specificity of a historical setting, it is a social determination from which no individual subject can claim an outside. Yet as the very material of sociality in and through which a once-incomprehensible idea can gather form and gradually surface into the synchronized arenas of explicit and implicit knowledge—“it is this sensibility that *suddenly* isolated the category destined to populate the places of confinement”—the

---

<sup>43</sup> Foucault asks in this interview “what is philosophy if not a way of reflecting, not so much on what is true and what is false, but on our relationship to the truth?” Foucault, “The Masked Philosopher,” 327.

<sup>44</sup> Arnold Davidson, “Structures and Strategies of Discourse: Towards a History of Foucault’s Philosophy of Language,” in *Foucault and His Interlocutors*, ed. Arnold Ira Davidson (Chicago: University of Chicago Press, 1997), 11.

<sup>45</sup> Deleuze, “What Is a Dispositif?,” 164.

concept's sensitivity to the registration of social change allows it a powerful capacity to act as a comparative methodological device.

Veyne, a historian, reminds us that Foucault was a skeptic who did not acknowledge a transcendental basis to truth, and for whom 'natural' objects consequently did not exist. Instead, Foucault's innovation was to ground a philosophical interrogation of the conditions of human experience in the postulate that all truth is historically determined.<sup>46</sup> The conception of history implicit in the figuration of a *dispositif* is that of a kaleidoscope: an arrangement of elements that might be rearranged into an entirely alternate configuration, and whose reconfiguration through the contingencies of the historical process gives rise to a new *dispositif*, and so to new social truths. The Foucauldian skepticism about 'natural' objects—whether constituted by “events or things,” concepts, structures, or modes of experience—is not grounded in a refusal of the phenomenal or social materiality of social things, but rather in an appreciation of their involvement in the inescapable, determining cast of history's ‘bleed’ or ‘tinting.’<sup>47</sup> What is revolutionary in Foucault's contribution to the history of ideas, Veyne writes, is an approach to “history that rejects natural objects and ratifies the kaleidoscope.”<sup>48</sup>

Further, by framing the *dispositif*'s key characteristics—heterogeneity and emergence—in the language of perception, the Foucault of *Madness and Civilization* creates analytic conditions of possibility for posing a profoundly methodological question: What can be known about the *mode*

---

<sup>46</sup> For Veyne, Foucault presents us with the vision of “a wholly *material* universe, made up of pre discursive referents that remain faceless potentialities ... Each practice depends on all the others, and on their transformations. Everything is historical, and everything depends on everything else. Nothing is inert, nothing is indeterminate, and, as we shall see, nothing is inexplicable. ... Foucault is a historian of the purest sort: everything is historical, history is entirely explicable.” “Foucault Revolutionizes History,” in Foucault and His Interlocutors, ed. Arnold Ira Davidson (Chicago: University of Chicago Press, 1997), 171, 2.

<sup>47</sup> Foucault, *Archaeology of Knowledge*, 128.

<sup>48</sup> Paul Veyne, “Foucault Revolutionizes History,” *ibid.*, 175.



*of perception* that give rise to this object or image; to this thought? Georges Canguilhem summarizes the achievement of this text in the following way: “Foucault essentially endeavors to show that madness is an object of perception in a ‘social space’ structured in diverse ways throughout the course of history, an object of perception created by social practices.”<sup>49</sup> Thinking with *dispositifs* is the analytic tool by which Foucault was able to trace the formation of socially determined collective experiences (madness, imprisonment, sexuality) through a description of their embedding within discoverable, because historically located bodies. Applied to the experiential phenomena of technological modernity, this heuristic allows me to grasp technological modernity itself as the *dispositif*: the general sensory apparatus whose determinations form a technological a priori that subtends, and so ‘tints’ and ‘bleeds,’ every form of social experience grounded in that historical present.

This, in a nutshell, is the claim proffered by Friedrich Kittler's *Gramophone, Film, Typewriter*. Geoffrey Winthrop-Young and Michael Wutz write that Kittler's innovation is to show that “if media do indeed ‘determine our situation,’ then they no doubt also determine, and hence configure, our intellectual operations”; a statement that reiterates Kittler’s most fundamentally Foucauldian insight that “*contemporary theories [are] defined by the technological a priori of their media.*”<sup>50</sup> The Kittlerian claim for a Foucauldian intervention aside, however, I want to

---

<sup>49</sup> Georges Canguilhem, "Report from Mr. Canguilhem on the Manuscript Filed by Mr. Michel Foucault, Director of the Institut Français of Hamburg, in Order to Obtain Permission to Print His Principal Thesis for the Doctor of Letters," *ibid.*, 24. Veyne puts it in the following way: “What would madness be, ‘materially,’ apart from a practice that makes it madness?” Paul Veyne, "Foucault Revolutionizes History," *ibid.*, 164.

<sup>50</sup> Winthrop-Young and Wutz, "Translators' Introduction," xx; Kittler, *Gramophone, Film, Typewriter*, 117. My emphasis. Winthrop-Young and Wutz's Introduction continues, suggestively, with the observation that “In Kittler’s usage, ‘discourse network’ designates ‘the network of technologies and institutions that allow a given culture to select, store, and produce relevant data.’ The term is very extensive: it attempts to link physical, technological, discursive, and social systems in order to provide epistemic snapshots of a culture’s administration of power and knowledge [whose] aim is to combine a ‘Foucauldian’ analysis of historically contingent rules and regulations, which allow or force people to speak in certain ways, with the examination of equally contingent physical and mental training programs and the analysis of the contemporary media technologies that link the two.” Winthrop-Young and Wutz, "Translators' Introduction," xxiv.

suggest that Kittler's theoretical reliance on Foucault is constitutive—not only a matter of “substantial affinities,” as has been conceded; but fundamental, on the level of the methodological predicate of the technological a priori.<sup>51</sup>

The degree to which *Gramophone* relies on an application of concepts derived from the Foucauldian method, indeed, means that archeology does not need to be ‘rescued’ from Kittler’s rhetorical diminishment. Rather, I would like to point to the manner in which the Kittlerian reductive misreading of both ‘archeology’ and ‘writing’ has been accepted with the discipline of media studies, with the major consequence of a reduced understanding of the scope of media aesthetics.

Kittler understands the affordances of audiovisual media to compete with human perception to the point of overwriting the sensorium because his archeology of devices is not substantively invested in accounting for the experiential interface between media and sensation. It is for this reason that *Gramophone* reiteratively poses a binaristic distinction between media and art, ‘technology’ and ‘aesthetics.’ Since aesthetics are grounded in perception, and Kittler understands perception as annihilated by audiovisual media, he upholds the proposition that in a lived situation of media saturation we are “always already beyond aesthetics” as merely logical:

On December 6, 1877, Edison, lord of the first research laboratory in the history of technology, presented the prototype of the phonograph to the public. On February 20, 1892, the same lab in Menlo Park (near New York) added the so-called kinetoscope. Three years later, the Lumière brothers in France and the Skladanowsky brothers in Germany merely had to add a means of projection to turn Edison’s invention into cinema.

---

<sup>51</sup> Winthrop-Young and Wutz write that “in discussing *Discourse Networks* Kittler confirmed that Foucault, as “the most historical” of the French triumvirate, is the most important to him—more important than Lacan and far more than Derrida. As David Wellbery points out...there are substantial affinities.” “Translators’ Introduction,” xxiii; Kittler, *Gramophone, Film, Typewriter*, 117. My emphasis.

Ever since that epochal change we have been in possession of storage technologies that can record and reproduce the very time flow of acoustic and optical data. Eyes and ears have become autonomous. And that changed the state of reality more than lithography and photography, which (according to Benjamin's thesis) in the first third of the nineteenth century merely propelled the work of art into the age of its technical reproducibility. Media "define what really is"; they are always already beyond aesthetics.<sup>52</sup>

In fact, this argument's description of both archeology and writing is strategically calibrated to allow a certain vision of technological materiality to become thinkable and philosophically viable. The claim that in an audiovisual era "the dream of a real visible or audible world arising from words has come to an end" because "everything that has been taken over by technological media since Edison's inventions *disappears from typescripts*," for example, generates a tactical minimization of the power of both archeological and literary description in order to emphasize the rising power of the audiovisual document's descriptive capacity.<sup>53</sup> Similarly, the judgement that "as long as it was moving along, history was indeed Foucault's 'wave-like succession of words'" provides an entirely an untrustworthy account of the archeological method, in order to advance the reductive claim that language cannot speak to what is inarticulate in experience —"*whatever else was going on dropped through the filter of letters or ideograms*."<sup>54</sup> Yet media theory has accepted these Kittlerian reductions as transparent, and so has tended to unself-consciously reproduce Kittler's self-conscious indifference to the phenomenology of the interface between image, subject, and setting.

---

<sup>52</sup> Gramophone, Film, Typewriter, Translated, with an Introduction by Geoffery Winthrop-Young and Michael Wutz (Stanford, Calif.: Stanford University Press, 1999), 3.

<sup>53</sup> Gramophone, Film, Typewriter, 14. My emphasis.

<sup>54</sup> Kittler, Gramophone, Film, Typewriter, 5-6. My emphasis.

Media critics who analyze the code and the glitch, the film, the photograph, and the videogame without considering the historicity that attends to mediated experience itself tend to identify the ground of technological aesthetics in the structure of mechanical device and the internal composition of technical inscription. This vision of media aesthetics operates within an unnecessarily constrained apprehension of the scope of technology's experiential imposition, because it is based in Kittler's reduced apprehension of *what media is*.

The heuristic of *dispositif* allows me grasp the whole interface between media and sensation, and so to provide a fuller account of the meta-question of media's place in the construction of experience. "Foucault's philosophy is not a philosophy of 'discourse' but a philosophy of relation," Veyne writes, because it is grounded in the understanding that "far from being dependent on our consciousness, the world determines our consciousness."<sup>55</sup> The paradigm setting value of Kittler's disciplinary contribution rests on its demand that the philosophical tradition pay attention to "our media-controlled senses."<sup>56</sup> And where Kittler answers his own question by ceding the experiential ground of human sensation, the archeological method turns toward praxis through a pragmatic description of perceptual adaptation.<sup>57</sup>

This is largely because Foucault's thought is predicted on an understanding of perception as a kind of 'medium' for the instantiation of historical determination. Such a conception of sensory knowledge accommodates an idea of *impure* perception that can readily grasp technical

---

<sup>55</sup> Veyne, "Foucault Revolutionizes History," 177, 71.

<sup>56</sup> Kittler, *Gramophone, Film, Typewriter*, 10.

<sup>57</sup> Foucault: "I understand by the term 'apparatus' a sort of—shall we say—formation which has as its major function at a given historical moment that of responding to an *urgent need*." Gerard Wajeman: "So an apparatus is defined by a structure of heterogeneous elements, but also by a certain kind of genesis?" Foucault: "Yes..." Wajeman and Foucault, in Foucault et al., "The Confession of the Flesh," 195.

mediation as an experiential imposition that intertwines with and modifies, rather than simply annihilates, the knowledge of the body. Davidson quotes Foucault to observe that archeology establishes the conditions of possibility within which we might “‘cease posing the question of power in terms of good and evil, but pose it in terms of existence’; no longer asking, ‘is power good or is it bad, legitimate or illegitimate, a question of law or of morality?’ but rather asking ‘this naive question: *at bottom, relations of power, in what do they consist?*’” Foucault continues:

For a long time, one has known that the role of philosophy is not to discover what is hidden, but to make visible precisely what is visible, that is to say, *to make evident what is so close, so immediate, so intimately linked to us, that because of that we do not perceive it*. Whereas the role of science is to reveal what we do not see, the role of philosophy is to let us see what we see.<sup>58</sup>

It is in this appreciation of the epistemological weight of *sense* that Foucault's thought finds a correlate within Walter Benjamin's philosophy of technology. Foucault and Benjamin share an understanding of perception as a bearer of historical knowledge; and for this foundational reason both work with a conception of 'aesthetics' as the materiality of a primary sensuous perception: in the language of Benjamin's Work of Art essay, “the theory of perception which the Greeks called aesthetics.”<sup>59</sup> “*Aisthisis* is the sensory experience of perception” Susan Buck-Morss has written, and “the original field of aesthetics is not art but reality—corporeal, material nature.”<sup>60</sup> In this Greek sense of sensation, as distinct from its denotation after Hegel, the domain of the aesthetic is not exclusively bound to the sphere of works of art. Rather, because the *dispositif* of a

---

<sup>58</sup> Michel Foucault, “La Philosophie analytique de la politique” (1978), cited in Davidson, “Styles of Reasoning,” 2. My emphases. Davidson sees a resonance between Foucault and Wittgenstein in their attention to the implicit. He cites the latter: “We must do away with *explanation*, and description alone must take its place” because “the aspects of things that are most important for us are hidden because of their simplicity and familiarity. [One is unable to notice something—because it is always before one's eyes.]” Ludwig Wittgenstein, *Philosophical Investigations*, cited in “Structures and Strategies of Discourse,” 2-3.

<sup>59</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1936),” 104.

<sup>60</sup> Susan Buck-Morss, “Aesthetics and Anaesthetics: Walter Benjamin's Artwork Essay Reconsidered,” October 62, no. Autumn (1992): 6.

historical present forms the sensual basis of its collective experience, it is the primary, *a priori* aesthetics of sense upon which aesthetic experience as such can be constructed.

Benjamin writes:

Just as the entire mode of existence of human collectives changes over long historical periods, so too does their mode of perception. The way in which human perception is organized—the medium in which it occurs—is conditioned not only by nature but by history.<sup>61</sup>

Here the “formal signature” embedded in a work of art, the kernel of its significance as a monument testifying to “the organization of perception at the time the art was produced,” is the trace of its sensual *dispositif*. For Benjamin, technological modernity is a sensual *dispositif* par excellence, and in and around the Artwork essay he functionalizes an appreciation of the subtle emanation of perceptual effects from and off this *dispositif*—a diffusion I’ve characterized as a bleed or a tinting—in the concept of media innervation.

For Miriam Hansen, who has been an important interpreter of this concept’s significance within the context of Benjamin’s attention to “the question of technology and its impact on the history of human perception,” the theory of innervation conceptualizes *process*—describing the process by which the weight of a technological paradigm pressing in upon a subject from the outside is incorporated as something other than raw determination through a bodily “mimetic reception of the external world.”<sup>62</sup> ‘Innervation’ describes a physiological internalization of technological effects through the subject’s playful, agential engagement

---

<sup>61</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1936),” 104.

<sup>62</sup> Buck-Morss, “Aesthetics and Anaesthetics: Walter Benjamin’s Artwork Essay Reconsidered,” 17, footnote 54; Hansen, *Cinema and Experience*, 134. *Cinema and Experience* refines Hansen’s previous discussions of ‘innervation.’ Also see Hansen, “Benjamin, Cinema and Experience; Hansen, “Benjamin and Cinema: Not a One-Way Street.”

with the apparatus. It is an osmosis effect: a faculty of incorporation whereby the exterior is brought in, and the body's physical capacities adjust or amplify, so that "the man sitting on a chair will remain seated even after the chair has been removed."<sup>63</sup> Benjamin's thinking of innervation maps two-way operations, working through the unfurling logic of surrealist fantasies, children's play, experiments with drug taking, and Baudelairian strolling—each in its way an act of enchanted perception that is reciprocal precisely in the manner of a bleed, a tinting. Grasped as "a physiologically 'contagious' or 'infectious' movement...in tune with new, technically mediated forms of aesthetic experience," writes Hansen, innervation is a creative gesture: "a mode of cognition involving sensuous, somatic, and tactile forms of perception; a non-coercive engagement with the other that opens the self to experience."<sup>64</sup> As a philosophy of technology, media innervation is a heuristic of adaptation staked in every sense of the term on a hermeneutics of sense.

And Benjamin awards the cinema a privileged, freighted role in the training and habituating, as well as potentially recuperative and resistive functions of collective bodily innervation, because 'the movies' were the twentieth-century's most exemplary mass cultural media. "The concept of play is central to how Benjamin understands the intersection of nature, technology, and humans" Hansen explains, because Benjamin saw film as having "the potential to reverse, in the form of play, the catastrophic consequences of an already failed reception of technology." She continues:

---

<sup>63</sup> Benjamin, "Negativer Expressionismus" (c.1921), *Gesammelte Schriften*, 6:132 cited in *Cinema and Experience*, 151. "In this image of extreme concentration," writes Hansen, "the apparatus becomes part of the body; that is, the performance enacts, in an expressive, imaginative form, a process more commonly—and destructively—imposed on people in the modern everyday." *Ibid.*

<sup>64</sup> "Benjamin and Cinema: Not a One-Way Street," 318, 29-30.

Because of the technological nature of the filmic medium, as well as its collective mode of reception, film offers a chance—a second chance, a last chance—to bring the apparatus to social consciousness, to make it public.<sup>65</sup>

Benjamin's Work of Art essay puts it like this:

The function of film is to train human beings in the apperceptions and reactions needed to deal with a vast apparatus whose role in their lives is expanding almost daily.<sup>66</sup>

It is in the technological specificity of cinema's collective address that media innervation finds a site of potentially utopian enactment. Benjamin understands innervation as effected in and through immersive contact with technology—innervation is the process by which “*in technology* body and image space...interpenetrate.”<sup>67</sup> By describing media innervation through film spectatorship, then, he describes a rehearsal: a playful incorporation, within the bounded and imaginative zone of the movie theatre, of an effect properly fundamental to the ubiquitous mediation of a technical paradigm “expanding almost daily” in the life world. The “apperception and reactions” needed to deal with this “vast apparatus” are manifestly unbounded by the literal borders of its technical frame.

Rather, the concept of media innervation allows Benjamin to track the bleed of sensual effects off the technological *dispositif* into non-‘technical’ receptacles, like the body. In foregrounding the embodied subject's role in the processing of technical mediation he makes the body the foremost agent of mediation: quite literally “a medium in the service of imagining new forms of experience.”<sup>68</sup> To think in this concept's sphere of implication is thus

---

<sup>65</sup> Cinema and Experience, 139. My emphasis.

<sup>66</sup> Benjamin, "The Work of Art in the Age of Its Technological Reproducibility (1936)," 108.

<sup>67</sup> Benjamin, "Surrealism," 217-8. My emphasis.

<sup>68</sup> Hansen, Cinema and Experience, 140.



to grasp mediation as the primary sensual infrastructure of the technological *dispositif*—an *atmosphere of perception* entirely co-extensive with the weave of sense experience that grounds the actuality of a historical present. This is because, Hansen summarizes:

For Benjamin there is no beyond or outside technology, neither in immanent political practice nor even in his visions of messianic reconstitution. There is no way he would conceive of a restoration of the instinctual power of the senses and their integrity that would not take into account the extent to which technology has already become part of the human bodily sensorium; by the same token, there is no strategy for preventing humanity's self-destruction in which technology would not play an essential role. Because Benjamin so clearly recognizes the irreversibility of the historical process, the second fall that is modernity, he pursues a "politicization of art" in terms of a "collective innervation of technology" rather than a "restoration" of the sensorium to an instinctually intact, natural state: the issue is not how to reverse the historical process but how to mobilize, recirculate, and rechannel its effects.<sup>69</sup>

It is my proposition that joining the descriptive imperative of Foucault's framework of *dispositif* to the strategy of Benjamin's concept of media innervation produces a supple and reactive methodology by which to name how the outside is taken in, and technicity infiltrates sense—how it is we can intuit the imprint of photography in literature as the unmistakable tint of one art inside another. Situating the local operation of media innervation in the general scope of the technological *dispositifs* lets us grasp this absolutely technological effect without flatfooted technological determinism, because both Foucault and Benjamin predicate their frameworks on a coherent appreciation of the malleability of human perception: the pragmatic capacity of the human sensorium to adapt, be inflected by, and expand through contact with new kinds of exteriority. By coupling their heuristics, I can name that unmistakable edge of

---

<sup>69</sup> Cinema and Experience, 146.

otherness Bazin called the “instrumentality of a non living agent,” when sensed in the intimate receptacles of literary style, as the presence-effect of the cinema in literature:

Beyond the balustrade was the drop into the air, and far below the landscape stretched soft and undulating; there was nothing to arrest the eye until it reached Rome itself.

It was early when the Spanish Cardinal and his guests sat down to dinner. The sun was still good for an hour of supreme splendor, and across the shining folds of country the low profile of the city barely fretted the skyline—indistinct except for the dome of St. Peter’s, bluish grey like the flattened top of a great balloon, just a flash of copper light on its soft metallic surface. The Cardinal had an eccentric preference for beginning his dinner at this time in the late afternoon, when the vehemence of the sun suggested motion. The light was full of action and had a peculiar quality of climax—of splendid finish. It was both intense and soft, with a ruddiness as of much-multiplied candlelight, an aura of red in its flames. It bored into the ilex trees, illuminating their foliage; it warmed the bright green of the orange trees and the rose of the oleander blooms to gold; sent congested spiral patterns quivering over the damask and plate and crystal. The churchmen kept their rectangular clerical caps on their heads to protect them from the sun. The three Cardinals wore black cassocks with crimson pipings and crimson buttons, the Bishop a long black coat over his violet vest.<sup>70</sup>

This opening passage from Willa Cather’s novel *Death Comes for the Archbishop* (1927) offers the *mise en scène* of an establishing scene set up as a kind of sweeping montage. The imagery builds a dramatic sense of plein air swell, oscillating between long- to mid-shots—landscape, characters, props—in a set of tightly nested focalizations. The luxuriousness of the language invokes Barthes’ reading of a similarly extended scene of described place in *Madame Bovary*: “it is a painted scene that the language takes up.” But here camera movement is suggested by the temporal attenuation of the style, and its lyric description of a cinematography of light effects, color dynamics, and infusions of motion—“the light was full of action,” “with a ruddiness as of much-multiplied candlelight.” Widescreen framing and technicolor are the elements of a Hollywood film style that seem most obviously to locate the

---

<sup>70</sup> Willa Cather, *Death Comes for the Archbishop* (London: Virago, 1981; repr., 6, first published 1927), 4.



Figure 2.10: Émile Zola, *View over Medan from the terrace*, c.1900. Published in *Zola—Photographer*, 1988.

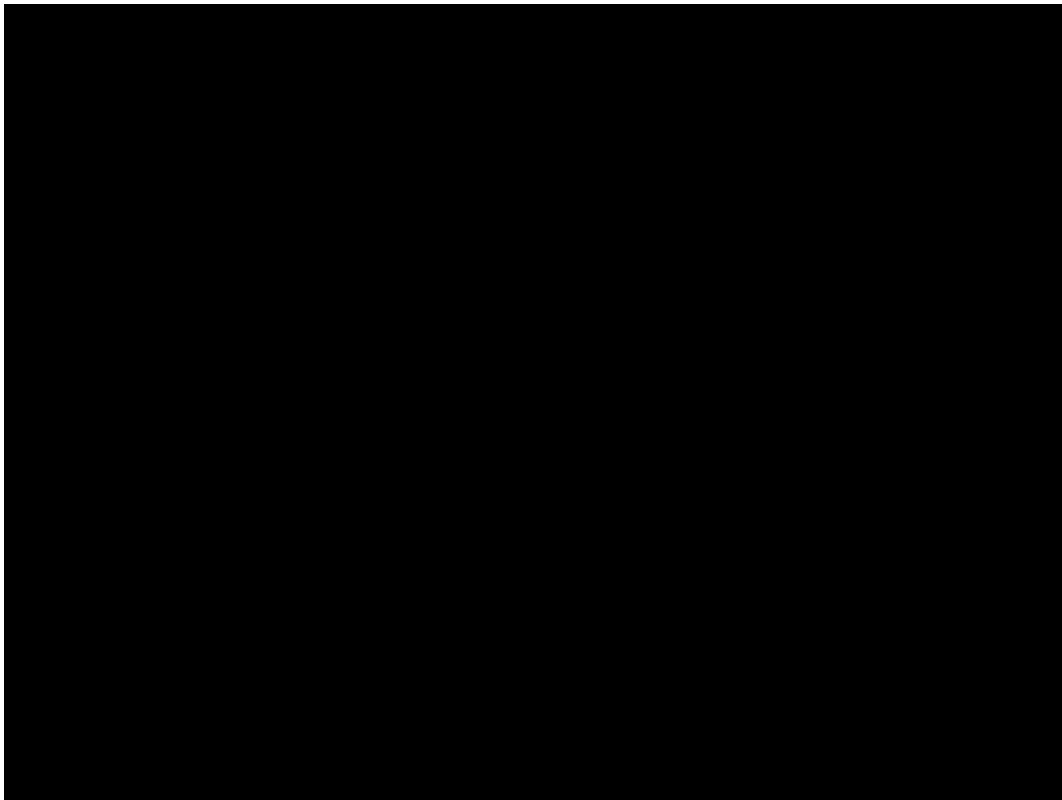


Figure 2.11: Gerhard Richter, *Alster*. 1963. Oil on canvas. 62 x 84 cm. Private Collection. In common with the majority of Richter's work in painting, this image is based on a photograph—in this case, one sourced from a newspaper. (Source). *Image not reproduced due to copyright restrictions.*

technicity of the writing; but Cather's passage is not 'cinematic' only for the mimetic osmosis by which her style appears to have adapted the focalizations of camera vision.

Rather, and about sixty years later, we have another aspiration as fundamentally literary as Flaubert's in this author also fascinated by description's capacity to render beholding itself aesthetically material through the skillful depiction of an atmosphere. Cather's writerly hand lingers with virtuosic precision over the minuteness of this visual drama: that "drop into the air" after which "there was nothing to arrest the eye until it reached Rome itself." What the gaze encounters in the thick space of "nothing" mediating between the perceiving eye and Rome's architectural horizon, however, is movement in the air.

The subject of Cather's passage is not a character, but exteriority characterized as movement: a fugitively labile, subtly multicolored vitalism of refracting light—a diffuse worldly movement lifted off bodies and things, to permeate the expanded field. Her language moves with this Bergsonian atmospheric to take up the action of an unquantifiable and transparent tinted light: at once thick and thin, "both intense and soft," utterly present in its immersiveness, yet visible only at angles, at rare periods "when the vehemence of the sun suggested motion," or if encountered laterally, when living light hits material density to send surprising "congested spiral patterns quivering over the damask and plate and crystal." It in this dance-like moulding to a cinematic sense of distributed movement that Cather's style becomes truly filmic. She achieves this delicate texture, however, only by a paradox: by maintaining a certain distance from film *per se*, and in remaining tethered to an authentically literary aspiration for virtuosic narrative style.

This fact indicates something signally important about cinema's aesthetic import: that cinematic aesthetics are not bound by the movie theatre, the projected film, or even really the minimum structure of the film frame. Rather, film's technical substrate acts as the privileged bearer, yet the bearer only, of an aesthetics of movement that extends out from the apparatus of 'the movies' and into the technics of an atmosphere that the cinema has, in part, created. It is in this broad context of the technological *dispositif* and the sensual infrastructures of spectatorship that I want to describe 'technicity' as the climate of perception generated by the broad technological apparatus.

I have already proposed that media aesthetics are not bound by the physical boundaries of a mechanical device, or the internal composition of technical inscriptions. And in a world of ubiquitous mediation, this atmospheric dimension of media aesthetics is an increasingly intuitive experiential fact. Writing in the context of an early study of video games, for example, the media critics Jon Dovey and Helen W. Kennedy pioneer the use the term 'technicity' to describe "that aspect of identity expressed through the subject's relationship with technology," noting that "our increasingly intimate relations with and through digital media and communications technologies intensify the identity/technology interface."<sup>71</sup> Benjamin's thinking of innervation anticipates this ordinariness with which, in Hansen's words, "contemporary technologies both interface with the bodily sensorium and extend it into and through the apparatus."<sup>72</sup> For in the Greek sense of *aisthisis* so central to Benjamin's thinking of innervation, aesthetics is understood as sensation—"a form of cognition, achieved through taste, touch, hearing, seeing, smell—the whole

---

<sup>71</sup> Jon Dovey and Helen W. Kennedy, *Game Cultures: Computer Games as New Media* (Maidenhead, Berkshire, England; New York, N.Y.: Open University Press, 2006), 149.

<sup>72</sup> *Cinema and Experience*, 151.

corporeal sensorium,” and through which the subject “encounter[s] the world pre-linguistically, hence prior not only to logic but to meaning as well.”<sup>73</sup> If we accept, with Benjamin, that “there is no beyond or outside technology” because “technology has already become part of the human bodily sensorium,” the operative arena of technical mediation must be comprehended as this primary infrastructure of sensation. Cather’s cinematic poetics demonstrate something of the fundamental character of technicity as an atmosphere of perception—one instantiated on that a priori level of sensation upon which aesthetic representation, as such, is constructed.

For Benjamin, innervation was a way “to re-imagine the aesthetic—in response to the technically changed sensorium.”<sup>74</sup> The power of this heuristic is the strategic nuance with which it overlaps *sense* and *sense*, in the coupling of ‘technicity’ with ‘body.’<sup>75</sup> As an analytic weapon, then, this concept hews a path through the disciplinary power implicit in the sweep of a technological apparatus co-extensive with its life-world. And brought into a relation with the heuristic of *dispositif*, the concept of media innervation contains a sphere of implication that extends into the very broadest definitions of spectatorship—spectatorship in the world, and spectatorship in our time.

---

<sup>73</sup> Buck-Morss, “Aesthetics and Anaesthetics: Walter Benjamin’s Artwork Essay Reconsidered,” 6.

<sup>74</sup> Hansen, “Benjamin and Cinema: Not a One-Way Street,” 325.

<sup>75</sup> Hansen, *Cinema and Experience*, 146.

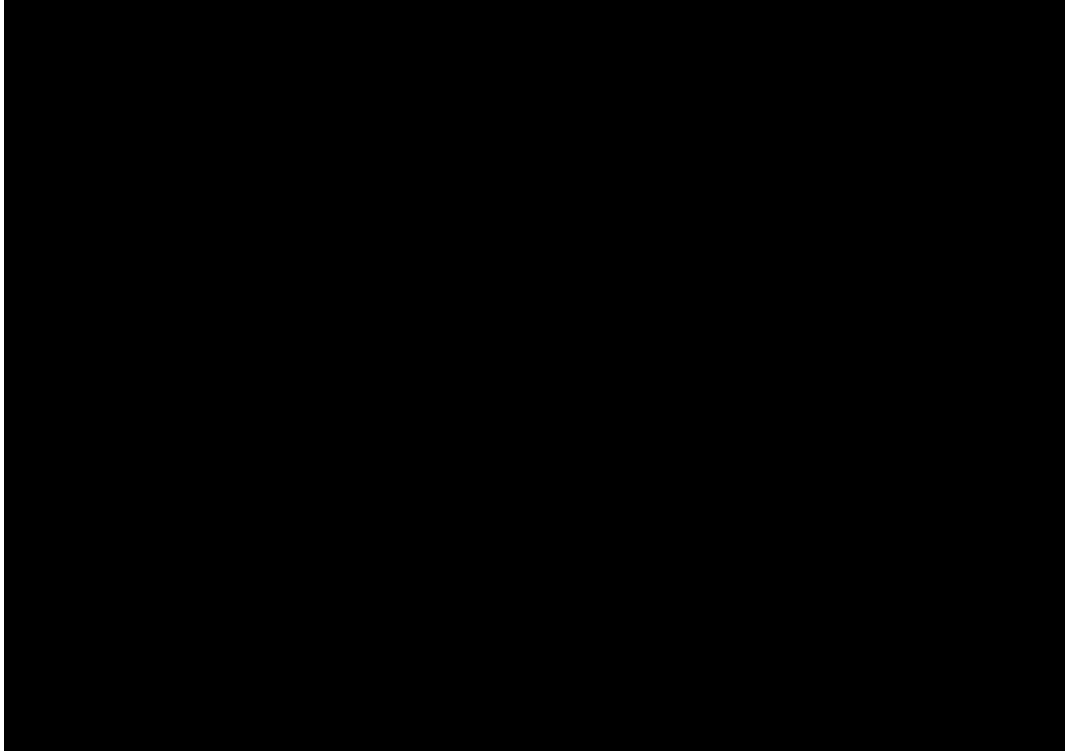


Figure 2.12: Gerhard Richter, *Landscape near Hubbelrath*. 1969. Oil on canvas. 100 x 140 cm. Collection of Ludwig Forum, Aachen. ([Source](#)). *Image not reproduced due to copyright restrictions.*

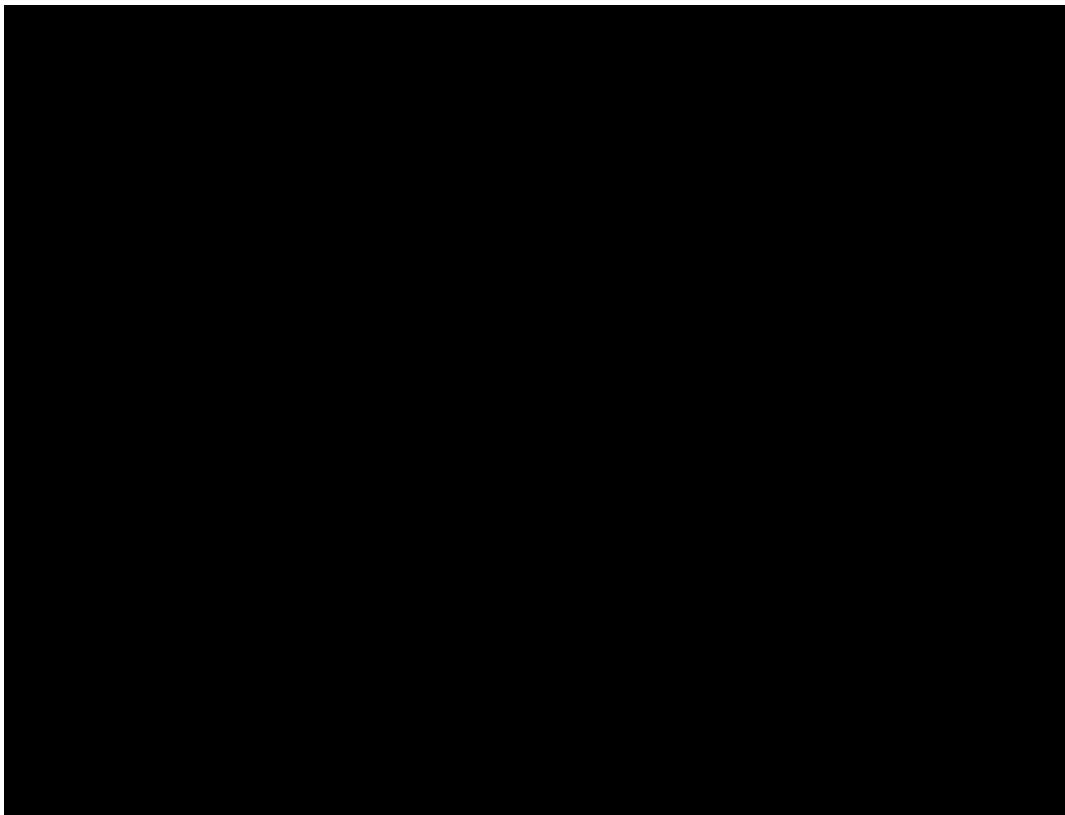


Figure 2.13: Gerhard Richter, *Large Eifel Landscape*. 1969. Oil on canvas. 150 x 200 cm. Private Collection. ([Source](#)). *Image not reproduced due to copyright restrictions.*

### III. The Technicity of Experience

It is the very nature of a *dispositif* to tint collective perception, almost in the manner of a period style. And the digital *dispositif* is characterized by a more extensive penetration into lived life that was true of even the recent past. “As media become ubiquitous they become embedded in material objects and environments, bodies and clothing, zones of transmission and reception,” the sociologist Mike Featherstone writes, describing a lifeworld in which “media pervade our bodies, cultures and societies.”<sup>76</sup> But well before a scenario of ubiquitous mediation technical movement could not be restricted to the apparatus; and well before the instantiation of a digital infrastructure, the impact of the general technological apparatus was articulated on the level of embodied sensation. Against this reality, the Foucauldian method offers a framework by which what is too near in experience can be approached laterally, through a negotiation of the history of the present.<sup>77</sup>

I want to describe technological modernity as an over-arching *dispositif* variously modified by the appearance of devices—gramophone, film, typewriter; video camera, microchip, personal computer, smartphone, ‘the cloud’—whose ascendance introduce new dominant elements to the apparatus, so re-calibrating its atmosphere of perception. No individual reconfiguration of technicity can ever be declared final or entirely free of the past, because contextualized within the long history of technological modernity, these adjustments are more comparable to a series of kaleidoscopic rearrangements than to a teleology. The

---

<sup>76</sup> Mike Featherstone, "Ubiquitous Media: An Introduction," *Theory, Culture & Society* 26, no. 2-3 (2009): 3.

<sup>77</sup> For Foucault, the turn to ancient Greek and Roman texts in the *History of Sexuality* was a way “to examine both the difference that keeps us at a remove from a way of thinking in which we recognize the origin of our own, and the proximity that remains in spite of that distance which we never cease to explore.” Michel Foucault, *The Use of Pleasure: The History of Sexuality*, Volume 2 trans. Robert Hurley (New York: Penguin Books, 1985), 7.



temporality of any iteration of a *dispositif* is inevitably compound, comprising a mix of past, present, and future usefully figured in Raymond Williams' language of 'dominant,' 'residual,' and 'emergent' elements.<sup>78</sup> "In each apparatus [*dispositif*] it is necessary to distinguish what we are (what we are already no longer), and what we are in the process of becoming: *the historical part and the current part*" Deleuze notes of the centrality of such a concept of temporal co-presence to the Foucauldian method.<sup>79</sup> Transferred to a consideration of the experiential instantiations of a technological *dispositif*, this lexicon of actuality, history, and emergence—the sense of contingency at work in the directional movements of 'pastness' and 'currentness' within a contemporaneity—lets me identify, in the perceptual periodicity of a strategic example of *historical* technicity, the coming-into-being of that difficult to articulate texture of the technicity our own experience.

Put differently, as the precondition of our experience and the materiality through which that experience is constructed, a contemporary technicity is far from transparent: it is a subtending sensory infrastructure that inflects our ways of knowing through the information filters of taste, touch, hearing, seeing, smell. "By impacting our embodied lives in ways that remain invisible at the level of our culturally inscribed expectations" Mark Hansen summarizes, contemporary "technologies effectively *force* us to experience changes in our material environment that are no longer thematizable in representationalist terms, that can

---

<sup>78</sup> For Williams, what Deleuze calls 'the historical' designates those residual elements of previous arrangements that, if "formed in the past" remain "an effective element of the present"; while 'the current' circles emergence by demarcating material possibilities that still "depend crucially on finding new forms or adaptations of form." Raymond Williams, "Dominant, Residual, and Emergent," in *Marxism and Literature* (Oxford and New York: Oxford University Press, 1977).

<sup>79</sup> Gilles Deleuze, "What Is a Dispositif?," in Michel Foucault, *Philosopher*, ed. T. J. Armstrong (New York: Routledge, 1992), 164.

only be lived through at the level of our embodiment.”<sup>80</sup> It is consequently in the context of strategic exemplification that I want to turn to a final example of cinematic poetics and work through the implications of my prefatory claim that technology imposes an experiential footprint on experience that is not wholly assimilable to the frameworks of representation.

Miriam Hansen argues that “for Benjamin, negotiating the historical confrontation between the human sensorium and technology as an alien, and alienating, regime requires learning from forms of bodily innervation that are no less technical but are to a greater extent self-regulated.”<sup>81</sup> And the model of embodied cognition proffered by the poetics of Frank O’Hara offers an explicit articulation of precisely such a self-regulating practice. If we understand technicity as enacted on the primary infrastructure of sensation, then media innervation much be grasped as working under the determinations of the *dispositif* as an equally primary form of aesthetic resistance. O’Hara is a poet who declared “I like the movies too. And after all, only Whitman and Crane and Williams, of the American poets are better than the movies”; and his poetics emerge from precisely the configuration of the cinematic media Benjamin had in mind when he wrote that “the function of film is to train human beings in the *apperceptions and reactions* needed to deal with a vast apparatus whose role in their lives is expanding almost daily.”<sup>82</sup> O’Hara’s poetics offer a textual materialization of both the interface between media and perception; and the mechanics of innervation within an identifiably historical configuration of the *dispositif*.

---

<sup>80</sup> Hansen, *Embodying Technesis: Technology Beyond Writing*, 59.

<sup>81</sup> Hansen, *Cinema and Experience*, 140.

<sup>82</sup> Frank O’Hara, “Personism: A Manifesto (1959),” in *The Collected Poems of Frank O’Hara*, ed. Donald Allen (Berkeley University of California Press, 1995), 498. Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1936),” 108.

Literary criticism has settled on a judgment of Frank O'Hara as love poet, gay poet, and poet of affective intensities. A curator of painting and sculpture at the Museum of Modern Art, his perspective is always-already intermedial: emerging from a '50s and '60s New York milieu that includes pivotal characters from the scenes of Abstract Expressionism, Pop Art, and the New American Cinema.<sup>83</sup> Formally speaking, he revives the vocation of the Baudelairean *flâneur* by re-inaugurating an open-form poetics mapped to temporal events: the flow of urban life, the movement of bodies, and experiential vicissitudes.<sup>84</sup>

And he watched a lot of movies. Literary commentators who note O'Hara's devotion to the many apparatuses of Hollywood emphasize the productiveness with which his poetry combines a commitment to both avant garde style and the cinematic vernacular. Mark Goble and Daniel Kane, for example, stress a push-pull dynamic to O'Hara's love of the movies, in which the poet fights the film on the level of its surface to extract from star encrusted Hollywood blockbusters and numerous flops surprising imagistic fragments and meditations on history.<sup>85</sup> In "The Three-Penny Opera" (1950), which meditates on G. W. Pabst's 1931 adaptation of Brecht's play, O'Hara ruminates:

---

<sup>83</sup> James E. B. Breslin notes that as "a poet interested in painting, dance, music, theatre, and film, O'Hara eagerly participated in interdisciplinary artistic collaborations. But he was also concerned with formulating the specific character of each medium." James E. B. Breslin, "Frank O'Hara, Popular Culture, and American Poetry in the 1950s," in *Made in U.S.A.: An Americanization in Modern Art, the '50s & '60s*, ed. Sidra Stich (University Art Museum, University of California, Berkeley: University of California Press, 1987), 218.

<sup>84</sup> "I wish I were reeling around Paris/ instead of reeling around New York." Frank O'Hara, *Lunch Poems* (San Francisco: City Lights Books, 1964), 35.

<sup>85</sup> Mark Goble, "'Our Country's Black and White Past': Film and the Figures of History in Frank O'Hara," *American Literature* 71, no. 1 (March 1999); Daniel Kane, *We Saw the Light: Conversations between the New American Cinema and Poetry* (Iowa City: University of Iowa Press, 2009).

But Polly, are you a  
shadow? Is Mackie projected  
to me by light through film?  
If I'd been in Berlin in  
1930, would I have seen you  
ambling the street like  
Kraz Kat? <sup>86</sup>

There is something lyrical about this launch into the fantasy of historical time—and an impossible encounter therein with Polly's characteristic amble—via a perspective funneled through an appreciation of the film's material texture: cinema as shadow, projection, light, and as a kind of being. In moment like this O'Hara is at once the historically specific spectator of the mid-century Classical film paradigm and what Laura Mulvey has called a *pensive* spectator: a viewer whose visual pleasure is self-consciously mediated by a fog of subjectivity, and who consequently draws real satisfaction from an imaginative remediation of the screen.<sup>87</sup> More significantly, the mood of this fragment indicates that 'the movies' are neither a figure or a metaphor for O'Hara, even as his poetry abounds in its reference. To ask the question "are you / a shadow?" is to signal willing participation in an absorptive spectatorship that apprehends cinema as a visceral, encompassing spectacle. The sense of calibrated perceptual naiveté at work in the query "is Mackie projected / to me by light through film?" underscores this speaker's ceding to the intensities of open engagement. For O'Hara, in the movies, somehow, you take the light into your very interiority.

---

<sup>86</sup> Frank O'Hara, "The Three-Penny Opera," in *The Collected Poems of Frank O'Hara*, ed. Donald Allen (Berkeley University of California Press, 1995), 32.

<sup>87</sup> Laura Mulvey, "The Pensive Spectator," in *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion Books, 2006).

My interest in O'Hara is located first in this sense that he registers moviegoing as a phenomenologically thick experience; and second, in the observation that his poetry articulates a movement: a peripatetic, proprioceptive lurching from place to place that inscribes, literally as text, the "affectively charged, eccentric perception" Benjamin understood to undergird the "dispersed subjectivity of the cinema experience."<sup>88</sup> In the *flâneur* tradition and the poetry of detail to which this writing belongs, embodied perception was always understood as real knowledge, because for the *flâneur*, the loafer, the stroller who wastes time, the influx of sensations registered in a physical movement through space are to be savored as a form of immersion in a vitalism immanent to worldly duration. It is in this vein that "A Step Away From Them" (1956) launches a meditation on time and life through this series of precisely nested observations:

It's my lunch hour, so I go  
for a walk among the hum-colored  
cabs. First, down the sidewalk  
where laborers feed their dirty  
glistening torsos sandwiches  
and Coca-Cola, with yellow helmets  
on. They protect them from falling  
bricks, I guess. Then onto the  
avenue where skirts are flipping  
above heels and blow up over  
grates. The sun is hot, but the  
cabs stir up the air. I look  
at bargains in wristwatches. There  
are cats playing in sawdust.<sup>89</sup>

---

<sup>88</sup> Hansen, *Cinema and Experience*, 151.

<sup>89</sup> Frank O'Hara, "A Step Away from Them (1956)," in *Lunch Poems* (San Francisco: City Lights Books, 1964).

The slight narrative of this poem's progression, which typifies the celebrated 'I do this, I do that' style of O'Hara's *Lunch Poems*, lets the poet take the reader on an amble "down the sidewalk" and quite literally through the sights, sounds, smells, and feel of an animated landscape: "dirty / glistening torsos" of laborers eating lunch with "yellow helmets / on," ripples of motion stirred women whose "skirts are flipping / above heels," a sideways glance at "cats playing in sawdust," and the tactile weight of an afternoon humidity intermittently broken by a swarm "hum-colored / cabs" who "stir up the air." The combination of lightness and specificity that distinguishes the descriptive style conveys a mode of attention modeled on the pace of perambulation: in which an attunement to the temporality and surfaces of an ordinary *mise en scène* allows the speaker to register a raft of contingent detail without investing these details with subjective significance. "O'Hara pushed poetry toward the 'bravely specific'," writes James Breslin, and "his 'lunch poems' are rapid, clear-eyed voyages of discovery not into the self but into the animate, shifting life of New York City at noontime."<sup>90</sup> Yet if "A Step Away From Them" is, as Breslin rightly observes, filled with "things that remain literal, objects that are not metaphors but themselves," the stylistics of description that allow this poet to depict himself as an only occasional participant in the field of ambient action—"I look / at bargains in wristwatches"—recodes rather than destabilizes the tenor of his own significance within the representational field.<sup>91</sup>

By presenting its concatenation of scattered micro-events as a worldly flow mediated by the full range of the poet's sensorium, "A Step Away From Them" extrapolates from the

---

<sup>90</sup> Breslin, "Frank O'Hara, Popular Culture, and American Poetry in the 1950s," 217.

<sup>91</sup> Ibid.

*flâneur*'s emblematic attunement to exteriority and movement to update a Baudelairean model of corporeal poetics in which the body of the poet acts as the medium through which worldly duration is registered as sensation, and inscribed as such directly into the text. We can borrow from John Cage's notes on Experimental Music to say that O'Hara opens the doors of the poem "to the sounds that happen to be in the environment"; and in a manner that should evoke Flaubert's subjection of Emma Bovary to a temporality that is not one of human action, and that presses upon her from the outside.<sup>92</sup>

Put simply, O'Hara's poetics engage that Greek sense of aesthetics so central to Benjamin's thinking of innervation as a *whole-body* form of cognition; one in which the terminae of the senses—"nose, eyes, ears, mouth, some of the most sensitive areas of skin" are emphasized as "located at the surface of the body, *the mediating boundary between inner and outer*."<sup>93</sup> Marjorie Perloff reports that, at the time of their writing, "O'Hara's casual, improvisatory, nonmetrical and generally nonstanzaic 'I do this, I do that' pieces ... hardly seemed to qualify as *poems* at all."<sup>94</sup> This veneer of stylistic transparency by which the *Lunch Poems* present themselves as unworked, unfiltered transcriptions of events as they happened to unfold before the virtual camera-eye of the poet speaks to the virtuosity with which O'Hara's poetic practice extends a neo-Baudelaire model of physiological adaptation to technology into a mid twentieth-century cinematic technicity.<sup>95</sup>

---

<sup>92</sup> John Cage, "Experimental Music (1957)," in *Silence: Lectures and Writings* (Middletown, Conn. : Wesleyan University Press, 1961), 8, 12.

<sup>93</sup> Buck-Morss, "Aesthetics and Anaesthetics: Walter Benjamin's Artwork Essay Reconsidered," 6. My emphasis.

<sup>94</sup> Marjorie Perloff, *Frank O'Hara: Poet among Painters* (Chicago: University of Chicago Press, 1997), xiii.

<sup>95</sup> Benjamin's understanding of Baudelaire as an exemplary figure of early adaptation to a technological life world is based in this use of his own bodily perception to negotiate modernity's "shock" aesthetics. Walter Benjamin, "On Some Motifs in Baudelaire (1939)," in *Walter Benjamin: Selected Writings 4, 1938-1940*, ed. Michael W. Jennings and Howard Eiland (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2006).

For Mark Hansen, the ongoing significance of Baudelaire's poetics rests on its status as an *avant la lettre* enactment of precisely such sensory adaptation to the *dispositif*. "Using Bergson's terminology," he writes, "we might say that Baudelaire engages in a combat with the external world that does not begin by imposing the rhythm of human duration on the rhythm of things." Rather, "in his creative struggle, Baudelaire sacrifices the informing power of his psychic duration in order to let himself be infiltrated by worldly duration."<sup>96</sup> I want to bring Hansen's emphasis on "Baudelaire's sacrifice" as a bodily infiltration by technicity into direct correlation with O'Hara's foregrounding of the body of the poet as a medium of interface between inside and outside, the temporality of human action and the exteriority of *durée*. "Itself a reaction to the vast expansion in the corporeal dimension of experience" Hansen continues:

Baudelaire's sacrifice anticipates the sweeping incorporation of technology into the fabric of the lifeworld that our century has witnessed. By employing his body as a mimetic shock absorber, he inaugurates a mode of experience that only attains normative status much later, in the age of full-blown technical reproducibility. His experience of a crowd that, machine-like, refused to return his gaze prefigures the still more inanimate camera "eye" that we face daily in the age of technological reproducibility. ... On such a model, film constitutes the site not for a reflective experience of the impact of industrial production but for a tactile experience that functions as an aesthetic analogue to the corporeal impact of the assembly line and the urban crowd, a homeopathic, "virtual" experiential space where we can adapt ourselves to the unprecedented demands of our technologized lifeworld.<sup>97</sup>

O'Hara usefully extends the Baudelairean model of corporeal poetics into an iteration of the technological *dispositif* within which, as Hansen notes, the "experience of a crowd that, machine-like, refused to return his gaze" is accompanied by a far more persistent and habituated involvement with the general technological apparatus. Even more usefully, his

---

<sup>96</sup> Hansen, *Embodying Technesis: Technology Beyond Writing*, 249.

<sup>97</sup> *Embodying Technesis: Technology Beyond Writing*, 250-1.



model of bodily innervation is pitched at a configuration of film characterized by the enlargement of the cinematic image via projection. In the Classical film paradigm, the privileged site of cinematic experience was a movie theatre shrouded in darkness, within which a moving image delivered to a viewing collective via the latent materiality of a beam of projected light assumed a scale that literally encompassed the human body. It is this normative architecture of ‘the movies’ that O’Hara registers as the subtending phenomenology of film in “An Image of Leda” (1950):

#### AN IMAGE OF LEDA

The cinema is cruel  
like a miracle. We  
sit in the darkened  
room asking nothing  
of the empty white  
space but that it  
remain pure. And  
suddenly despite us  
it blackens. Not by  
the hand that holds  
the pen. There is  
no message. We our-  
selves appear naked  
on the riven bank  
spread-eagled while  
the machine winds  
nearer. We scream  
chatter prance and  
wash our hair! Is  
it our prayer or  
wish that this  
occur? Oh what is  
this light that  
holds us fast? Our  
limbs quicken even  
to disgrace under

this white eye as  
if there were real  
pleasure in loving  
a shadow and caress-  
ing a disguise! <sup>98</sup>

If “the cinema is cruel / like a miracle,” O’Hara’s figuration proposes the cinematic experience as an unutterably erotic miracle. In the Greek myth of Leda and the swan, from which this poem derives its lexicon, the high god Zeus assumed the shape of a swan to descend upon and rape Leda “as she walked along a lake.”<sup>99</sup> William Butler Yeats’ rendition of the Leda myth builds on this central image of carnal, creaturely descent: “A sudden blow: the great wings beating still / above the staggering girl, her thighs caressed / by the dark webs...”<sup>100</sup> O’Hara retains the imagery of sexuality and flight—the sense of bearing down, of sweeping imposition, and a passionate, hysterical agitation—while retooling the point of view to describe an aerial assault structured by the architecture of the movie theatre. Yeats’ third-person narration depicts Zeus as a flurry of animal movement dropping, bomb-like, *from* the air. By comparison, O’Hara’s speaking voice takes up the perspective of Leda to implicate both the reader and the poet in the collective “we” of a viewing public pinned, like butterflies, against an overwhelming and uncontrollable movement dispersed atmospherically *in* the air: “We our- / selves appear naked / on the riven bank / spread-eagled while / the machine winds / nearer.” This figuring of the spectator as Leda and Zeus-as-swan as “the machine” translates the frightening otherness of animistic desire so pivotal to the fascination

---

<sup>98</sup> O’Hara, “An Image of Leda (1950),” 35-6.

<sup>99</sup> “The always lustful Greek high god Zeus became enamored of Leda, the queen of Sparta, wife of Tyndareus. Zeus came to Leda in the form of a swan and raped her as she walked along a lake.” David Leeming, “Leda,” in *The Oxford Companion to World Mythology* (Oxford: Oxford University Press, 2005). Accessed online, 20 September 2014.

<sup>100</sup> W. B. Yeats, “Leda and the Swan,” in *The Collected Poems of W.B. Yeats*. (New York: Macmillan Co., 1941, c1918), 216.

of Leda's story into a metaphor for the sensual otherness of *mechanistic* tactility: "We scream / chatter prance and / wash our hair! Is / it our prayer or / wish that this / occur?" Visualized as a blinding, shape-shifting god whose explicitly corporeal ravishment of the transfixed subject is effected through a forceful and alien eroticism of divine light, the dominant sensual agent in "An Image of Leda" is the materiality and implicitly sublime temporality of cinematic projection.

"The motion picture is an overwhelming fact; it is different from any other experience we have in the arts because it is so much *larger* than we are" Arthur Miller noted in 1963.<sup>101</sup> O'Hara grounds the action of "An Image of Leda" in precisely this figure of scale, sketched in the image of spectators situated in a "darkened / room" against an "empty white / space," who ask nothing "but that it / remain pure." The page-like connotations of this blank surface are key to the poem's logic, for when "despite us / it blackens," the screen's flickering into tone is framed as an encroachment that underscores the subject's lack of control by isolating and clarifying the specifically technical character of cinematic inscription. The agent at work in the bleeding of visual content onto the screen is *not* "the hand that holds / the pen." More significantly, "*there is / no message.*" Rather, if the movies are a form of writing, O'Hara figures cinematic projection as an inscription with light distinguished by a foreshortened instantiation directly upon the bodies of spectators rendered prone and "naked" by its aerial assault: "We our- / selves appear naked / on the riven bank / spread-eagled while / the machine winds / nearer." This experiential impact of "the machine" that "winds / nearer" is a

---

<sup>101</sup> Arthur Miller, in Willard Maas, "Poetry and the Film: A Symposium (on October 28, 1953, Cinema 16 Held Two Sessions of a Symposium with Maya Deren, Parker Tyler, Dylan Thomas, and Arthur Miller, Chaired by Willard Maas)," *Film Culture* 29(1963).

virtual force-field, as difficult to characterize as it is to control. Transparent as air, yet possessing a blindingly material footprint, its central mystery wells from a capacity to ignite an authentic, intimate passion: “Our limbs quicken even / to disgrace under / this white eye...” In the eroticized lament with which he concludes this poem—“*Oh what is / this light that / holds us fast?*”—O’Hara seems to suggest that while the spectator might attribute the unnerving fascination of ‘the movies’ to its conveyance of narrative content, what really transfixes the attention and “holds us fast” is the underlying phenomenology of the address. To pose the Bazinian question ‘what is cinema?’ within the framework of “An Image of Leda” is to reckon seriously with a conception of media as an affectively charged generator of *tactile* rather than semiotic content.

At first glance, this impassioned vision of “the machine” appears very far from that nineteenth-century sense of the term ‘mechanical’ in which “the mechanical trades were the manual trades, and a mechanic was not someone who worked on machines but some who earned his living by the skill of his hands or simply through bodily labour.”<sup>102</sup> Likewise, in pitch and intensity O’Hara’s eroticized *mise en scène* seems far removed from Bergson’s perception of the mechanized human body as a trigger for comic effect. But the point of connection between these quite distinct articulations of technicity lies in the clarity with which each literary figuration conveys a sense of the mechanical impact as a physiological impress. For Bergson, “*the attitudes, gestures and movements of the human body are laughable*” to the extent that, “inside the person we [can] distinctly perceive, as through a

---

<sup>102</sup> Snyder, “Res Ipsa Loquitur,” 200-1.



Figure 2.14: Unknown Hellenistic artist, *Leda*. 2nd century B.C., Greece. Marble. Collection of Museo Archeologico Nazionale, Venice. Image from the Warburg Institute Iconographic Database. ([Source](#)).

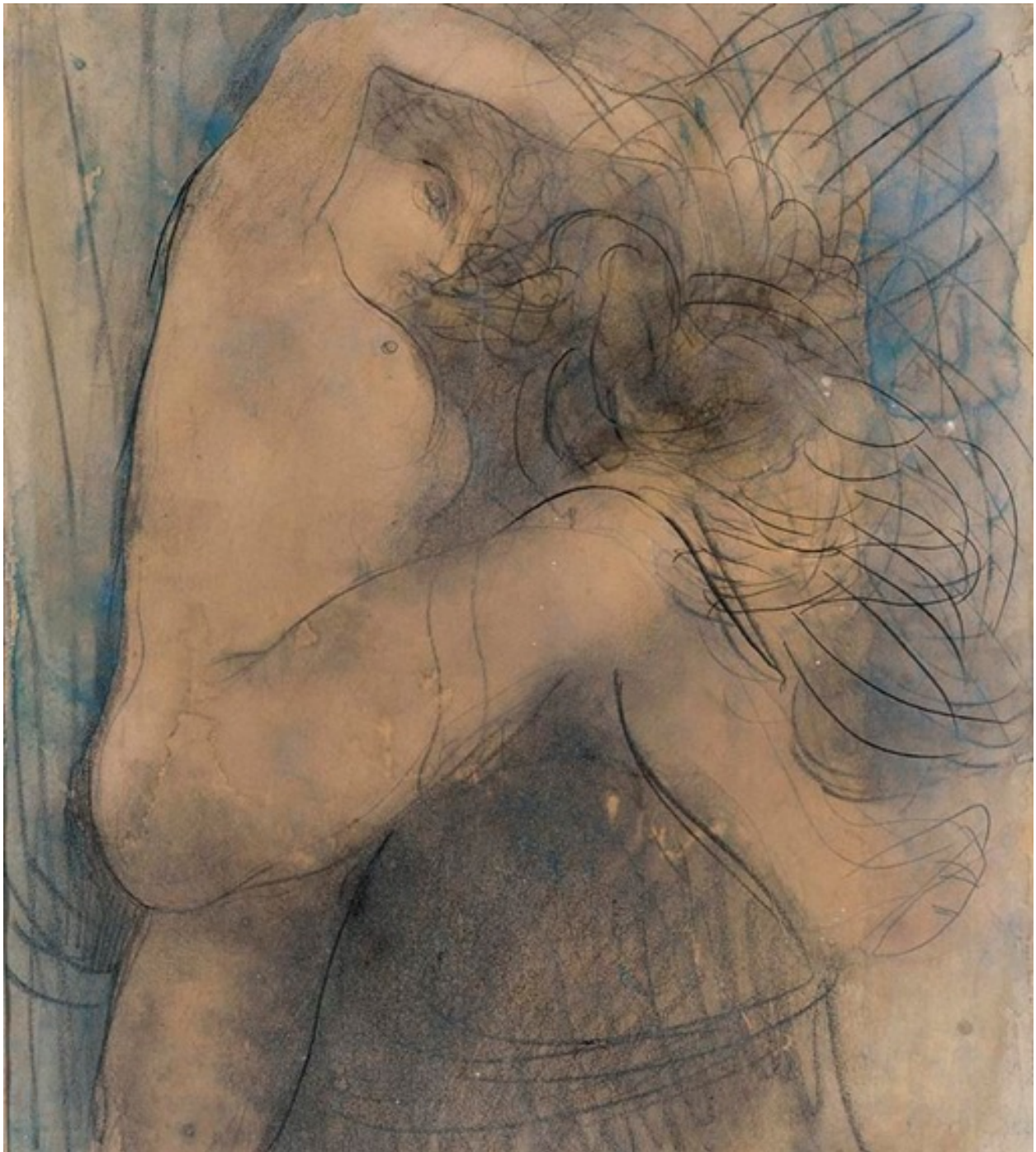


Figure 2.15: Auguste Rodin, *Leda and the Swan*. c.1913. Pencil on paper; watercolor and pencil on paper. 23 x 30 cm. Private Collection.

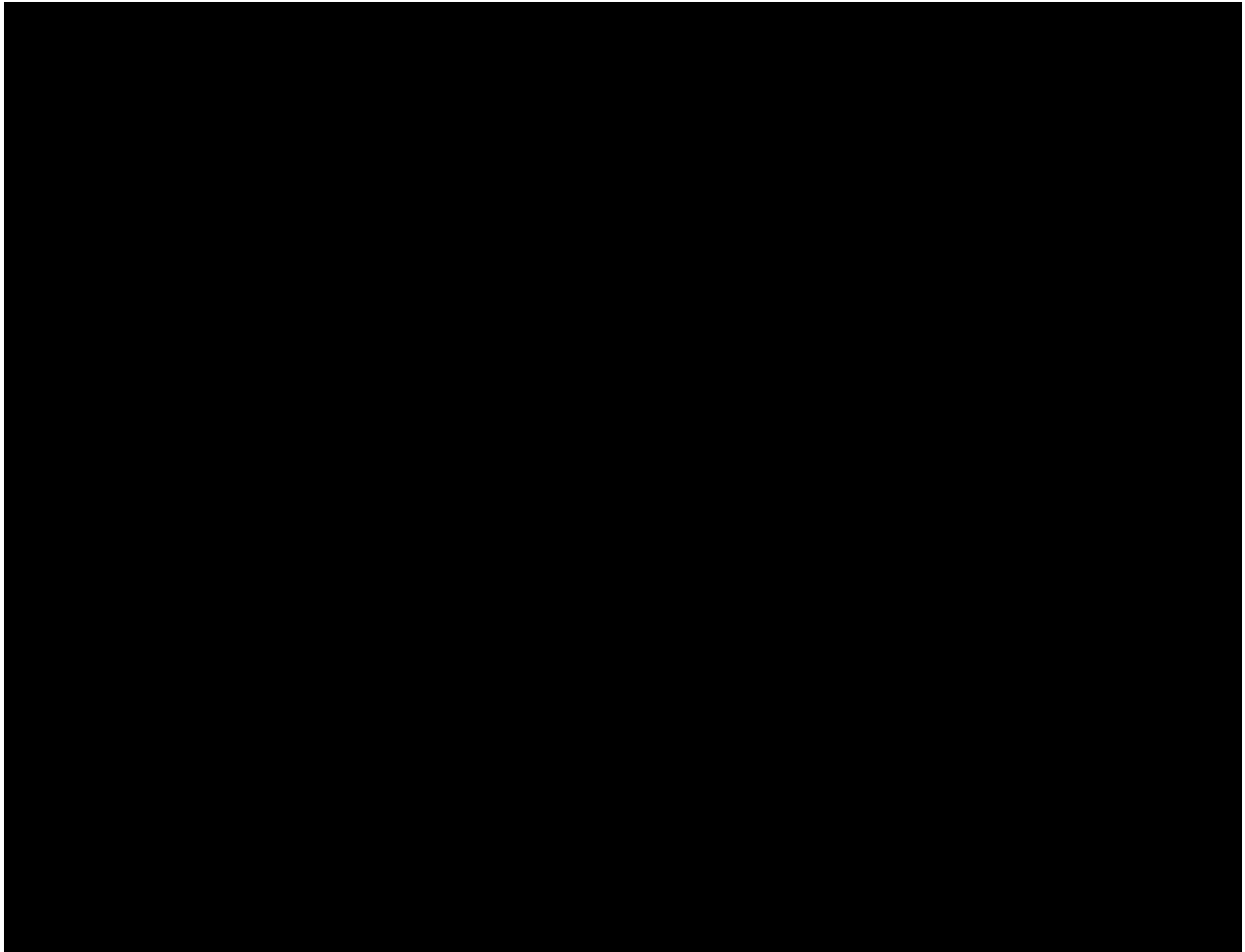


Figure 2.16: Hiroshi Sugimoto, *Canton Palace, Ohio*. 1980. Silver gelatin print on paper. 19.53 x 24.61 cm. Collection of San Francisco Museum of Modern Art, San Francisco. *Image not reproduced due to copyright restrictions.*

glass, a set-up mechanism.”<sup>103</sup> The subtlety with which this Bergsonian image describes ‘mechanization’ as a bodily infiltration by an alien temporality visualizes the surface of the body as a plane of interface between inside and outside in a manner actually paralleled by O’Hara’s figuration of the spectator’s Leda-like interaction with cinematic projection. Yet because for O’Hara to be “under/ this white eye” is to be involved in an unambiguously phenomenological experience, his account enlarges rather than pathologizes the sensuality of the interface as materialized in the machine’s manifest tactile address.

In this, O’Hara is a viewer who quite literarily transforms the architecture of ‘the movies’ into the exemplar of a Benjaminian training ground for the subject’s perceptual negotiation with the apparatus—or in Mark Hansen’s words, into “a homeopathic, ‘virtual’ experiential space where we can adapt ourselves to the unprecedented demands of our technologized lifeworld.”<sup>104</sup> As such, he demonstrates an appreciation of two principals Miriam Hansen is at pains to emphasize as the pragmatic core of Benjamin’s future-oriented philosophy of technology: an unsentimental acceptance that “technology has already become part of the human bodily sensorium,” so that “the issue is not how to reverse the historical process but how to mobilize, recirculate, and rechannel its effects.”<sup>105</sup> It is as a spectator, a viewer, a looker fascinated by the tactility of the cinematic address that O’Hara’s corporeal poetics engages the *sensual* infrastructures of spectatorship as the basis of an aesthetic practice that can extend technicity beyond the demarcated arena of the movie theatre, and into the world

---

<sup>103</sup> Bergson, *Laughter*, 22.

<sup>104</sup> Hansen, *Embodying Technesis: Technology Beyond Writing*, 250-1.

<sup>105</sup> Hansen, *Cinema and Experience*, 146.



of experience per se. It is in this context that his poem “Three Airs” (1958) notes, with a kind of wonder:

1.

So many things in the air! soot,  
elephant balls, a Chinese cloud  
which is entirely collapsed, a cat  
swung by its tail  
                    and the senses  
of the dead which are banging about  
inside my tired red eyes

$$[\dots]$$

3.

Oh to be an angel (if there were any!), and go  
straight up into the sky and look around and then  
come down

not to be covered with steel and aluminum  
glaringly ugly in the pure distances and clattering and  
buckling, wheezing

but to be part of the treetops and the blueness, invisible,  
the iridescent darkness beyond,

silent, listening to  
the air becoming no air becoming air again<sup>106</sup>

O'Hara's most famous 'cinematic' poem "To the Film Industry in Crisis" (1955) unfurls a paean of worshipful adjectives to "glorious Silver Screen, tragic Technicolor, amorous Cinemascope, / stretching Vistavision, and startling Stereophonic Sound."<sup>107</sup> In "Ave Maria" (1960) he exhorts the "Mothers of America" to "let your kids go to the movies!" for the

<sup>106</sup> Frank O'Hara, "Three Airs" in *Lunch Poems* (San Francisco: City Lights Books, 1964), 30-1.

<sup>107</sup> "To the Film Industry in Crisis," 232.

sake of “the soul / that grows in darkenss, embossed by silvery images.”<sup>108</sup> In “Three Airs,” however, O’Hara proffers a quieter, more primary poetics of cinematic materiality.

This poem is about *air*, rather than *a* film, or the cinematic *apparatus*. Riffing gently on the title’s musical connotations, each ‘air’ or stanza dwells quite literally on the invisible matter of the atmosphere: the movement of the air, its visible rustling through urban space, and moody dispersion into an ambient field. The speaker’s eye brushes past the detail ordinary stuff with a kind of smudging erotics, noting “soot,” a flying cat, and the sad deflation of a “Chinese cloud / which is entirely collapsed,” before arriving at “the senses / of the dead which are banging about / inside my tired red eyes.” Like “A Step Away From Them,” “Three Airs” foregrounds the poet’s sensorium as a plane of interaction between inside and outside, the interiority of subjectivity and the exteriority of worldly *durée*. But here the body of the speaker is not presented as an element within a world of things so much as a site of introjection whereby the outside comes in, so that rhythm of the world is permitted to modulate and animate the affective pitch of subjective experience. O’Hara’s camera-eye lingers over the details of air-borne matter with the precision of a vernacular *photogénie* that finds cinephilic triggers everywhere *outside* the cinema, through the medium of a cinematically-trained perception sensitized to a distribution of worldly movement—“So many things in the air!” The open embrace of the phenomenal conveyed in the poem’s extended tracking shot re-voices the Flaubertian conviction that poetry “is latent in everything and everywhere; there’s not an atom of matter that does not contain thought.” *Worldly* rather than technical movement forms the speaker’s portal of access to another weave of space and time, and into the lyric fantasy of a mobile lightness that might take up “the

---

<sup>108</sup> O’Hara, “Ave Maria (1960),” 51.

pure distances” in their very essence, by escaping the “clattering” of “steel and aluminium” to “be part of the treetops and the blueness, / invisible.”<sup>109</sup> The apostrophic voice ends on a Cageian note by dissolving into a horizon of natural beauty and veritable ineffability of non-sound: “the air becoming no air becoming air again”

In the atmospherics of this image, the subtle lyricism of O’Hara’s figurative economy metamorphoses the otherness of mechanistic tactility so predominant in “An Image of Leda” into a figure of empirical tactility paced on that strong charge of *virtual* presence that accompanies movement observed in its most fugitive and elemental guises. The poet’s physiological attunement to an experiential rather than representational sense of movement opens to an intuitive perception of ‘cinematic’ movement in a genre of worldly action whose sheer independence from the human is the mark of its continuity with *durée*: “the treetops and the blueness, / invisible, / the iridescent darkness beyond, / silent...”

O’Hara performs innervation as a process of mimetic incorporation whereby an atmosphere of technological perception instantiated on the primary level of sensation is allowed to subtend, and so fundamentally inflect, the texture of *aesthetic* representation. “Three Airs” registers cinematic technicity not as an image of cinema, but as *aisthisis*: an explicitly corporeal sense-perception expressed in a whole-body attunement to movement in the world. It is as both a *flâneur* and a *pensive* spectator that O’Hara’s neo-Baudelairean practice articulates a sense of movement as a virtual forcefield, invisible yet material, to engage the *politics* of innervation, which Benjamin stresses over and over to emerge from an apprehension of cinema “as a form of

---

<sup>109</sup> Flaubert, Letter to Louise Colet, March 27, 1853, in Flaubert, “On Realism,” 92.

sensory, psychosomatic, aesthetic experience.”<sup>110</sup> And this capacity to generate poetic inscriptions that bear truthful witness to what Mark Hansen, echoing Bazin, calls the “radical exteriority” of the technical in experience emerges from an avowal of the adequacy of our technologically-mediated senses.<sup>111</sup>

“I am mainly preoccupied with the world as I experience it” O’Hara wrote, and:

It may be that poetry makes life’s nebulous events tangible to me and restores their detail; or, conversely, that poetry brings forth the intangible quality of incidents which are all to concrete and circumstantial. Or each on specific occasions, or both all the time.<sup>112</sup>

The line of connection between Flaubert, Cather, and O’Hara is style—the virtuosity by which each fashions language into an inscription that evidences the “radical exteriority” of technology in experience.<sup>113</sup> O’Hara confronts the ambience of the movie theatre as the privileged but not constrained site of an immersion that takes you in whole, so taking media innervation out of the movies in a cinematic poetry of atmospheres. In this, he transmutes the otherness of mechanistic tactility into mode of tactile contact with the real that restores an alternative sensuousity to a historical experience irrevocably reorganized by the apparatus. This *aisthisis* lets us comprehend an absolutely technological effect without flatfooted technological determinism, because O’Hara’s poetics refocus a dimension of lived experience otherwise incommensurate to representation.

---

<sup>110</sup> Hansen, "Benjamin and Cinema: Not a One-Way Street," 340-1.

<sup>111</sup> Hansen, *Embodying Technesis: Technology Beyond Writing*, 19.

<sup>112</sup> O’Hara, "Statement for 'the New American Poetry'," 500.

<sup>113</sup> Hansen, *Embodying Technesis: Technology Beyond Writing*, 19.

## Conclusion: Image, Subject, Setting

If media criticism tends to understand the aesthetics of technology to be imminent in the physical boundaries of a mechanical device or the internal composition of a technical inscription, this is partly because the interaction between media and sensation is so seemingly intuitive as to be difficult to describe precisely. The paradox of *Creative Evolution*'s insensitivity to the phenomenological character of mediation is not only that its judgement is predicted on the logic of a nineteenth century photographic technicity, but that Bergson's language witnesses his own involvement in a burgeoning twentieth century *cinematic* technicity. "Bergson was one of the first, perhaps the first philosopher, to refer in a systematic way to the techniques of photography and cinematography" notes Jacques Derrida, concluding that "*he no doubt needed this reference at the heart of his thought*, in a way that was essential and not merely rhetorical, pedagogical, or illustrative."<sup>114</sup> It is perhaps also the case that Kittler needed to misread Foucault to generate a descriptive possibility previously denied to the materiality of the technological real. The paradox of Kittler's problematic description is that it has generated the possibility of an approach to media studies that can consider the *mise-en-scene* of ubiquitous mediation in the terms of sensation.

Foucault's fundamental value for contemporary media studies is methodological—archeology can enable an analytic description of what is too near in experience, like the air that we breath. The remediation effected by the translation of cinema into poetry, for example, clarifies the nature of the interface between image, subject, and setting by bringing technological

---

<sup>114</sup> Derrida, Amelunxen, and Wetzal, *Copy, Archive, Signature*, 36-7. My emphasis.

determination into focus as an imposition that impacts our experience *before* it becomes either conceptual or aesthetic. By allowing me to generate this fuller account of the interface, the Foucaultian method also lets me repose the meta-question of *what media is*.

First, media generates a domain of ‘the apparatus’ that extends beyond the physical boundaries of the device or the composition of an inscription, because the technological imposition generates a lifeworld: a general social apparatus, or the technological a priori. Second, because media impact our experience at the primary level of sensation, *all* contemporary art is defined by the technological a priori of its media. To grasp that the technological *dispositif* determines the tint of ‘history as a whole’ is to understand that, in the situation of “the media age,” media is the ground of all aesthetics.<sup>115</sup> There is no justification for Kittler’s distinction between technology and art, media and aesthetics; because within the continuing present of technological modernity, all art is always-already technological, and media are always already a priori to aesthetics.

Benjamin’s thinking of media innervation describes a strategy of built-in resistance whereby we subjects of an inescapable determination might remediate the *dispositif*’s imposition on “our media-controlled senses” by allowing digital technicity to intensify and reorient our perception of *durée*.<sup>116</sup> O’Hara offers a historically distantiated model of such aesthetic resistance that, in describing the power of the imagination and the adaptability of the sensorium, also speaks to the necessity of aesthetics for providing a critical vocabulary of *sensation*. Living with ubiquitous mediation means always being within an atmosphere: wrapped in a setting, folded into a *mise en*

---

<sup>115</sup> Kittler, *Gramophone, Film, Typewriter*, 18.

<sup>116</sup> Kittler, *Gramophone, Film, Typewriter*, 10.

*scène*. An attentiveness to aesthetics as a language of sensation opens media criticism to a tonal range more capable than Kittler's of fulfilling the Baudelairean task of articulating how it is that subjectivity persists amidst the intensification of the technological *dispositifs* we have inherited from at least the last three centuries.

## **Part II**

### **The Aesthetics of Movement**



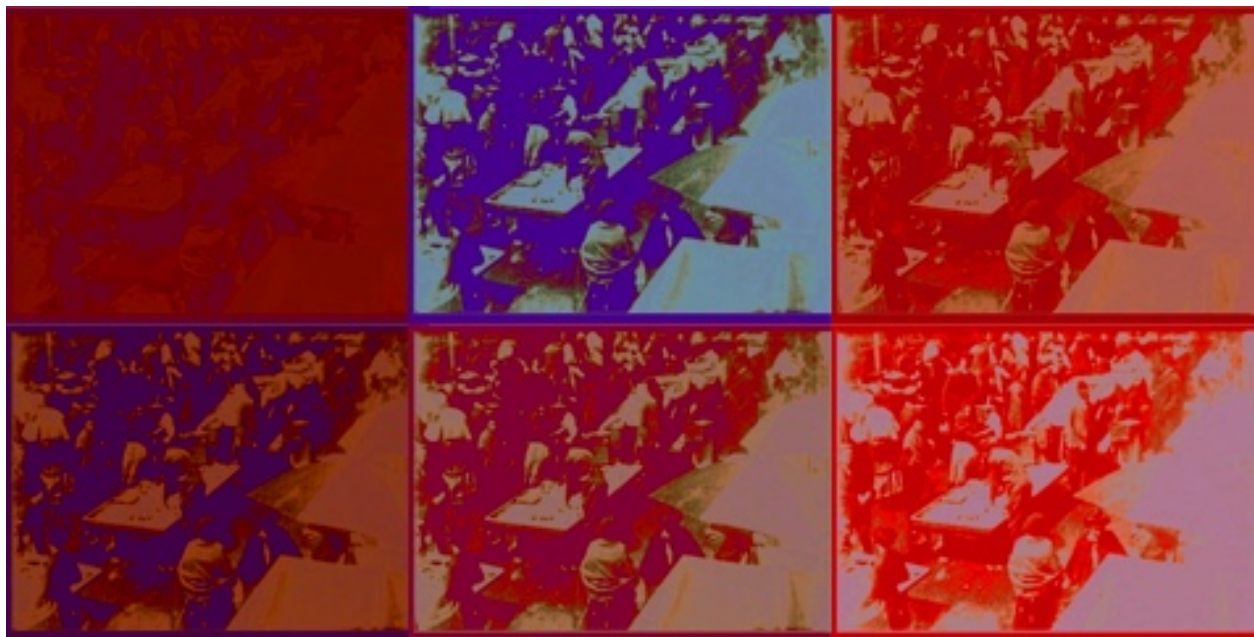


Figure 3.1: Ken Jacobs, frames from *New York Ghetto Fishmarket 1903*, 2006. Digital video, color & b&w, sound by Catherine Jauniaux and Tom Cora, 132 min. Courtesy the artist.

## Chapter Three

### An Audiovisual Archive

*I've never exhausted the time bounded by two frames.*

Ken Jacobs<sup>1</sup>

*The whole philosophy of Ravaisson springs from the idea that art is a figured metaphysics, that metaphysics is a reflection of art, and that it is the same intuition, variously applied, which makes the profound philosopher and the great artist.*

Henri Bergson<sup>2</sup>

In November 2014 the *Wall Street Journal* reported on a startup that deals in unorthodox datasets, such as satellite imagery of American corn fields, commercial parking lots, and “the shadows cast by half-finished Chinese buildings.”<sup>3</sup> The role of these companies is extractive, involving the design and construction of computational systems capable of processing and deriving meaningful information from the oceanic quantities of data now available for purchase via content-creating platforms ranging from satellite companies to social media channels like

---

<sup>1</sup> Ken Jacobs in David Schwartz et al., “Interview with Ken Jacobs (Aug 10, 11, 1989),” in *Films That Tell Time: A Ken Jacobs Retrospective*, ed. David Schwartz (New York: The American Museum of the Moving Image, 1989), 33.

<sup>2</sup> Bergson, “The Life and Work of Ravaisson (1904),” 196-7.

<sup>3</sup> This startup, Orbital Insight Inc., analyzed the construction boom in China via “satellite images of construction sites in 30 Chinese cities.” It is also “selling analysis of satellite imagery of cornfields [in Iowa] to predict how crops will shape up and studies of parking lots that could provide an early indicator of retail sales and quarterly earnings of companies such as Wal-Mart Stores Inc. and Home Depot Inc. . . . For the parking-lot analysis alone, Orbital bought one million images from satellite companies.” Bradley Hope, “Startups Mine Market-Moving Data from Fields, Parking Lots—Even Shadows,” *The Wall Street Journal* November 20, 2014.

Facebook, Twitter, and Instagram.<sup>4</sup> The commercial value of these datasets, which are sold onward in the volume of millions of units, lies in their potential for conversion into hard statistical data. In the case of the changing profile of Chinese cityscapes, for example, a computational analysis of satellite images comparing the shadows produced by buildings and construction sites *over time* allowed Orbital Insight Inc. to fashion a strategic “glimpse into whether that country’s construction boom is speeding up or slowing down.”<sup>5</sup> Such economic metrics allow for the development of trade indicators judged usefully independent of the information provided by officially sanctioned channels; particularly government statistics.

What is occurring in this scenario is not precisely a re-enactment of the argument of Martin Heidegger’s essay on “The Age of the World Picture” (1938)—that “the essence of the modern age” involves a representational turn toward “the world conceived and grasped as a picture.”<sup>6</sup> Rather than the contemporary world grasped as a picture, the full instantiation of what Friedrich Kittler called “the general digitalization of channels and information” has resulted in a situation in which technical images can be made to yield richly phenomenal information on the empirical

---

<sup>4</sup> The CEO of Orbital Insight is a former Google Inc. engineer who “ran Google’s project to scan millions of books and make them searchable.” He is described as just one of “a coterie of entrepreneurs” with ambitions to sell “analysis of obscure data sets to traders in search of even the smallest edges.” Other such startups have turned their attention to “social media, crowdsourcing and other largely unexplored data sets.” Dataminr Inc., for example, is “one of a handful of companies to whom Twitter Inc. provides *the full ‘fire hose’ of data that comes through its servers every day.*” Dataminr “combs through 500 million tweets a day to find market-moving news before it hits the wires. ... [Its] systems categorize and analyze every single tweet in real time, weeding out spam and comparing information against news feeds, market prices, weather patterns and other data to determine its significance. The systems also check if a particular user has been reliable on certain topics in the past. ... *‘There is no way to ignore social media as a data set anymore,’* said Ted Bailey, Dataminr’s chief executive. *‘A feed like Twitter has so much information, and there is certainly value hidden within it.’*” Ibid. My emphases.

<sup>5</sup> Hope concludes that these modes of analysis are so new that their commercial value has not been proven definitively. But he notes “a growing market among sophisticated investors for *snippets of information* that aren’t widely available.” Ibid. My emphasis.

<sup>6</sup> Martin Heidegger, “The Age of the World Picture (1938),” in *The Question Concerning Technology, and Other Essays*, Translated and with an Introduction by William Lovitt (New York: Harper & Row, 1977), 129.

*world*.<sup>7</sup> As a result, the plenitude of concrete visual detail embedded in a plenitude of contemporary audiovisual media—hundreds of millions of films and photographs of cats, babies, selfies; birthdays, anniversaries, landscapes, sunsets; geographical topographies, surveillance footage, medical imaging—is preserving a strikingly exact archive of our contemporary experience.

What really distinguishes the lived situation of the early twenty-first-century, however, is not just the scale of this extensive audiovisual archive, but the fact of its formation through and alongside a socio-technical infrastructure capable of rendering its detail into data. In my last chapter I drew on the work of Michael Foucault to call this wider infrastructure a technological *dispositif*. In its widest circumference, what Foucault called the *dispositif* is coincident with the historical *a priori*: it is the general experiential ‘setting’ that provides the social technology in and through which a historical period instantiates itself—empirically *and* epistemologically. Understood in the terms of a general social apparatus, the dominant technological *a priori* is also the historical *a priori*; and in our time a digital technological *a priori* forms our epistemological experiential setting.

The socio-technical infrastructure of the digital *dispositif* is a “panoptic schema” precisely like its historical predecessors in operating on both macro and micro levels: fulfilling its “vocation” by “spread[ing] throughout the social body,” but “without disappearing as such or losing any of its properties,” so as to become at once absolutely dominant and absolutely transparent.<sup>8</sup> This panoptic functioning of our digital experiential setting is discernible in the sheer availability of

---

<sup>7</sup> Kittler, *Gramophone, Film, Typewriter*, 1.

<sup>8</sup> Foucault, *Discipline and Punish*, 207.

various intersecting methods to create, disseminate, collect, and analyze the inscriptions constantly produced by contemporary social subjects—both actively and passively—in vernacular life, as well as on the level of specialist startups. Today, almost all forms of lived life produce a de facto digital footprint, and many of these inscriptions are de facto made with audiovisual media. And tomorrow, new kinds of analytic processes are likely to be able to extract and activate the details embedded in this cumulative media archive of our experience.

As early as early as 1931 Walter Benjamin wrote that “the illiteracy of the future” is likely to be “ignorance not of reading and writing but of photography.”<sup>9</sup> And in 1979 the artist and critic Hollis Frampton this extended this line of thought in a speculation on the future of the mediascape that conjectures:

—and this is entirely conjecture, but one whose eventuation will be drastically forced in the near future in any case—that the photograph, and then film, and now, heaven help us, that thing that begins with “v” may eventually be seen not as a series of separate things but somehow mysteriously related (what to call them? ...), more indeed as parts of something, as tentative attempts, at once complete and approximate, to construct something that will amount to an arena for thought, and presumably, as well, an arena of power, commensurate with that of language.<sup>10</sup>

The inchoateness of historical process is registered in this hunch about the coming-into-being of a new imagistic... *something*: a ‘something’ in which every iteration of vernacular social media that has dominated since the nineteenth-century photograph—up to and including the debauched “thing” called video—may seem less like “a series of separate things but somehow mysteriously related.” Frampton figures a longue *durée* process of social formation whose most

---

<sup>9</sup> Walter Benjamin, “Little History of Photography (1931),” in Walter Benjamin: Selected Writings 2, Part 2, 1931-1934, ed. Michael W. Jennings, Howard Eiland, and Gary Smith (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 1999), 527.

<sup>10</sup> Frampton, “The Invention without a Future,” 180.

recent, cataclysmic manifestation I will refer to as the long analog/digital transition. This is the paradigm shift in the vernacular media paradigm that has taken us, collectively, from the Heideggerian age of the world picture into a Kittlerian age of data flows and computational images.

One particularly visible outcome of the social transition brought about by the analog/digital transition is the heightened presence of images in all the settings of daily life. In fact, the digital *dispositif* has awarded the image an elevated status, because a digital image set within the digital mediascape is at once a representational, Heideggerian ‘picture’ and a new kind of deposit of information. As such, it serves an almost ideal agent for the general, panoptic function of the digital *dispositif*.

Kittler reminds us that “from the Remington via the Turing machine to microelectronics...—one century was enough to transfer the age-old monopoly of writing into the omnipotence of integrated circuits.”<sup>11</sup> In the last decades the same historical process propelled the audiovisual image from a relatively defined ‘setting,’ through televisual transmission, into a digital network that diffused it centrifugally, everywhere. Anthony McCall describes this vertiginous recent trajectory of the image in terms not unlike those of Frampton’s conjecture, observing:

Something has certainly happened to the social institution of Cinema. Cinema, once organised around movie theatres, has been steadily fracturing into shards, and moving images have gone everywhere, in every direction, in every possible scale, from the size of a building, through giant monitors, through television, through your computer screen, through iPads and smartphones and social media, ending up with a screen the size of a wrist-watch.

---

<sup>11</sup> Kittler, *Gramophone, Film, Typewriter*, 18-9.

The other important thing about the last twenty-five years is the shift from printed page to screen. ... In the 1970s, the printed page was our primary source of information. Fast forward to the late 1990s and everyone is looking at screens.<sup>12</sup>

Deleuze notes that for Foucault the term ‘power’ “is precisely the nonformal element running between or beneath different forms of knowledge”—“*it’s force, and the play of forces, not form.*”<sup>13</sup> In this conception power is not a monolithic entity, like the N.S.A. or its encompassing digital dragnet, but the process of formation implied in the ongoing functioning of its localized forms—the specific apparatuses.<sup>14</sup> This framing allows us to grasp the digital *dispositif* as itself is the cumulative apparatus of power: the non- or pre-formal structure of disciplinarity whose effect is invisible, but omnipresent (like the electric current) in allowing everything to function; and to even function much better. The digital *dispositif*’s function *as power* is often experienced by us, its historical subjects, as a native, a tacit, an entirely familiar audiovisuality expressed in our intuitive capacity to create, disseminate, collect, and analyze visual images. The deepened connection between contemporary audiovisual inscription and the digital socio-technical infrastructure, indeed, has made the contemporary media archive more cumulatively audiovisual than ever before in the history of archives of experience.

---

<sup>12</sup> Anthony McCall in Michelle Menzies, "Art/Film: A Conversation with Anthony McCall," in *Cinema & Painting*. Catalog of an Exhibition Held at the Adam Art Gallery, Wellington, March 11-May 11, 2014, ed. Michelle Menzies (Wellington, New Zealand: Adam Art Gallery, Victoria University of Wellington, 2015), 98.

<sup>13</sup> Gilles Deleuze in Deleuze and Eribon, "Life as a Work of Art," 97. My emphasis.

<sup>14</sup> In mid 2013, documents released into the public domain by Edward Snowden revealed that the United States’ National Security Agency (NSA) works with partner agencies in Australia, Britain, Canada, and New Zealand to monitor ‘the whole internet’—that is, the internet reduced to the information trails flowing ‘upstream’ and ‘downstream’ through key digital gateway around the globe. This partnership, dubbed the ‘Five Eyes’ alliance, operates under the terms of a WW2-era treaty preceding the existence of digital space. The resulting cumulative database is made meaningful by a granular extraction tool called XKeyscore, effectively the NSA’s Google search engine. XKeyscore allows an intelligence analyst to run a search that will pinpoint highly specific information from ‘the whole internet’ with relative ease. A completed search may yield phone calls; text or video chats; emails and email attachments; login credentials; address books; calendars; files, images, and videos stored in the cloud; and a variety of other “metadata” that identify locations, devices used, and other information specific to an individual.

TOP SECRET//SI//ORCON//NOFORN

Gmail facebook msn Hotmail YAHOO! Google skype paltalk.com YouTube AOL mail

**SPECIAL SOURCE OPERATIONS** (TS//SI//NF) **FAA702 Operations** **PRISM**

*Two Types of Collection*

**You Should Use Both**

**Upstream**

- Collection of communications on fiber cables and infrastructure as data flows past. (FAIRVIEW, STORMBREW, BLARNEY, OAKSTAR)

**PRISM**

- Collection directly from the servers of these U.S. Service Providers: Microsoft, Yahoo, Google, Facebook, PalTalk, AOL, Skype, YouTube, Apple.

TOP SECRET//SI//ORCON//NOFORN

TOP SECRET//SI//ORCON//NOFORN

Gmail facebook msn Hotmail YAHOO! Google skype paltalk.com YouTube AOL mail

**SPECIAL SOURCE OPERATIONS** (TS//SI//NF) **PRISM Collection Details** **PRISM**

**Current Providers**

- Microsoft (Hotmail, etc.)
- Google
- Yahoo!
- Facebook
- PalTalk
- YouTube
- Skype
- AOL
- Apple

**What Will You Receive in Collection (Surveillance and Stored Comms)?**

It varies by provider. In general:

- E-mail
- Chat – video, voice
- Videos
- Photos
- Stored data
- VoIP
- File transfers
- Video Conferencing
- Notifications of target activity – logins, etc.
- Online Social Networking details
- Special Requests**

Complete list and details on PRISM web page:  
Go PRISMFAA

TOP SECRET//SI//ORCON//NOFORN

Figure 3.2: Slides from United States National Security Agency (NSA) training materials released into the public domain by Edward Snowden. April 2013. (Source).



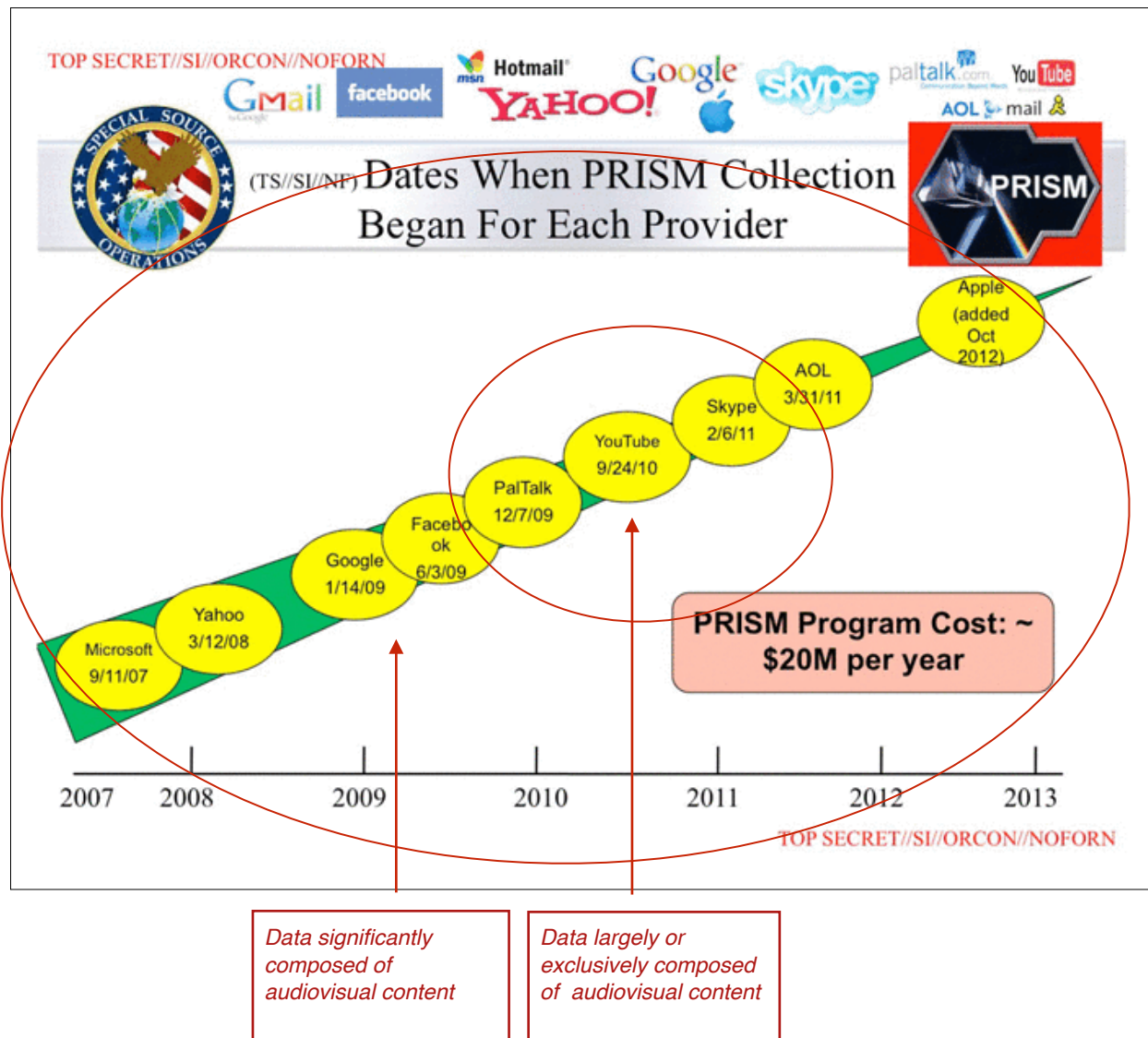


Figure 3.3: Slide from NSA training materials released by Edward Snowden. April 2013. (Source). Red annotations mine.

Snowden's documents revealed the NSA's development of a sophisticated system of digital intelligence-gathering configured to collect data from the information trails produced by the daily activity of ordinary individuals. This data is gathered as it flows 'downstream' through the internet (directly out of a device), and via 'upstream' flows accessed by tapping directly into tech companies such as Microsoft, Google, Apple, or Facebook. It is worth noting that the first commercial smartphone (the Apple iPhone) was released in June 2007, the same year in which the NSA launched its 'downstream' data-collection program: PRISM. While PRISM is ostensibly targeted at non-American citizens (in accordance with U.S. law) the program is practically configured for indiscriminate collection and routinely targets Americans "inadvertently," "incidentally," or deliberately, if an American is interacting with a foreign national.

In my last chapter I argued, citing the philosopher Arnold Davidson, that “Foucault still remains to be discovered and appropriated” for media studies.<sup>15</sup> Here I will enact this claim on the level of method by performing a media archeology, conceived as an archeology of knowledge, on the digital image.

“Foucault’s a philosopher who invents a completely different relation to history than what you find in philosophers of history” Deleuze has commented, because “history, according to Foucault, circumscribes us and sets limits. *It doesn’t determine what we are but what we’re in the process of differing from*; it doesn’t fix our identity, but disperses it into our essential otherness.”<sup>16</sup> What distinguishes the approach to history that characterizes the Foucauldian method is a *non*-teleological sense of the historical process: an indispensable dimension that derives from its orientation to contemporaneity and to the future. Rather than adopting a strictly comparative approach to the differences between ‘then’ and ‘now,’ for example, the archeologist looks to the past to understand where we’re going, and how we got to be going there. An altered perspective on a historical *a priori* that was recently experienced as transparent and dominant can act as a matrix by which to articulate the specificity of what is newly tacit; because the archeological analysis is concerned with posing questions about “*us today*.”<sup>17</sup> History provides the necessary concreteness—a dimension of facticity—for an otherwise aesthetic and philosophical experimentation with investigating a present whose contours are highly inaccessible, because highly prone to a subjective tinting. ‘Archeology,’ in Foucault’s own words, is a methodological construction that responds to the following challenge:

---

<sup>15</sup> Davidson, “Structures and Strategies of Discourse,” 13.

<sup>16</sup> Deleuze in Deleuze and Eribon, “Life as a Work of Art,” 94-5. My emphasis

<sup>17</sup> Deleuze in “Life as a Work of Art,” 96. My emphasis.

Although the statement cannot be hidden it is not visible either; it is not presented to perception as the manifest bearer of its limits and characteristics. It requires a certain change of viewpoint and attitude to be recognized and examined in itself. Perhaps it is like the over-familiar that constantly eludes one; those familiar transparencies, which, although they conceal nothing in their density, are nevertheless not entirely clear.<sup>18</sup>

The trajectory of my argument will not presume the self-evidence of digital audiovisual inscriptions—not despite their prevalence, but because of their prevalence. Instead, I will assume only an intuitive proximity to digital inscription: a feel for things born from experience, both aesthetic and social. My argument will turn to the history of media aesthetics for a framework by and through which to achieve a “certain change of viewpoint and attitude.” As an intellectual tradition that has been committed to thinking the connection between art, media, and the socio-technological apparatus, media aesthetics provides a key discursive and artistic genealogy. But my turn to the history of media—technical, philosophical, aesthetic—does not imply an interest in *returning* to the past. Rather, I want to use the history of the technological present to “break open” digital “words or sentences,” recognizing that “what can be uttered at a given period corresponds to its system of language and the inherent variations it’s constantly undergoing, jumping from one homogenous scheme to another.”<sup>19</sup> At the core of my attempt at an archeology of the digital image is a desire speak to the implications of audiovisual inscriptions that seem to

---

<sup>18</sup> Foucault, *Archaeology of Knowledge*, 110. The historian Paul Veyne emphasizes that here “Foucault is not revealing a mysterious discourse different from the one we all understand; he is simply inviting us to observe exactly what [the statement] said. Now this observation proves that the realm of what is said presents biases, reticences, unexpected salient features and reflex angles of which the speakers are completely unaware. *Underneath conscious discourse there is a grammar, as it were, a grammar that is determined by neighboring practices and grammars* and that is revealed by attentive study of the discourse, provided that the student consents to lift off the heavy veils known as Science, Philosophy, and so on.” Veyne, “Foucault Revolutionizes History,” 157. My emphasis.

<sup>19</sup> Deleuze notes: “Archeology doesn’t have to sign into the past, there’s an archeology of the present—in a way it’s always working in the present. Archeology has to do with archives, and an archive has two aspects, it’s audio-visual. A language lesson and an object lesson... [because] what is visible at a given period corresponds to its system of lighting and the scintillations, shimmerings, flashes produced by the contact of light and things.” Deleuze in Deleuze and Eribon, “Life as a Work of Art,” 96.

“conceal nothing in their density,” and yet, by their very profusion, are “nevertheless not entirely clear”; “not presented to perception as the manifest bearer of its limits and characteristics.”<sup>20</sup> I will consider the digital image in relation to its historical predecessors—the film and the photograph—by aiming to ask, at every discursive turn:

What are our ways of existing, our possibilities of life or our processes of subjectification; are there ways for us to constitute ourselves as a “self,” and (as Nietzsche would put it) sufficiently “artistic” ways, beyond knowledge and power? And are we up to it, because in a way it’s a matter of life and death?<sup>21</sup>

In my last chapter I argued that the history of technical social media attests that each dominant technical image generated a particular cast of perception—a ‘photographic’ or ‘filmic’ way of encountering life as such, which was at once entirely personal and a historical perceptual possibility. I concluded that in a world underwritten by a digital technological *a priori* all experience is digital experience; for in a world subtended by the operations of a digital *dispositif*, all sensible experience is likely inflected with a digital cast.

This chapter’s effort to perform media archeology as archeology of knowledge will aim to explore the implications of the idea by asking the following archeological question: “*what are we able to say today, what are we able to see?*”<sup>22</sup> Specifically, I pose two inductive questions about the digital image: what has the digital image made newly and uniquely seeable and sayable, in an empirical sense, as a result of its particular powers of inscription? Second, what has been made epistemologically visible and articulable, graspable and tacit, as a result of the diffusion of digital

---

<sup>20</sup> Foucault, *Archaeology of Knowledge*, 110.

<sup>21</sup> Deleuze and Eribon, “Life as a Work of Art,” 96, 98-9.

<sup>22</sup> “Life as a Work of Art,” 96. My emphasis.

images “everywhere, in every direction, in every possible scale”<sup>23</sup> For in a world saturated by digital images, where “everyone is looking at screens,” the accumulating mass of auditory and cinematic inscriptions is constitutes an audiovisual archive that should be comprehended in Frampton’s terms—as “an arena for thought,” and thus also “an arena of power, commensurate with that of language.”<sup>24</sup>

## I. The Impossible Image

The Lumière Company’s first film, *Workers Leaving the Factory*, was made four times between 1895 and 1897.<sup>25</sup> Each version of this actuality pictures a compositionally centered gate—a pictorial *mise en abyme* within the frame—out of which a labor force predominated by women pours at the conclusion of a work day.<sup>26</sup> *Workers* has been justly read as a thematization of the processes of industrialization that formed a condition of possibility for the social institution of the cinema, and through the self-reflexive device of the camera turned upon a scene of industrialized time. “The first camera in the history of cinema was pointed at a factory” the artist Harun Farocki mediates, even through “films about work or workers [did] not become one of the main genres” because “most narrative films take place in that part of life where work has been left behind.”<sup>27</sup> Yet beyond the question of political visibility underscored by Farocki’s

---

<sup>23</sup> McCall in Menzies, "Art/Film: A Conversation with Anthony McCall," 98.

<sup>24</sup> Frampton, "The Invention without a Future," 180.

<sup>25</sup> See Michelle Aubert and Jean-Claude Seguin, eds., *La Production Cinématographique Des Frères Lumière* (Paris: Bibliothèque du film (BIFI), 1996).

<sup>26</sup> The fourth film shares a title with the three that document the Lumière factory, but visualizes a different factory, and a largely male labor force.

<sup>27</sup> Farocki’s *Workers Leaving the Factory* (1995) is a collage-documentary gathering films of workers leaving factories through the twentieth century. Taking the Lumière’s ‘first film’ (and implicitly, the long history of cinema) as a point of departure, Farocki’s film is a meditation on the politics of labor. Harun Farocki, "Workers Leaving the Factory," in *Imprint: Writings = Nachdruck: Texte* (New York, Berlin: Lukas & Sternberg, Vorwerk 8, 2001), 234.

observation, what really holds my attention in all four versions of *Workers* film is the visual presence of these images of massed bodies emerging in an onrush, and the subtle differences that distinguish each ‘take.’

The first version is the least boisterous. The action is clearly directed, and the group is relatively constrained. But while the women seem aware of the camera’s recording eye—in a sense, they are still working—a lack of order seeps into the frame through various rushings, veerings, and jostlings, and the comic presence of an exuberant dog. The jerky movement and inadvertent inclusion of several jump cuts speak to the high bar of technical achievement implied by this ‘first’ film; and over time these glitches become more honed.

Both the cinematography and conveyance of motion have tightened when the camera moves slightly out from the factory gates in the second film. This version contains more unscripted deviations and illicit glances at the camera, most notably a woman who smiles into the lens as she walks across the frame. The irrepressible dog also remains, and like its forbearer this film concludes with the entry of a large covered carriage that demarcates a visible social hierarchy in the distinction between transport by four wheels, bicycle, and foot.

But it is the third version of *Workers Leaving the Factory* that has been most widely discussed as ‘the first film.’ The opening is dramatic: the framing has pulled out slightly from the first takes, and the factory gates swing out on cue to reveal a mobile froth of accumulated bodies. A sense of layered movement is achieved by the crowd’s exit in orchestrated increments, and halfway through the action the now-familiar dog is tumbled deliberately through the gate. But despite the constraint imposed by these elements of direction the workers seem relatively

relaxed, pushing and shoving each other with a deliberate playfulness.<sup>28</sup> Most notably, the seasons have shifted. For while the second film depicted women dressed in dark winter aprons, streamlined skirts, and unadorned bonnets, both the first and the third takes reveal a costume that has become more abundant.

Lightly colored dresses dominate in these alternate versions, and the women's hats are liberally adorned with flowers. It is tempting to read this change of clothing—particularly the *punctum* of headgear swelled to the size of wide-brimmed Sunday bests—as an act of conscious self-presentation that indexes the subjects' awareness of the camera's gaze. It was likely this iteration of *Workers Leaving the Factory* that Hollis Frampton also saw, and whose afterimage lingered in his memory to inspire a meditation on the marvelousness of the cinema's "exceptional machine"; whose feat is to resurrect "bodies in space from their dismembered trajectories," by recomposing the absolute particularity, the here and now, of a fleeting and quotidian event:

quitting time in a French factory, on a sunny afternoon toward the end of the century, as smiling girls waved and cheered.<sup>29</sup>

Of central significance to the concept of an 'impossible' image I will attempt to describe in this section is the affective intensity with which Frampton describes a version of this iterative film that exists only in his mind. The directorial construction of *Workers Leaving the Factory* never permits the women to openly engage the camera, nor were these films ever literally intended as a

---

<sup>28</sup> Farocki also understood this third version as 'the first film,' a fact evidenced by his observation of this spontaneous action that only happens within this iteration: "They sometimes got in each other's way—one young woman is seen to tug at another's skirt before they part in opposite directions, knowing that the other will not dare to retaliate under the stern eye of the camera." "Workers Leaving the Factory," in *Inprint: Writings = Nachdruck: Texte* (New York, Berlin: Lukas & Sternberg, Vorwerk 8, 2001), 247.

<sup>29</sup> Frampton, "For a Metahistory of Film," 135.



Figure 3.4 (clockwise from top left): Frames from Lumière Company  
 —*Sortie d'usine, [I]* (*Workers Leaving the Factory I*). [26 May 1895]. 35mm, b&w, silent. Cameraperson: Louis Lumière. Saint-Victor (today rue du 1er Film), Lyon, France.  
 —*Sortie d'usine, [II]* (*Workers Leaving the Factory II*). [10 March 1896]. 35mm, b&w, silent. Cameraperson: Louis Lumière. Saint-Victor, Lyon, France  
 —*Sortie d'usine, [III]* (*Workers Leaving the Factory III*). [15 August 1896]. 35mm, b&w, silent. Cameraperson: Louis Lumière. Saint-Victor, Lyon, France.  
 —*Sortie d'usine, [IV]* (*Workers Leaving the Factory IV*). [February 1897]. 35mm, b&w, silent. Cameraperson: Louis Lumière. Rue St-Maurice, Lyon, France.  
 All Collection of the Institut Lumière, Lyon.



kind of cinematic birth narrative.<sup>30</sup> Yet in conjuring a crowd of vivacious girls literally out of thin air, Frampton's narrative romanticism offers a powerful testimony to the power of an audiovisual capture to act as a launching pad into another weave of time and place, through the interplay between fact and fiction that undergirds the emotional texture of the 'actuality' film. The gendered tint of Frampton's description sketches a *mise en scène* for *Workers* highly revealing of which imagistic details have snagged the attention of his fanciful gaze. It is the visual pleasure of an expressive dress, carefully assumed by real participants in the third version of a film designated by the twentieth century as ontological, that rears a head out of the past to snare its wearers in the embalmed time of a fashion-effect acutely described by Siegfried Kracauer as 'archeological.' In Kracauer's account, such details of personal style transmute the subject of an audiovisual capture into "an archeological mannequin which serves to illustrate the costumes of the period," by holding an image of the wearer out of time and for futurity: as a monument in the visual archive of a historically localizable experience.<sup>31</sup>

Suggestively, Kracauer's signal Weimar era essay on "Photography" (1927) also launches its mediation on the archive and the technical image with an affectively saturated description of young women. We begin with a movie star, "a being of flesh and blood, our demonic diva, twenty-four years old," whose studied comportment has been diligently preserved by the camera: "the bangs, the seductive position of the head, and the twelve eyelashes right and left—all these

---

<sup>30</sup> Of the context Tom Gunning notes: "The films were shown in private screenings to amateur photographers and to an organization interested in the promotion of French industries before the film's commercial premiere at the Grand Café in December of 1895. In other words, it was presented to an elite audience in order to demonstrate the success of the latest Lumière photographic experiment, for which the workers were guinea pigs, rather than the intended audience." Tom Gunning, "Pictures of Crowd Splendor: The Mitchell and Kenyon Factory Gate Films," in *The Lost World of Mitchell and Kenyon: Edwardian Britain on Film*, ed. Vanessa Toulmin, Patrick Russell, and Simon Popple (London: BFI Publications, 2004), 50-51.

<sup>31</sup> Siegfried Kracauer, "Photography," in *The Mass Ornament: Weimar Essays*, ed. Thomas Y. Levin (Cambridge, Mass.; London: Harvard University Press, 1995), 48.

details... a flawless appearance.”<sup>32</sup> We move next to an equivalent moment in the historical continuum, and much closer to home, in the image of another girl of twenty-four: “Is this what *grandmother* looked like?” In the narrativity of the question Kracauer preserves the fright of an almost unspeakable shock of non-recognition, because in what should have been an intimate encounter with a family portrait the speaker finds very little upon which to hang ancestral nostalgia.

What the grandchildren do know about the woman in the photograph turns out to be no more than a set of arbitrary details extracted from a long life, and so disconnected from the photographic testimony that “were it not for the oral tradition, the image alone would not have sufficed to reconstruct the grandmother.” They have little choice but to “believe the parents—who claim to have gotten it from grandmother herself—that this photograph depicts the very same grandmother”; because no other evidence remains: “none of her contemporaries are still alive,” and most biting, “the ur-image has long since decayed.” What the camera has held out of the corrosive field of lived time is an image of youth and freshness so severed from living memory that her grandchildren can only:

submit in amazement to the imperative of encountering in the photograph their fragmentarily recorded ancestor. All right, so it’s grandmother: but in reality it’s any young girl of 1864. The girl smiles continuously, always the same smile. The smile is arrested yet no longer refers to the life from which it has been taken. Likeness has ceased to be of any help. [...]

So that’s how women dressed back then: chignons, cinched waists, crinolines, and Zouave jackets. The grandmother dissolves into fashionably old-fashioned details before the very eyes of the grandchildren. ... They are irreverent, and today young girls dress differently. They laugh, and at the same time they shudder. For through the ornamentation

---

<sup>32</sup> "Photography," in *The Mass Ornament: Weimar Essays*, ed. Thomas Y. Levin (Cambridge, Mass.; London: Harvard University Press, 1995), 47.

of the costume from which the grandmother has disappeared, they think they glimpse a moment of time past, a time that passes without return. Although time is not part of the photograph like the smile or the chignon, the photograph itself, so it seems to them, is a representation of time.<sup>33</sup>

The emotional frisson of the grandchildren's shudder, following inadvertently on an irreverent laugh, hinges on a question of recognizability. Where the portrait of the diva has retained an element of the identifiable, the grandmother has faded shockingly into the details of her petrified appearance—a chignon, a cinched waist, a crinoline, a Zouave jacket. To chase experience by scrutinizing her photograph is to encounter only “the disappointment of the child who tries by clapping his hands together to crush the smoke,” because the photograph has not fixed the time of *experience*.<sup>34</sup> The real girl had vitality and a full range of expression, while the photograph only “smiles continuously, always the same smile.” If the photograph has embalmed time, what it has preserved is lamentably partial, a “rigid and perpetual” image that “no longer refers to the life from which it has been taken.” It is in scrutinizing the details of her appearance to glimpse the once-reality of their grandmother that the grandchildren are swept up in a rank sense of loss, because the moment at which resemblance ceases to matter a portrait marks the moment at which the pictured individual is irrevocably severed from her lived identity. “*A shudder runs through the viewer of old photographs*” writes Kracauer, and this reaction is bound to a complex emotional comprehension of all that the technical image cannot preserve, “for [it] make[s] visible not the knowledge of the original but the spatial configuration of a moment; what appears in the photograph is not the person but the sum of what can be subtracted from him or her.”<sup>35</sup> The

---

<sup>33</sup> “Photography,” 48, 48-9.

<sup>34</sup> Bergson, *Creative Evolution*, 334.

<sup>35</sup> Kracauer, “Photography,” 54-55, 56-7. My emphasis.

grandchildren's shudder is an affect of mourning commensurate with an intuition of mortality: both an elegy for lost presence, and for the inadequacy of the record.

On the one hand, then, *time* is deemed insufficiently present in the photograph. The amazement that kicks off the grandchildren's shudder is an affective enactment of the strangeness of their realization that likeness does not inhere intrinsically to photographic representation. The photograph might have initially satisfied an instinct for preservation that André Bazin elsewhere names a mummy complex "aimed against death," but Kracauer's radical gesture in this essay is to trace the ongoing life of the indexical claim.<sup>36</sup> It is precisely the aura of verisimilitude that withers as time erodes the recognizability of a photograph, and duration will bring the portrait of the diva into line with the grandmother's fate. Time reveals the photograph's once-transparent claim to fix the reality of its model as a repudiation of mortality no less precarious than that of the other arts—as, for example, the Shakespearian declaration "Nor marble nor the gilded monuments / of princes shall outlive this powerful rhyme"—so that Kracauer's essay becomes a meditation on the archive as that which remains once the reality of the model has slipped away.<sup>37</sup> It is for this reason that the photograph seems to the grandchildren a representation of time, even though "time is not part of the photograph like the smile or the chignon"; and the woman in the picture has surrendered to evanescence by dissolving into details.

If the photograph seems nonetheless to signify *time*, the temporality at stake in the grandchildren's looking is not the experiential time that the technical image cannot capture, nor

---

<sup>36</sup> Bazin, "The Ontology of the Photographic Image," 9.

<sup>37</sup> "Nor marble nor the gilded monuments/ Of princes shall outlive this powerful rhyme/ But you shall shine more bright in these contents/ Than unswept stone, besmeared with sluttish time." Sonnet 55, William Shakespeare, *The Sonnets ; and a Lover's Complaint*, ed. John Kerrigan, Penguin Classics (London: Penguin, 1999), 104.

the reified time that regulates the movements of the Lumière workers. Rather, by peering “*through* the ornamentation of the costume from which the grandmother has disappeared” the grandchildren arrive at an intuitive comprehension of time as a much rougher force—of temporality as a roaring movement “that passes without return” to sweep individuals and memories into the accumulated depths of an incomprehensibly vast archive. “While Kracauer does not mention Bergson by name,” writes Miriam Hansen of this essay, “the notion of *durée* resonates” through the essay’s critique of the normative social constructions of time.<sup>38</sup> Indeed in his careful invocation of time as the subtending materialist reality, Kracauer builds a complex argument for photography’s adequacy to historical memory and social change upon a deft negotiation of the two fundamental Bergsonian judgements on technical images: a critique of spatialized thinking, and an insistence on duration.

“In order for history to present itself, the mere surface coherence offered by photography must be destroyed” writes Kracauer, because “in the artwork the meaning of the object takes on a spatial appearance, whereas in photography the spatial appearance of an object is its meaning.”<sup>39</sup> When the fashionable details of a woman’s grab reach out of the past to snag the attention of a viewer situated in another historical moment, it is this latent spatiality of the photograph that has leapt to the fore to “hold the gaze tight.” It is in this sense that “photography is bound to time in precisely the same way as *fashion*,” because fashion and technical media are co-implicated in a logic of obsolescence that makes each “translucent when modern and abandoned when old.” Neither really holds time, but both mark its flowing, by foregrounding detail in a manner whose

---

<sup>38</sup> Hansen, *Cinema and Experience*, 31.

<sup>39</sup> Kracauer, “Photography,” 52.

durational effect is to preserve “not the knowledge of the original but the spatial configuration of a moment.”<sup>40</sup> Precisely this judgement on photography’s bias toward the depiction of space grounds Bergson’s objection to “the contrivance of the cinematograph” as an all too inimitable externalization of the workings of the human intellect. “Instead of attaching ourselves to the inner becoming of things, we place ourselves outside them in order to recompose their becoming artificially,” Bergson explains, and so “we take snapshots, as it were, of the passing reality.”<sup>41</sup> The seeming concreteness of spatial appearances in our lived life blinds us to *durée* as the fundamental reality, and so we misapprehend time for space.

It is on this charged relation between the spatialization implied in the photographic fixing of instants and the ongoingness of temporal flow that the Photography essay pivots. “Kracauer relates photography’s precarious afterlife to the split-second nature of the photographic exposure” writes Hansen, because “the mechanical reduction of time to the moment of its origin” renders the technical image the agent of a mode of worlding oriented to grasping the world as picture.<sup>42</sup> What mediates between the drive to reification implicit in this subordination of time to space, as well as its unsatisfying opposite—a fetishistic historicist thinking driven by the fantasy of a complete historical record—is a complex thought-cluster Kracauer names the ‘memory image.’ Like Frampton’s imagined film of smiling girls, Kracauer’s memory image is characterized by a quality of plasticity that can select, reorganize, and invent. “In inverse proportion to photographs” he observes, “memory images enlarge themselves into monograms of

---

<sup>40</sup> “Photography,” 55, 57.

<sup>41</sup> Bergson, *Creative Evolution*, 332.

<sup>42</sup> Hansen, *Cinema and Experience*, 33. “The aim of the illustrated newspapers is the complete reproduction of the world accessible to the photographic apparatus.” Kracauer, “Photography,” 57-8.

remembered life,” because memory is characterized by a plastic capacity to contract time, expand detail, and make meaning out of gaps.<sup>43</sup> In this synthetic incorporation of time and space into an organic *Gestalt*, the memory image provides a structural model for the authentic work of art.

By contrast, the photographic image is vulnerable to a double dissolution. Duration will eventually disclose the contingency of the photograph’s initially strong claim to likeness; and severed from the fiction of resemblance, the grandmother’s portrait begins to lose its indexical coherence. It is by identifying the inevitability of this failure that Kracauer launches his advocacy of a radical contingency. Viewed out of time, he thunders, the arrangements of detail in a photograph will no longer seem to “cling to the spatial context that linked them with an original out of which the memory image was selected,” because the functional value of obsolescence—in fashion, as in media—is to display the erosion of the indexical bond. *Durée* works an obdurate dissolution upon the photograph’s “mere surface coherence” in a manner whose ontological effect is to foreground the contingent mooring of the image in space. What is made clear by this decomposition is a potential for *recombination* whose utopian dimensions are pitched not relative to photography, but to the formal aesthetics of cinema:

The capacity to stir up the elements of nature is one of the possibilities of film. This possibility is realized whenever film combines parts and segments to create strange constructs... reminiscent of *dreams* in which the fragments of daily life become jumbled. This game shows that the valid organization of things remains unknown—an organization which would designate the position that the remains of the grandmother and the diva stored in the general inventory will some day have to occupy.<sup>44</sup>

---

<sup>43</sup> "Photography," 54-55.

<sup>44</sup> "Photography," 62-3.

It is a fact of fundamental significance for digital aesthetics to note that by tracing a dialectical relation of space and duration beyond the life of the indexical claim, Kracauer arrives at a judgement on technical media very different from that of Bergson. Photography's manifest inadequacy to an experiential inscription of time is the failure which opens the conditions of possibility for a subsequently profound role in the manifestation of *durée*, because the unhinging of detail from an originary spatial context invests the time-ravaged photograph with an unexpected future-potential. In its final argumentative turn, Kracauer's essay moves to a conception of photography and cinema as co-extensive elements of a vast image archive, rich with potential for recombination into "strange constructs": because "although the grandmother has disappeared, *the crinoline has nonetheless remained*" as testament to an experiential reality beyond representation.<sup>45</sup> Bound together as variously weak experiential inscriptions, the totality of filmic and photographic documents constitute a cumulative media archive whose potential to act as the 'medium' for a genuine historical consciousness Kracauer grounds in their shared bias to the depiction of space.<sup>46</sup> In a future "general inventory" or "central archive" of photographically visualized space, he emphasizes, the image of the diva will join the portrait of the grandmother as an archeological residue overwritten by the thickest form of time.<sup>47</sup>

---

<sup>45</sup> "Photography," 61. My emphasis.

<sup>46</sup> Hansen observes that "in a vast panoramic collage, [Kracauer] evokes the image of a "general inventory" or "main archive" (*Hauptarchiv*) that assembles the infinite totality of outdated photographs. ... Understood as a general warehousing of nature, photography provides an archive that makes visible, in a sensorily and bodily experienced way, both the fall-out of modernity and the possibility of doing it over, of organizing things differently. This archive though is anything but easy to access and navigate; it is rather an an-archive—a heap of broken images—that lends itself to the task precisely because it lacks any obvious and coherent organizational system. It is closer in spirit to dadaist or surrealist montage ... The concept of realism at stake is therefore less a referential one than an experiential one, predicated on the encounter with that world under radically changed and changing conditions of referentially." Hansen, *Cinema and Experience*, 35.

<sup>47</sup> Kracauer, "Photography," 62, 63.



By demonstrating how *durée* is lacking yet present *through* the temporal life of the photographic document, then, Kracauer points to one way in which the philosophical power of the technical image is fully articulated when a media format “*finds an object appropriate to its technology*.”<sup>48</sup> The detail that persists in an image out of time, though residual, is not nothing, because the falling away of spatial coherence is an enlargement effect that works a strange transparency upon the technical image. At the moment of their shudder, the grandchildren look through the lacuna of detail in the grandmother’s portrait to a fundamentally impossible image: a virtual image, somehow independent of its pictorial substrate, and so capable of invoking the imaginative reality of the grandmother in all her lived vitality.<sup>49</sup> It is thus precisely as an incomplete record of much, much more that what *was* filmed and photographed comes to act as an imaginative and affective conduit to the experiential past. It is in this sense that Kracauer’s argument for the media archive prefigures the mood of a Foucauldian method predicated on an absolute respect for the archive. “One ought to read everything, study everything—” Foucault commented in this vein to the film critic Raymond Bellour, or “in other words, one must have at one’s disposal the general archive of a period at a given moment.”<sup>50</sup> Within the logic of an archeological method no detail is ever insignificant; because it is the mere spatial particularity of the grandmother’s dress—like the clothing of the Lumière women—that holds an unpredictable, obdurate potential to convey meaning beyond space.

---

<sup>48</sup> “Photography,” 53. My emphasis.

<sup>49</sup> “The photograph irrupts into the beholder’s living present in an unsettling way, signaling his own physical transience along with the instability of the social and economic ground of his existence.” Hansen, *Cinema and Experience*, 34.

<sup>50</sup> Michel Foucault, “The Order of Things (Interview with Raymond Bellours, 1966),” in *Essential Works of Foucault, 1954-1984. Volume II: Aesthetics, Method, and Epistemology*, ed. James D. Faubion (New York: New Press, 1998), 263.

It is in “Little History of Photography” (1931), a text that anticipates significant themes of his foundational “The Work of Art in the Age of its Technological Reproducibility” (1936, 39), that Walter Benjamin offers a congruent argument for the philosophical significance of photographic detail. Here, too, a writerly gaze preoccupied with questions of time and testimony rests upon a photograph of a woman to observe that duration has eroded the indexical bond, and with it, the portrait’s original claim to likeness. But this tragic undertow that tints “the charm of old photographs” with a foreshadowing of mortality seems to Benjamin to engage a subtly different potential: that of a history of the present.<sup>51</sup>

“The fog that surrounds the beginning of photography is not quite as thick as that which shrouds the early days of printing” he observes, so that “the interval of ninety years that separate us from the age of the daguerreotype” might be deployed analytically, “for real insights into their nature.”<sup>52</sup> The argumentative claim here rests on the postulate that the rapidity of photography’s evolution as nineteenth-century commercial practice involved a pace of development too swift to accommodate nuanced evaluative reflection on the medium’s significance as a new aesthetic form. It is thus explicitly as a viewer from the future separated from the moment of his object’s appearance by over a century of historical time that Benjamin casts a “backward glance” at the medium’s origins that seeks to identify—in the material texture of the earliest

---

<sup>51</sup> Benjamin, “Little History of Photography,” 508.

<sup>52</sup> “Little History of Photography,” 507, 27.

photographs conceived and presented as *art*—the “historical, or if you like philosophical” genesis of a specifically technological aesthetic.<sup>53</sup>

So Benjamin turns to portraiture for a comparative framework through which to evaluate the camera’s impact on a representational tradition in which a strong claim to likeness was once advanced in images produced by human hands. Comparing an ancestral painting of an unnamed subject with David Octavius Hill and Robert Adamson’s nineteenth-century photographic portraits of Scottish ‘fishwives,’ he observes that:

When the painting remained in the possession of a particular family, now and then someone would ask about the person portrayed. But after two or three generations this interest fades; the pictures, if they last, do so only as testimony to the art of the painter. With photography, however, we encounter something new and strange: in Hill’s Newhaven fishwife, her eyes cast down in such indolent, seductive modesty, there remains something that goes beyond testimony to the photographer’s art, something that cannot be silenced, that fills you with an unruly desire to know what her name was, the woman who was alive there, who even now is still real and will never consent to be wholly absorbed in “art.”

Immerse yourself in such a picture long enough and you will realize to what extent opposites touch, here too: the most precise technology can give its productions a magical value, such as a painted picture can never again have for us. No matter how artful the photographer, no matter how carefully posed his subject, the beholder feels an irresistible urge to search such a picture for the tiny spark of contingency, of the here and now, with which reality has (so to speak) seared the subject, to find the inconspicuous spot where in the immediacy of that long-forgotten moment the future nests so eloquently that we, looking back, may rediscover it.<sup>54</sup>

---

<sup>53</sup> "Little History of Photography," 507. The Scottish painter-photographer team of David Octavius Hill and Robert Adamson produced “the first substantial body of self-consciously artistic work using the newly invented medium of photography” in the mid 1840s. Hill was a prominent painter of romantic landscapes, while Adamson was Edinburgh’s first professional calotypist, having been trained “in the techniques of paper photography” by his older brother John, a professor of chemistry and curator of the College Museum at Saint Andrews University. Hill and Adamson worked together on photographic portraits initially intended to act as ‘sketches’ for Hill’s portraits, with Adamson operating the camera. Within the space of a year both had come to understand “the value of their calotypes as works of art in their own right and decided to expand their collaboration far beyond the original mission, announcing a forthcoming series of volumes illustrated with photographs of subjects.” Benjamin’s text refers to their photographic collection *The Fishermen and Women of the Firth of Forth*. See Malcolm Daniel, "David Octavius Hill (1802–1870) and Robert Adamson (1821–1848) (1840s)," [http://www.metmuseum.org/toah/hd/hlad/hd\\_hlad.htm](http://www.metmuseum.org/toah/hd/hlad/hd_hlad.htm) (October 2004, accessed May 10, 2015).

<sup>54</sup> Benjamin, "Little History of Photography," 510.

At the core of this description of the impact of a photographic portrait is an affect that touches upon a quality of the real: a “something new and strange” that awakens in this sensitive viewer an “unruly desire” for veritably tactile contact with the subject—“*the woman who was alive there, who even now is still real.*” Where the testimonial function of the painted portrait relies on the veracity of an oral tradition fated to eventually fade from living memory and dissipate into the aura of the artwork, the photograph submits to duration in a manner that forces testimony to float, somehow, above the surface of the image. Painterly realism ties the depicted subject with the plasticity of the representation by binding the woman in the painting into a foreshortened compact with “the art of the painter.” By comparison, the spatial concreteness of the camera’s mode of verisimilitude preserves the specificity of detail in “that long-forgotten moment” in a manner that lets the photograph retain an element of exteriority.

It is in the eroticism of the woman’s slightly occluded pose—seemingly at once given to the camera yet turned away from the recording gaze, with “eyes cast down in such indolent, seductive modesty”—that Benjamin discerns the immediacy of an almost unbearably direct inscription of subjectivity. The languidly of this posture acts as a synecdoche for a quality of distance whose aesthetic significance is to locate the photographer’s art in an affective zone somewhere beyond the artist’s testimony. What is “new and strange” in this photograph’s insistent present-ness seems to him to rest on the mediation of the camera eye while exceeding the demarcations of technological frame: at once palpable, yet quite irreducible to its elements in the photographer’s manifest skill, or the verisimilitude of the apparatus.

Rather, Benjamin's elongated looking moves through the medium presented by the camera's adequacy to a precise delineation of concrete detail and into the impossible horizon of a representational zone Bergson calls "the individuality of the model."<sup>55</sup> In this sphere of the figural the aesthetic power of the technical image blooms from a surplus: from the impossibility of synthesizing the woman in the picture with the mode of her depiction, and thus of reconciling the skill of the artist with the subjectivity of the model. The photograph will endlessly preserve hints of subject who "will never consent to be wholly absorbed in 'art'," even as the portrait is all that survives as testament to her recalcitrance. Like Kracauer's image of the grandmother, or Frampton's fantasy of smiling girls, Benjamin comprehends Hill and Adamson's portrait of Elizabeth Johnstone Hall as a monument constructed upon the constitutive fracture of a break between the indexical truth claim and the claim of a portrait to 'image' a life. The emotional quality of his "unruly desire" marks this recognition of an excess: of the photograph's operation in the affective topography of an impossible image whose "*magical value*" is to construct an aesthetic monument commensurate with the incommensurability of its subject.

For Benjamin and Kracauer, as for Frampton, media aesthetics is enacted in this durational interval at which an auratic thickening of presence erupts unexpectedly into a scene of spectatorship to imbibe a technical image with a power of signification beyond its demarcated pictorial content. The slow, caressive attention of the grandchildren's gaze projects actuality and presence back into the facticity of the document in a manner that suspends the pastness of time in an aesthetic dilation. This loosening of the photograph's spatial weave to an undercurrent of strong time supplements the portrait's signification with a Bergsonian charge that underscores

---

<sup>55</sup> Bergson, "The Life and Work of Ravaissou (1904)," 196.

*durée*'s presence in the image as an order of movement fundamentally anterior to visibility. What makes these images 'impossible' is not a stripping away of ideological or illusionary content to a reveal latent or submerged meaning, but the flaring of an element of contingency that animates the facticity of the document with a quality of aesthetic liveness. It is for this reason that both Kracauer and Benjamin search so urgently within the "*unstable specificity*" of their aging portraits for that "tiny spark of contingency, of the here and now" through which a mode of perception sensitized by an intensified consciousness of time can make potentiality legible on the surface of the image, "so that we, looking back, may rediscover" the imaged *subject*.<sup>56</sup>

## II. Archives of Experience

Writing in a new *fin de siècle*, of another century's accumulation of technical images, Laura Mulvey's *Death 24x a Second* (2006) describes the reconstitution of cinema by the full instantiation of a digital *dispositif* in terms of an adjustment to the temporality of viewing.<sup>57</sup> In the twentieth-century's celluloid based "cinema of 24 frames a second," she writes, the spectatorial gaze was more regulated by the time of narrative diegesis, because films were mostly "seen in darkened rooms, projected at 24 (or thereabouts) frames a second," and "only professionals, directors and editors had easy access to the flatbed editing tables that broke down the speed needed to create the illusion of 'natural' movement."<sup>58</sup> By comparison, the spectator

---

<sup>56</sup> Benjamin, "Little History of Photography," 510; Hansen, Cinema and Experience.

<sup>57</sup> Mulvey's book attempts to extrapolate the complex intellectual possibilities embedded in the perspective of a historical subject who has lived through a 'cusp'—that is, the transition between distinct socio-experiential paradigms of technological media. She writes that her analyses of the "contrasts between 'then' and 'now' are not intended to indicate a detachment from the past but rather to emphasize that my engagement with the cinema of the past has been changed by passing time." Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion Books, 2006), 12.

<sup>58</sup> *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion Books, 2006), 190, 7.

brought into being by video—first electronic, then digital—possesses a power to intervene into the flow of cinematic time by pausing, replaying, or otherwise casually retarding the progression of filmic movement. For Mulvey, this loosened relation to the once-determining pace of 24 frames per second (24fps) heralds a sea-change.

The contemporary “spectator who pauses the image with new technologies may bring to the cinema *the resonance of the still photograph*” she observes, because her gaze, “now interactive and detached from a collective audience” can search *within* and *around* any given instance of cinematic time; finding “pauses and gestures that have been hitherto barely visible” by peering “into the screen’s images, shifting them and stretching into new dimensions of time and space.”<sup>59</sup> This elective relation to the flow of cinematic time allows the spectator to interrupt the ‘naturalism’ of the cinema of 24fps by looking closer, looking more slowly, or looking again. “Now, the stop of flow and the eruption of stillness are commonplace in the consumption of film” Mulvey observes, “and the fascination of fiction is just one among others.”<sup>60</sup> The post-celluloid spectator who can regulate the pace of her own viewing by sifting the interplay between stillness and movement through the intimate affects of curiosity and play is engaged in a practical negotiation of the consequences of a subtle but irrevocable destabilization of the centrality of ‘natural’ movement to the experience of screen movement per se.

I want to work through the implications of Mulvey’s inductive diagnosis by placing its observations about digital spectatorship into contact with Frampton’s prescient manifesto for media aesthetics “For a Metahistory of Film: Commonplace Notes and Hypotheses” (1971).

---

<sup>59</sup> Death 24x a Second, 186, 90, 91. My emphases.

<sup>60</sup> Death 24x a Second, 190.

Frampton's ambition in this text is to sketch a history of the technical image that, like Benjamin's "Little History of Photography," might account for its amplitudes—historical, philosophical, and poetic—as an imaginative medium. The timbre of this framing reveals the influence of Ezra Pound, and it is in a sweeping, quasi-mythological tone reminiscent of the *Cantos* that Frampton offers up a series of polemics intended to explore the potential elasticity, and so the most extensive limits, of what might be called 'film.'<sup>61</sup>

"The history of cinema consists precisely of every film that has ever been made, for any purpose whatever" he proposes initially; conceding, with some humor, that "of the whole corpus, the likes of *Potemkin* make up a numbingly small fraction. The balance includes instructional films, sing-alongs, endoscopic cinematography, and much, much more."<sup>62</sup> Having awarded the cinematic archive this truly catholic scope, Frampton puts forward the following concatenation of 'meta' historical declarations:

A polymorphous camera has always turned, and will turn forever, its lens focused upon all the appearances of the world. Before the invention of still photography, the frames of the infinite cinema were blank, black leader; then a few images began to appear upon the endless ribbon of film. Since the birth of the photographic camera, all the frames are filled with images.

There is nothing in the structural logic of the cinema filmstrip that precludes sequestering any single image. A still photograph is simply an isolated frame taken out of the infinite cinema. [...]

There is no evidence in the structural logic of the filmstrip that distinguishes 'footage' from a 'finished' work. Thus, any piece of film may be regarded as 'footage,' for use in any imaginable way to construct or reconstruct a new work. [...]

Cinema is a Greek word that means "movie." The illusion of movement is certainly an accustomed adjunct of the film image, but that illusion rests upon the assumption that the

---

<sup>61</sup> Frampton was fascinated by the poetry of Ezra Pound and initiated a correspondence with him in 1956. Between 1957-8 a young Frampton moved to Washington D.C. to spend time with Pound, then engaged in writing the *Cantos* while incarcerated in St. Elizabeth's Hospital.

<sup>62</sup> Frampton, "For a Metahistory of Film," 135.



rate of change between successive frames may vary only within rather narrow limits. There is nothing in the structural logic of the filmstrip that can justify such an assumption. Therefore we reject it. From now on we will call our art simply: film.<sup>63</sup>

What is radical about this image of an “infinite cinema” co-extensive with the *lounge durée* is the fluidity with which it allows Frampton to arrive at the conclusion that, questions of its material base aside, “*we will call our art simply: film.*” The forcefulness of this phrasing speaks to the clarity of his perception that the regime of celluloid-based media must inevitably pass away; and as the adjunct to the rise of a new genre of electronic and digital technology already incipient in the early 1970s. The vertiginous image of a “polymorphous camera” unceasingly turned upon the fleeting visages of an iridescent world is the overt expression of an effort to think past the spectatorial configurations of the media regime Mulvey characterizes ‘the cinema of 24fps.’ It is by challenging the discursive transparency of its less-than-straightforward dogma that “cinema is a special case of the catholic still photograph” that Frampton concludes that “*there is nothing in the structural logic of the cinema filmstrip that precludes sequestering any single image.*” And working through the implications of this insight, he arrives at a second major revelation: “*a still photograph is simply an isolated frame taken out of the infinite cinema.*”

In the face of an teleological model of technological development that has understood the formal characteristics of the *moving* image to flower from the pictorial features of an archetypal, catholic *still* image, Frampton’s manifesto for media posits an archeology of *distributed* movement as the genealogical forbearer to the local case of *cinematic* movement. Within the logic of this proposition the curvilinear trope of ‘infinite cinema’ accelerates into a kind of reverse unfolding, to engage the spirit of André Bazin’s parallel claim that “film delivers baroque

---

<sup>63</sup> Ibid.

art from its convulsive catalepsy.”<sup>64</sup> The looping *poïesis* of Frampton’s figure of an endlessly unfurling ribbon of celluloid places a phenomenology of distributed movement at the ground of *all* images to rewire the structure of causality that regulates our thinking of media history. By thus awarding movement a position of profound anteriority to the image, he sketches out a concept of ‘film’ within which the history of sense-perception becomes graspable in reverse, as the perceptual pre-history of cinematic media—“*before the invention of still photography, the frames of the infinite cinema were blank, black leader.*”

The imaginative power of this argument for a present tense partly anticipated by its polemics should not cause us to lose sight of the import of a more quotidian fact: that Mulvey’s contemporary spectator can claim an independent understanding of Frampton’s locating insight that “there is nothing in the structural logic of the filmstrip” that constrains cinematic movement to 24fps. In the context of a digital mediascape in which the experience of film is less regulated by the pace of ‘natural’ movement than by what Mulvey dubs “the thoughtful reflection on the film image that is now possible,” the post-celluloid spectator possesses an elective relation to cinematic time once only imaginable within the realm of avant-grade aesthetics.<sup>65</sup> For it was only as a member of a professional tribe with easy access to the “editing tables that broke down the speed needed to create the illusion of ‘natural’ movement” that Frampton could confidently declare that “there is no evidence in the structural logic of the filmstrip that distinguishes ‘footage’ from a ‘finished’ work”; because it was only by this means that a pre-digital spectator

---

<sup>64</sup> The photograph, writes Bazin, “embalms time, rescuing it from its proper corruption,” whereas “the film delivers baroque art from its convulsive catalepsy. Now, for the first time, the image of things is likewise the image of their duration, change mummified as it were.” Bazin, “The Ontology of the Photographic Image,” 14-5.

<sup>65</sup> Mulvey, *Death 24x a Second*, 195.

could possess material knowledge of the practical distinction between the object-character of the film-strip and the representational naturalism of the projected image.<sup>66</sup> The contemporary spectator who can pour over the whole digitized history of film and photography possesses a power of close visual analysis once exercised only within the vanguard of media art practice.

Put simply, what was a specialized relation to the cinematic configuration of time has become a far more immediate and intuitive reality. In this, the digital deconstruction of the celluloid illusion of ‘natural’ movement can be said to generalize—or better, to render vernacular—a relation to the *content* of the audiovisual archive once the exclusive prerogative of ‘professionals’ like the director, the editor, the scientist, and the avant-garde filmmaker. Understood in this way, the material reconstitution of film by the *dispositif* of digital media should be understood as a recalibration not only of the temporarily of viewing, but rather of the conditions of enunciation that govern the visibility and articulability of the media archive per se.

I want to consider the import of this digital re-conjugation through an analysis of the specific work Frampton had in mind when he suggested that “any piece of film may be regarded as ‘footage,’ for use in any imaginable way to construct or reconstruct a new work.” This is Ken Jacobs’ *Tom, Tom, The Piper’s Son* (1969, 1971), a now-canonical experimental film whose form and logic are predicated on a breakdown of the cinema of 24fps then only achievable through the mediation of a specialist playback device called an analytic projector.<sup>67</sup>

---

<sup>66</sup> Death 24x a Second, 7. Frampton acknowledges this fundamental division between the experience of the artist and of the spectator in the celluloid regime with the observation that “the act of making a film, of physically assembling the filmstrip, feels somewhat like making an object: that film artists have seized the materiality of film is of inestimable importance, and film certainly invites examination at this level. *But at the instant the film is completed, the “object” vanishes.*” Frampton, “For a Metahistory of Film,” 138. My emphasis.

<sup>67</sup> Ken Jacobs’ *Tom, Tom, The Piper’s Son* (1969, revised 1971), 16mm, 16-18fps, color & b&w, silent, 115 min is both actually and metaphorically cited by Frampton in the Metahistory essay. Ibid.

A deeply political filmmaker for whom creative expression is praxis, a mode of grappling with concrete social reality, the vast majority of Ken Jacobs' oeuvre is composed from a collage-like reworking of found and pre-recorded footage taken from the outside reaches of the media archive: popular pre-cinematic media, early cinema, amateur film, newsreels, technical and scientific film, home movies, digital video glitches, and other unloved scraps of media miscellany. "I'm up for looking at air, if there's discernible change frame to frame" he clarifies of his ethos.<sup>68</sup> *Tom, Tom, The Piper's Son* is Jacobs' most lauded work, and typifies his approach in offering a highly interventionist reformulation of an existing film: a silent one-reel early American narrative by the Mutoscope and Biograph cameraman-filmmaker William 'Billy' Bitzer, titled *Tom, Tom, the Piper's Son* (1905).<sup>69</sup>

Jacobs extends the duration of the original film from 12 to 115 minutes by re-filming it with a tripod-mounted camera, a translucent screen, and an analytic projector.<sup>70</sup> The analytic projector's capacity for variable-speed playback permitted the projected film to be sped up, slowed down, or reversed of the during the process of re-filming; so allowing Jacobs' translation of the footage from an archival to a celluloid format to double as a comprehensive re-temporalization of

---

<sup>68</sup> Ken Jacobs, "Program Notes, Live Film Concert," (Whitney Museum Biennial: Whitney Museum of American Art, 1995).

<sup>69</sup> William 'Billy' Bitzer, *Tom, Tom, the Piper's Son* (1905) b&w, silent, 12 min. Billy Bitzer shot and directed this one-reeler for the American Mutoscope and Biograph Company. It was preserved as an archival paper print at the Library of Congress until converted into 16 or 35mm celluloid film (along with hundreds of other virtually forgotten early films) by the archivist Kemp Niver the late 1960s.

<sup>70</sup> Ken and Flo Jacobs clarify that Ken had lost his analytic projector (the Kodak Analyst II) to a pawn shop at the time of filming. In its stead, he used a projector with analytic properties (the Victor Animatograph Corp. Animatophone Type 13 Model #40) given to him by his landlord.

Bitzer's original.<sup>71</sup> Going further in post-production, Jacobs attacked the surface of the image with a battery of enlargement techniques, deploying every attenuating device of film form in the book—the close-up, the flicker effect, the wipe, reverse action, the freeze frame, active off-screen space, superimposition, the split screen—to extrapolate endless reams of unseen 'new' content and a vertiginous, painterly lyricism. "The original filmic material is explored in its entirety, vivified, its hidden corners, its obscure details, its very materiality intensified, restored to sight" Annette Michelson has written of the impression of 'direct' vision produced by the spectatorial experience of *Tom, Tom*.<sup>72</sup> By working over the celluloid print frame-by-frame, and with spellbinding intensity *within* the frame, Jacobs bores into the material structure of his source material with a thoroughness that restores pictorial visibility not only to a plethora of unseen pictorial detail, but to a tapestry of accidental content embedded on the surface of the celluloid print—its inadvertent "gathering of dirt, of nicks and scratches."<sup>73</sup> This almost orchestral performance of replay has been interpreted as an act of psychoanalysis that transforms the found print into a kind of score: a material unconscious from whose "scarred body" Jacobs draws out

---

<sup>71</sup> The filmmaker Phil Solomon explains the analytic projector's technical and aesthetic value in the following way: "The analytic projector was created, as far as I know, for school sports teams to analyze films, much in the same way as one does use a remote and a DVD player. ... The main modification [to the standard projector] was to add some kind of protective see-through screen/shield to protect the gate when the film comes to a dead stop—otherwise, of course, it would burn the frame. You can see the controls on the lower left and that unit could come off the projector with a cable attachment, virtually giving you a 'remote'. You can go forward, backward at 24 fps, or go to pulse mode (about 5 frames per second?), or come to a freeze frame for study. Ken [Jacobs] used to use this brilliantly when he taught analysis classes, using it on such films as *The Big Sleep* or *The Wizard of Oz*—we'd spend weeks analyzing scenes while he spoke into a microphone and did a kind of *Tom, Tom, the Piper's Son* analysis on the films. ... DVDs do virtually the same thing if you master how to operate a remote control, but it's often ungainly to move between "frames" (there are none)." Phil Solomon, email to the author, 20 October 2014.

<sup>72</sup> Annette Michelson, "New Forms in Film: 'Tom, Tom, the Piper's Son' by Ken Jacobs," (Solomon R. Guggenheim Museum August 13, 1972).

<sup>73</sup> Jacobs writes of his materialist orientation: "Each film-print tells its own story on its scarred body, separate from the pictorial and auditory intents loaded upon it, of meetings with forces traveling their own heedless paths through time. ... Dirt and damage tell us something of the compound of times and incidents that are extra baggage to purposeful intent in a film-print. Dirt is rich." Ken Jacobs, "'Tom, Tom' and the Physicality of Film," (Fax from Ken Jacobs to John Hanhardt, Curator, Film and Video, Whitney Museum of American Art, sent on February 18, 2005: Document, Anthology Film Archives, New York, May 14, 2002).

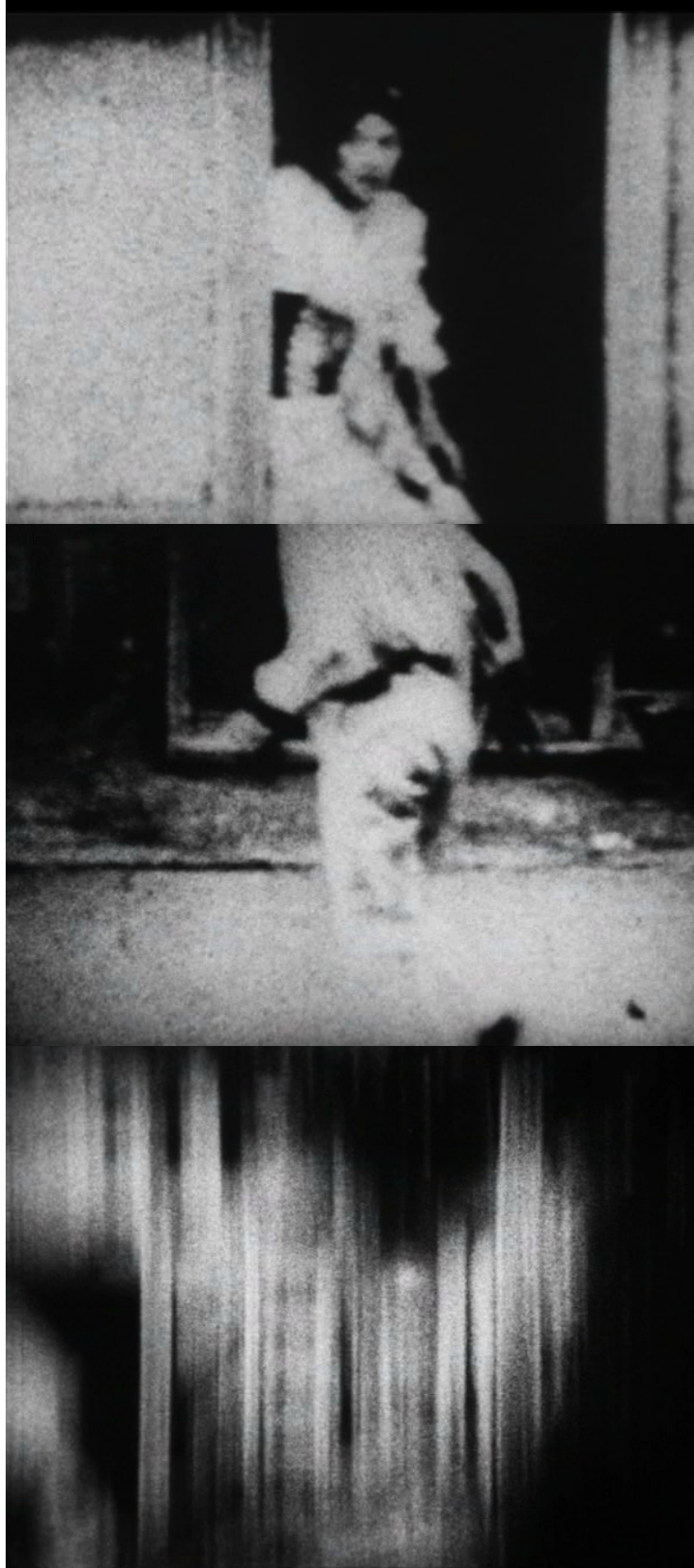


Figure 3.5: Ken Jacobs, frames from *Tom, Tom, The Piper's Son*. 1969, revised 1971. 16mm, 16-18fps, color & b&w, silent. 115 min. Converted by the artist into digital video in 2002. Courtesy the artist.

the figural abstraction of an ‘infinite’ film form composed of symphonic blurs and freezes, volumetric doublings, fugitive light-effects, and dance-like dazzles of film grain.<sup>74</sup>

I want relate the interventionist character of Jacobs’ film form in *Tom, Tom* to the actions of a vernacular digital spectator who uses a remote, keyboard, or touch-screen device to enlarge a detail otherwise embedded within the flow of cinematic time. The aesthetic intensity of Jacobs’ remediation of Bitzer’s film might seem to lack an organic relation to the gentler erotics of what Mulvey calls ‘pensive’ spectatorship, but both modes of spectatorship are predicated on the *jouissance* of a distinctly open relation to cinematic time. A direct comparison of their visual pleasures is instructive.

Recounting her own viewing of a single shot in the movie *Imitation of Life* (dir. Douglas Sirk, 1959), Mulvey observes that the act of attenuating a film sequence by playing over and over again it has the effect of pooling the temporalities usually tightly spooled around a narrative configuration of cinematic time. The pensive spectator’s repetitive reviewing effectively detaches the segment from its embedding in the filmic story; and this re-contextualization allows “the time of registration” to come to the fore. This in turn:

creates a consciousness of the pro-filmic scene, the complex choreography between the movement of the crane and the movement of the star and extras, which has a dance-like quality. It also seems precarious, almost fragile in its duration, its registration of the past, and the imaginative world of the story takes shape tenuously, out of the document of a Hollywood, Universal Studios, film set. Halting the duration of the extended take, breaking up its elegant continuity, reveals further details that could not be registered within the shot’s movement. A halt on the final slither of the shot, when the young black woman walks down the steps occupied just before by Lana Turner, produces a *punctum*-

---

<sup>74</sup> Ibid. In particular, Tom Gunning has offered an influential and suggestive reading of Jacobs’ oeuvre as enacting a kind of material psychoanalysis on the corpus of cinema. See Tom Gunning, “‘Films That Tell Time’: The Paradoxes of the Cinema of Ken Jacobs,” in *Films That Tell Time: A Ken Jacobs Retrospective*, ed. David Schwartz (New York: The American Museum of the Moving Image, 1989).

like sensation at the discovery of this lost moment. Pleasure in the shot's extended duration is replaced by the fascination of an extended pause on a still frame. The sense of wonder at the timing of the shot, at the precarious moment between the young woman's appearance and the cut, then gives way to a reflection on its significance. The near-invisibility of the shot's closing seconds prefigures the issue of the visibility and the invisibility of race that runs through the whole film.<sup>75</sup>

Here replay functions as an affective trigger. The focused attention of the 'pensive' spectator' to becomes gradually sensitized to the "complex choreography" off the pro-filmic real that subtends the diegetic universe of *Imitation of Life*, and this awareness leads to a *punctum*-like comprehension that "the imaginative world of the story takes shape *tenuously*, out of the *document* of a Hollywood, Universal Studios, film set." Mulvey's use of the word 'document' in this moment is significant, because it signals the self-consciousness with which she has allowed a heightened perception of the pro-filmic scene to inform and reorient her understanding of the text itself. A sharpened perception of the pro-filmic real has generated a shift in the status of the film, so that *Imitation of Life* is now grasped simultaneously as a movie and a document of a film set—"a Hollywood, Universal Studios, film set." As the spectator releases the film back into flow, allowing the shot to play on, a sharpened consciousness of the imbrication of fact and fiction wound into the texture of this—as any—filmic representation dominates in her mind's eye. She continues to scan the screen for evidence of the long past here-and-now of the *set*; and when a further pause reveals another fugitive detail in "the final slither of the shot, when the young black woman walks down the steps," the discovery is received as revelatory.

Extracted from flow, the frames that reveal this young woman's presence assume the quality of a monument, because to a consciousness alerted to the pro-filmic's tenuous relation to

---

<sup>75</sup> Mulvey, *Death 24x a Second*, 184.



visibility, the preservation of this image seems like a victory over the subject's vulnerability to non-representation. In the wake of her recovery of this most fugitive kind of portrait, the digital spectator's enjoyment of the shot's intentional choreography—its sensual calibration of camera movement with the movement of the plot—gradually gives way to a lateral meditation on the “precarious, almost fragile” lightness with which the celluloid document has preserved this visual detail out of time, almost as if for the moment of future replay. When Mulvey eventually allows the film to play on, this time definitively, she shifts analytic registers into a reflection that “the near-invisibility of the shot's closing seconds prefigures the issue of the visibility and the invisibility of race that runs through the whole film.” If the paradox of the cinematic detail lies in its inaccessibility within the celluloid-based *time* of 24fps, the digital spectator who intervenes into the pace of cinematic flow does not annihilate this time of the narrative. Rather, at the moment at which she folds her new ‘photographic’ knowledge into an overall interpretive arc of the cinematic diegesis, the pensive spectator who momentarily turns the film into a photograph redistributes the detail's flare of affect across the total signification of the narrative text.

The elective temporality of digital spectatorship awards a new power of emergence to the visual fact. At the same time, this foregrounding of an element of facticity does not generate a binaristic distinction between the imaginative claims of ‘document’ and ‘story’—the devices of fiction and of fact. What is at stake in my own repeat viewing of the *Workers Leaving the Factory* ‘actualities,’ for example, is neither a repression of their manifest slight narrative nor a refusal of their hard-won illusion of movement, but the lure of those details—embedded in the facts of gesture, interaction, and dress—whose seemingly raw visibility, when glimpsed through the texture of the films’ detonated signification, underscores the status of these audiovisual

documents as monuments to lived life. “Those people leaving the Lumière factory—if they weren’t filmed, they would not remember leaving the factory” Jacobs has commented in a succinct summary of the orientation to affect that underpins the gaze of a ‘pensive’ spectator who has intuited the power of any technical image to act as an archive of experience.<sup>76</sup> It is in this context of experiential witness that I want to consider the specific aesthetic claim advanced by Jacobs for the film form inaugurated with *Tom, Tom, The Piper’s Son*:

Ghosts! Cine-recordings of the vivacious doings of persons long dead. Preservation of their memory ceases at the edges of the frame (a 1905 hand happened to sink into the frame... it’s preserved, recorded in a spray of emulsion grains). One face passes “behind” another on the two-dimensional screen.

The staging and cutting is pre-Griffith. Seven infinitely complex cine-tapestries comprise the original film, and the style is not primitive, not un-cinematic, but an inspired indication of another path of cinematic development, the potential of which has only recently been rediscovered. My camera closes in only to better ascertain the infinite richness (playing with fate, taking advantage of the loop-character of all movies, recalling and varying some visual congruencies again and again for particular savoring), searching out incongruities in the story-telling (a person, confused, suddenly looks out of an actor’s face), delighting in the whole bizarre human phenomena of story-telling itself and this within the fantasy of reading any bygone time out of the visual crudities of film: dream within a dream!

And then I wanted to show the actual present of film, just begin to indicate its energy. A train of images passes like enough and different enough to imply to the mind that its eyes are seeing an arm lift, or a door close; I wanted to “bring to the surface” that multi-rhythmic collision-contesting of dark and light two-dimensional force-areas struggling edge to edge for identity of shape...to get into the amoebic grain pattern itself—a chemical dispersion pattern unique to each frame, each cold still... stirred to life by a successive 16-24 f.p.s. pattering on our retinas, the teeming energies elicited (the grains! the grains!) then collaborating, unknowingly and ironically, to form the always-poignant-because-always-past-illusion.<sup>77</sup>

---

<sup>76</sup> Michelle Menzies, "Interview with Ken Jacobs (2 August 2011)," (New York: August 3, 2011).

<sup>77</sup> Original description of *Tom, Tom* placed in The New York Filmmaker’s Co-op catalogue, reproduced in Jacobs, "'Tom, Tom' and the Physicality of Film."

The filmmaker Phil Solomon, a former student of Jacobs', has described *Tom, Tom* as the artist's 'big bang' moment.<sup>78</sup> The aura of revelation discernible in this comment—and which weaves through the whole history of critical reception surrounding this work—is grounded in a reaction of spectatorial wonder at the virtuosity which which Jacobs deploys the strategies of fiction embedded in the original film to amplify the affective resonance of its quotient of fact.

In an insightful 1974 review, for example, Stuart Byron observes that *Tom, Tom* "shows us that all of film history was 'inherent' from the beginning."<sup>79</sup> When Jacobs "freezes on a part of a frame of a man shouting," Byron narrates "one says to oneself, 'Ah, if only the close-up had been invented, that could be an Eisenstein shot'"; and "when he has blown up parts of frames to such an extent that all there is to be seen is black and white, light and dark, one thinks of such current abstract filmmakers as Michael Snow and Robert Breer."<sup>80</sup> Bitzer's original film seems to the critic "possibly, just possibly, the worst movie ever made by any aesthetic criteria which could now be applied"; and it is in light of this judgement that he mulls over the novel idea that the whole subsequent repertoire of film form might be understood as somehow prefigured within it.<sup>81</sup> It is worth emphasizing that for *Jacobs* the aesthetic value of Bitzer's movie is in no

---

<sup>78</sup> Phil Solomon, email to the author, 20 October 2014.

<sup>79</sup> Stuart Byron, "A Nursery Rhyme with Reason," *The Real Paper* January 30, 1974, 23.

<sup>80</sup> Byron's pithy review observes that "Jacobs' analysis, which communicates an intensity akin to that of the mad scientist, shows us that all of film history was 'inherent' from the beginning," because "the curious thing about the original 'Tom, Tom' is that it does contain within it, however unintentionally, that entire history. Being a kind of fantasy featuring circus folk, and being so theatrically framed, it relates to Méliès, who around 1900 made movies about trips to the moon. But the acting and staging are so natural as to be almost behaviorial, and thus its relationship to the Lumières, who made the first newsreels around 1895. At times, indeed, a player will forget that she or he is in a film and look back to the camera (e.g., director) for an instruction, almost as a bit of cinema verité. ... At other points, one is reminded of German expressionist filmmaking of the Twenties, or of such latterday directors as F.W. Murnau, Jean Renoir, Stan Brakhage, Jean-Luc Godard. ... The only interruptions to his frame-by-frame analysis allowed by Jacobs are to some images in color which remind us of film's pre-history days (flowers reflected in glass, shadow plays), the kind of things noticed by such 19<sup>th</sup>-century visual experimenters as Edward Muybridge and the others who helped invent the cinema."Ibid.

<sup>81</sup> Ibid.

way a measure of “film history’s nadir.”<sup>82</sup> Rather, Jacobs’ sees in the original’s manifest stylistic difference from later conventions of narrative cinema evidence of an alterity that is “not primitive, not un-cinematic, but an inspired indication of *another path* of cinematic development, *the potential of which has only recently been rediscovered.*”

In fact, the cultural referents that ground Bitzer’s *Tom, Tom*—the nursery rhyme about a recalcitrant pig-stealing boy called Tom, and William Hogarth’s depiction of vernacular pleasures in the eighteenth-century etching *Southwark Fair* (1733)—betray its participation in the pre-narrative genre of the Cinema of Attractions.<sup>83</sup> Tom Gunning has written of the conceptual significance of the fact that “the ‘Chambers Street Group’ of Ernie Gehr, Hollis Frampton, and Ken Jacobs ... looked carefully at films from the period of early cinema, [and] incorporated them into their own works” for a clearing of disciplinary sight-lines that allowed a generation of young film historians to write a new historiography of the cinema.<sup>84</sup> I want to join with Byron and Gunning, then, in emphasizing that the measure of *Jacobs’* aesthetic achievement is to be found in the affective power with which his film form alerts the spectator to a deep continuity between Bitzer’s marginal fiction and the whole canon of cinematic great works. If the historical resonance of this feat was contemporaneously recognized—indeed, was

---

<sup>82</sup> Ibid.

<sup>83</sup> Jacobs notes that the grounds depicted in Hogarth’s *Southwark Fair* was the site of “Britain’s first public motion picture screening.” Rather than being unaware of (or indifferent to) the intertextual and intermedial references embedded in the original film’s reference to the Hogarth etching, Jacobs takes pleasure in underscoring Bitzer’s gesture to a prior history of the technologically reproducible image, and to traditions of vernacular entertainment. Ken Jacobs, “Program Notes,” in *Films That Tell Time: A Ken Jacobs Retrospective*, ed. David Schwartz (New York: The American Museum of the Moving Image, 1989), 25.

<sup>84</sup> Tom Gunning writes: “Speaking personally, the influence of these filmmakers ... recontextualiz[ed] the [early] films.” Tom Gunning, “Attractions: How They Came into the World,” in *The Cinema of Attractions Reloaded*, ed. Wanda Strauven (Amsterdam: Amsterdam University Press, 2006), 34. See also Tom Gunning, “The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde,” in *Early Cinema: Space, Frame, Narrative*, ed. Thomas Elsaesser and Adam Barker (London: BFI Pub., 1990); “‘Now You See It, Now You Don’t’: The Temporality of the Cinema of Attractions,” in *The Silent Cinema Reader*, ed. Lee Grieveson and Peter Krämer (London; New York: Routledge, 2004).

allowed to subtend a repudiation of teleological characterizations of early cinema as ‘primitive’—a second major aspect of its significance is only retrospectively comprehensible, because emergent in the special prerogative of a truly avant-garde practice to anticipate the future.

When Jacobs’ triggers the spectatorial recognition that “a person, confused, suddenly looks out of an actor’s face,” his film form imbues the screen with that modicum of stasis necessary for the figures represented within its unfamiliar patina of soundless, black-and-white film grain to come into focus as ‘real’—that is, as once existent experiential subjects. This strategy of affective intensification prefigures the contours of digital spectatorship and, simultaneously, engages the logic of Roland Barthes’ *punctum*, as that inherently subjective projection onto the image precipitated by a detail which seems to levitate from the pictorial scene to strike the beholder as “poignant.”<sup>85</sup>

“Last thing about the *punctum*” Barthes writes at the end of *Camera Lucida* “—whether or not it is triggered, it is an addition. It is what I add to the photograph and *what is nonetheless already there*.”<sup>86</sup> Considering this paradoxical logic of the *punctum* relative to the aesthetics of cinema, Barthes asks himself the question “do I add to the images in movies?”<sup>87</sup>

The answer to this query can only be *no*, “I don’t think so,” because within the confines of the cinema of 24fps:

---

<sup>85</sup> Roland Barthes, *Camera Lucida: Reflections on Photography*, trans. Richard Howard (New York: Hill and Wang, 1981), 27.

<sup>86</sup> *Camera Lucida: Reflections on Photography*, trans. Richard Howard (New York: Hill and Wang, 1981), 55.

<sup>87</sup> *Ibid*.

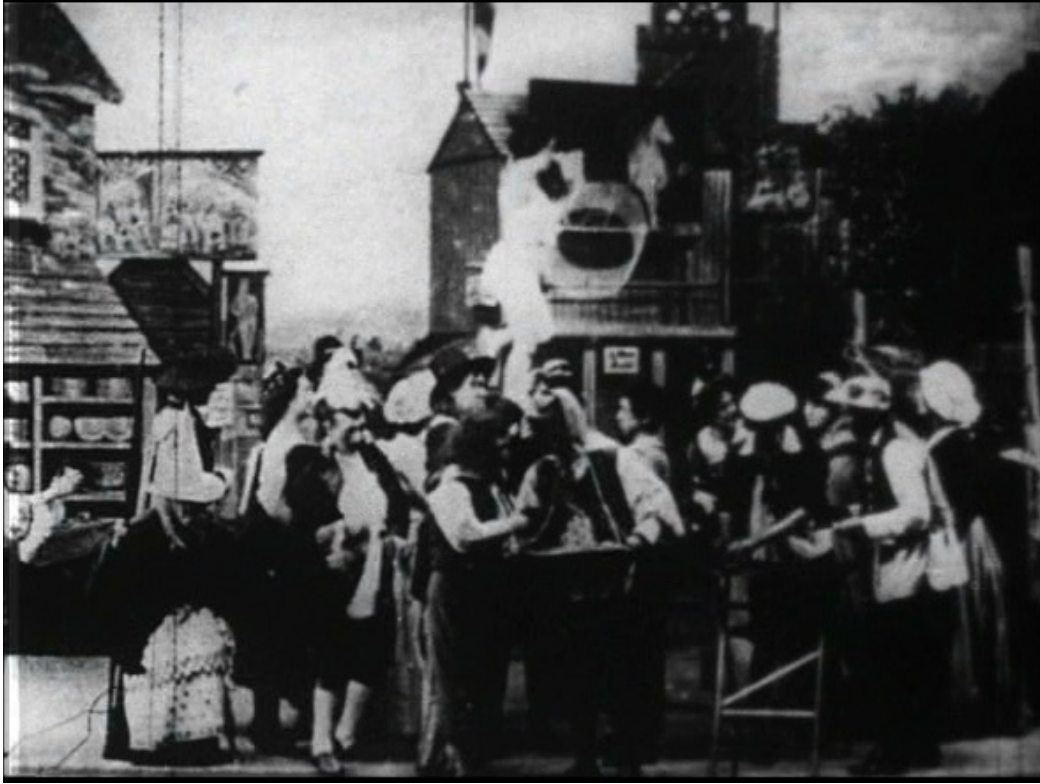


Figure 3.6: Ken Jacobs, frame from *Tom, Tom, The Piper's Son*. 1969, revised 1971. 16mm, 16-18fps, color & b&w, silent. 115 min. Converted by the artist into digital video in 2002. Courtesy the artist.



Figure 3.7: William Hogarth, *Southwark Fair (or The Humours of a Fair)*. 1733. Etching and engraving on paper. 36.2 x 47.3 cm. Private Collection.

I don't have time: in front of the screen, I am not free to shut my eyes; otherwise, opening them again, I would not discover the same image; I am constrained to a continuous voracity; a host of other qualities, but not *pensiveness*; whence the interest, for me, of the photogram.<sup>88</sup>

It is the “continuous voracity” implied by the flow of a cinematic narrative that seems to Barthes to preclude the movie spectator from “*pensiveness*; whence the interest, for me, of the photogram.” But by “delving beyond the usual movie-message/cover-up to see the history that can be salvaged when film is wrested from glib 24 frames per second” Jacobs visualizes a precisely ‘photographic’ order of detail.<sup>89</sup> Put differently, the film form inaugurated by *Tom*, *Tom* constitutes an intervention into the voracious *pace* of the cinema of 24fps, through the actions of a kind of Barthesian double-agent. In this, Jacobs holds out the possibility of pensive spectatorship for a moviegoer otherwise constrained to a temporality of perception Raymond Bellour characterizes as “idle, yet hurried.”<sup>90</sup>

Bellour's important essay on “The Pensive Spectator” (1984)—the text that subtends the argument of Mulvey's *Death x24 a Second*—re-poses this “line traced by Barthes between cinema and photography” from the point of view of the cinematic situation.<sup>91</sup> When a photograph fills a screen occupied by a narrative film, Bellour observes, the progression of 24fps is, in a sense, stilled. And “as soon as you stop the film you begin to find the time to add to the image itself,” because the photograph punctures the directionality of the film's narrative.<sup>92</sup> The eruption

---

<sup>88</sup> Ibid.

<sup>89</sup> Ken Jacobs, “On the Nervous System: What, Where, and Wherefore,” in Program Notes, Ken Jacobs: Illuminations and Improvisations, March 14-17, 2004, curated by Jytte Jensen and Joshua Siegel (New York: Department of Film and Media, The Museum of Modern Art, 2004).

<sup>90</sup> Bellour, “The Pensive Spectator (1984),” 87.

<sup>91</sup> Ibid.

<sup>92</sup> “The Pensive Spectator (1984),” 92.

of a still image—however momentary—within the duration of a moving image constitutes, in this sense, an aesthetic intervention. This is because the presence of the photograph places the spectator into an asymmetric relation to the screen in a manner that “uncouple[s] the spectator from the image, even if only slightly, even if only by virtue of the extra fascination it holds.”<sup>93</sup> The introduction of a ‘photographic’ speed in narrative cinema has the *punctum*-like effect of reconfiguring the screen around an interval of subjective pause; and this stillness of photographic time gives rise to a Barthesian modicum of *extra time* by providing that “the time it takes (theoretically infinite, above all repeatable) to produce the ‘supplement’ necessary for the spectator to enter into the image.”<sup>94</sup> For Bellour, it is this layering of forms of aesthetic time in the moment of compound temporality that establishes the conditions of possibility for ‘pensive’ spectatorship. “Two kinds of time blend together, always and inextricable, *but without becoming confused*” he summarizes of the paradoxes of photo-cinematic intermediality, because:

Creating a distance, another time, the photograph permits me to reflect on cinema. Permits me, that is, to reflect that I am at the cinema. In short, the presence of the photograph permits me to invest more freely in what I am seeing. *It helps me to close my eyes, yet keep them wide open.* ... As we are drawn more deeply into the flow of film, we are simultaneously able to reflect on it with a maximum of intensity. Within this slight interstice, we can also reflect on cinema.<sup>95</sup>

I want to recognize the prescience of Bellour’s analysis as an anticipation of the logic of digital spectatorship. At the same time, I want to interpret the argument of “The Pensive Spectator” in a tenor quite different from that offered by Mulvey’s *Death x24 a Second*; first by pointing to its

---

<sup>93</sup> Ibid.

<sup>94</sup> “The Pensive Spectator (1984),” 87-88.

<sup>95</sup> “The Pensive Spectator (1984),” 93, 89, 92. My emphasis.



sensitivity to an aspect of tone. Bellour recognized that, when Barthes asked himself “do I add to the images in movies?”, the tint of his question was *pragmatic*.

*Camera Lucida* concludes with the confrontational proposition that “society is concerned to tame the Photograph”; and “the cinema participates in this domestication of Photography—at least the *fictional cinema*, precisely the one said to be the seventh art.”<sup>96</sup> This oppositional framing of the relation between still and moving images offers us an incisive portrait of the celluloid *dispositif*—that is, of the epistemological consequences of a configuration of technical media in which the experience of film and photography were held distinctly apart. Writing in 1984, four years after the first publication of *Camera Lucida*, Bellour grasped the historicity of this subtle fact: that the aesthetics of the Barthesian *punctum* depends critically on the *stillness* of the celluloid-based photograph in a manner that Barthes himself took to be transparent and self-evident. Yet it is in light of the potential adjustability of this tacit fact that Bellour’s essay turns to a small quota of narrative films distinguished by the presence of a undomesticated, *punctum*-filled photograph to make the point that the aesthetic interventions necessary for the flowering of pensive spectatorship within the celluloid *dispositif* was difficult to achieve—and consequently rare—in the cinema of 24fps.

I want to suggest that the argument of Bellour’s “The Pensive Spectator” is structurally correlative to Frampton’s Metahistory essay in its effort to identify the aesthetic singularity of its chosen works of art. Bellour, like Frampton, strives to articulate the limits of what is thinkable

---

<sup>96</sup> Barthes, *Camera Lucida*, 117. My emphasis.

within a particular historical configuration of spectatorship.<sup>97</sup> Bellour at the cusp of the long analog/digital transition recognized *Camera Lucida* as an incisive diagnosis of the enunciative logic of celluloid at the precise moment at which its discursive transparency as the dominant media *dispositif* had been definitively ruptured by the material aesthetics of video. “It is no accident,” he writes elsewhere, “that that the development of the freeze-frame, and of all the forms of ‘the photographic’ that invaded cinema at the beginning of the 1960s *coincided with the transformations that have intensified since then as a result of developments in electronic image processing*.”<sup>98</sup> It is consequently no accident that the analysis of “The Pensive Spectator” seems to anticipate the logic of digital spectatorship quite so fully. Bellour’s description of pensive spectatorship should be understood as an attempt to rethink the relations of film and photography in view of a profound, oncoming regime change. It is a pre-emptive search for an *intermedial* syntax for media aesthetics before the instantiation of an analog/digital transition.

In the aftermath of this media transition, and following the full installment of a digital *dispositif*, we indeed occupy a discursive terrain in which the relations between the photographic and the cinematic image have been remediated by an intimate cross-referencing. Mulvey offers an eloquent summary of the many ramifications of this comprehensive re-set for the contemporary discourse of media aesthetics:

Cinema’s aesthetic polarities, debated throughout its critical history, seem to become less important in their differences and more important in their dialectical relations with each other. Rather than diverging into an either/or, for instance, specificity of the filmstrip

---

<sup>97</sup> Bellour describes his work as an attempt to “rediscover[r] modestly, on the level of the aesthetics of creation, and a taste for viewing artworks and reading, something of the rigor that Michel Foucault assigned to archeology when, in *The Archeology of Knowledge*, he gave it the imperative of the basic tasks of description.” Foreword to the English edition (2011) of Raymond Bellour, *Between-the-Images* (Entre-Images – Photo, Cinéma, Vidéo), ed. Lionel Bovier, trans. Allyn Hardyck (Zurich & Dijon: JRP|Ringier & Les presses du réel, 1990/2013), 11.

<sup>98</sup> “Between-the-Images (1990),” 16. My emphasis.

versus illusion of movement, fiction versus document, grounding in reality versus potential for fantasy, these aspects of the celluloid-based medium move closer together. Passing time, in and of itself, shifts perception of relations and aesthetic patterns and these shifts are, in turn, accentuated by the new horizons formed by new technologies. As a result, a new kind of ontology may emerge, in which ambivalence, impurity and uncertainty may replace the traditional oppositions.<sup>99</sup>

*Death 24x a Second* observes that the digitally triggered loosening of constraints separating “cinema’s aesthetic polarities”—“specificity of the filmstrip versus illusion of movement,” fiction and document—means that “these aspects of the celluloid-based medium move closer together.” In consequence, Mulvey admits, “a new kind of ontology may emerge, in which ambivalence, impurity and uncertainty may replace the traditional oppositions.” But if this commentary is accurate in identifying the convergent implications of digital inscription, its description of the future carries an entirely negative inference. At the moment of confrontation with the materiality of the digital image, Mulvey’s description torques toward a language of refusal, regret, and distaste. “However significant the development of video had been for film,” *Death 24x a Second* argues elsewhere, “the fact that all forms of information and communication can now be translated into binary coding signals more precisely *the end of an era*”; because “the digital, as abstract information system, made a break with analogue imagery, *finally sweeping away the relation with reality*, which had, by and large, dominated the photographic tradition.”<sup>100</sup> This claim associates video’s emergence with the death of celluloid cinema by affirming a Peircean concept of the photographic index—that is, a reading of the semiotic theories of C. S.

---

<sup>99</sup> Mulvey, *Death 24x a Second*, 12.

<sup>100</sup> *Death 24x a Second*, 18. My emphases.

Peirce that has been subjected to substantial, even definitive critique.<sup>101</sup> Yet this recourse to the Peircean tradition in *Death 24x a Second* is a rhetorical rather than an argumentative device, for an avowal of the phenomenological priority of celluloid media is symptomatic of this critic's effort to legitimize a pre-existing disavowal of the materiality and newness of digital images.<sup>102</sup>

Mulvey's claim in *Death 24x a Second* is to provide a description of the enunciative logic of the digital regime in light of "an obvious, everyday reality: that video and digital media have opened up new ways of seeing old movies."<sup>103</sup> "Thinking about film within the framework of the digital is like watching a kaleidoscope pattern reconfigure very slowly" she writes, because "the same aesthetic attributes are there but the relations between them have shifted."<sup>104</sup> And it is in light of this judgement that she arrives at the conclusion that "at the end of the twentieth century new technologies opened up new perceptual possibilities, new ways of looking, *not at the world, but at the internal world of cinema.*"<sup>105</sup> Yet a refusal to acknowledge that a digitally-subtended capacity to access to the *content* of the media archive constitutes a new way of looking at *the*

---

<sup>101</sup> I refer here to a body of criticism that has demonstrated the problematic character of readings of Peirce that posit, in Mulvey's words, "the physical link between an object caught by a lens and the image left by rays of light on [celluloid] film [as] *the material basis for [the photograph's] privileged reality to reality*"; and as such, have understood the digital destabilization of a conceivable—in the sense of a manual—connection to a material referent to have triggered a "*crisis of the photographic sign as index.*" Ibid. My emphasis. See in particular: W. J. T. Mitchell, *The Reconfigured Eye: Visual Truth in the Post-Photographic Era* (Cambridge, Mass.: MIT Press, 1992); Tom Gunning, "Moving Away from the Index: Cinema and the Impression of Reality," *differences* 18, no. 1 (2007); "What's the Point of an Index? Or, Faking Photographs," in *Still Moving: Between Cinema and Photography*, ed. Karen Redrobe Beckman and Jean Ma (Durham: Duke University Press, 2008); Joel Snyder and Neil Walsh Allen, "Photography, Vision, and Representation," *Critical Inquiry* 2, no. 1 (Autumn 1975).

<sup>102</sup> Mulvey notes, almost defensively, that "in common with other film theory today, this book is heavily marked by the image of, and the questions raised by, the photographic index"; which she defines through a reference to "the semiotic system elaborated by C. S. Peirce." It is this reference that legitimizes the claim for analog media's phenomenological priority—Mulvey claims celluloid "has a privileged relation to time, to the moment and duration of its inscription; it also has a physical relation to the original of which it is the sign." Mulvey, *Death 24x a Second*, 18, 9. My emphases.

<sup>103</sup> *Death 24x a Second*, 12.

<sup>104</sup> *Death 24x a Second*, 30.

<sup>105</sup> *Death 24x a Second*, 181.

*world* means that Mulvey's argument turns away from the logical realization of its analysis in a positive description of the aesthetics of digital inscription.

*Death 24x a Second* everywhere minimizes, and even outright denies, the radical implications of its own interrogation of the new availability of the media archive: a cumulative corpus that includes not only narrative and avant-garde cinema, but “every film that has ever been made, for any purpose whatever.”<sup>106</sup> One might note, for example, that Mulvey’s contextual attention to the absorptive image cultures that have risen alongside digital spectatorship finds plentiful evidence of an end, but little to indicate vitality or ongoingness.<sup>107</sup> By comparison, for Bellour “one word encompasses this transformation” of the image—“*video*, a word open on its two sides: television and video art.”<sup>108</sup> There is a world of difference, as Bergson is at pains to remind us, “between an evolution and an unfurling, between the radically new and a rearrangement of the pre-existing.”<sup>109</sup> The very opportunity for the kind of retrospection crystallized in the image of “the possibility of returning to and repeating a specific film fragment” is both indication and confirmation that the observer occupies a new enunciative paradigm.<sup>110</sup> Where Bellour at the cusp of the long analog/digital transition looked to celluloid to think through the aesthetic consequences of the incipience of video, Mulvey at the cusp of the full instantiation of a digital regime turns to video to describe the aesthetic consequences of the passing away of celluloid. The ongoing value of her book will lie partly in its acute description of the spectatorial

---

<sup>106</sup> Frampton, “For a Metahistory of Film,” 135.

<sup>107</sup> Mulvey pays attention to, for example, the films of Victor Burgin and Jeff Wall’s photographs. Vernacular versions of these absorptive forms might include video games and the serialized narrativity of box-set DVDs.

<sup>108</sup> Bellour, “Between-the-Images (1990),” 16.

<sup>109</sup> Bergson, “Introduction I: Growth of Truth, Retrograde Movement of the True (1922),” 10.

<sup>110</sup> Mulvey, *Death 24x a Second*, 8.

outcome of the analog/digital regime change, but by locating the aesthetics of cinema in the light-sensitive materiality of celluloid, Mulvey artificially circumscribes the scope of its own argument. *Death 24x a Second* effectively circles an aesthetic field it cannot enter, for to do so would mean the relinquishment of a stated aesthetic commitment that can only guide the trajectory of its argument in the direction of eloquent, elegant elegy.

Yet this refusal of video is at base a judgement of taste; for even when posited in argumentative terms, a disinclination (or distaste) for digital materiality is not really a “cognitive judgement, therefore not a logical one, but is rather aesthetic.”<sup>111</sup> Understood as an aesthetic judgement, “whose determining ground cannot be other than subjective,” Mulvey’s argument for the phenomenal priority of analog media is the discursive mirror-image of a position upheld in the field of contemporary practice by the visual artist Tacita Dean.<sup>112</sup>

The recipient of the high-profile Turbine Hall commission by the Tate Modern, London, Dean produced the spatially magisterial moving image work *FILM* (2011): a silent, vertical-format projection installation made entirely in 35mm film, and scaled to the towering proportions of the “notional cinematic space of the Turbine Hall.”<sup>113</sup> Dean’s intention was for *FILM* to offer a poetic “portrait of film itself,” and by this means to act as an argument for the cultural significance of photochemical film.<sup>114</sup> To this end her creative process rigorously eschewed a reliance on digital production, post-production, or projection techniques by reviving a complex range of manual, celluloid-specific collage techniques: glass matte painting, in-camera masking,

---

<sup>111</sup> Kant, *The Critique of the Power of Judgment*, 89.

<sup>112</sup> *Ibid.*

<sup>113</sup> Tacita Dean, “Film,” *Journal of Film Preservation* 86, no. 4 (2012): 20.

<sup>114</sup> “Film,” *Journal of Film Preservation* 86, no. 4 (2012): 20-21.

hand tinting. Dean has consistently defended her univocal advocacy of celluloid through an emphasis on its material specificity as an aesthetic medium, and it is in this context that she describes her creative process in a kind of manifesto written to accompany *FILM*'s highly public debut:

I cut my films on a Steenbeck cutting table. I always work alone. I physically splice the print together with tape. My process has no system and changes with each film, but it is these days and weeks of solitary and concentrated labour which are at the heart of my creative process and how I mould and make the films. One attribute of film that most are happy to lose is its burdensome physicality, but for me that is precisely what is important. I am wedded to the metronome beat of the spool as it turns. I count time in my films from the clicking as the core collects the film. The time it takes to implement an idea: to cut something in or take something out and then spool backwards to the beginning to watch how it has worked, is the time of film and the time of film edited, as well as the time of deep thought, concentration, and consideration. I need that material resistance to my ideas, and this is what I am most afraid of losing. My process is one of incomprehensible and anachronistic labour, as is all artistic process. Film is my working material, and I need the stuff of film like a painter needs the stuff of paint.<sup>115</sup>

For Dean, as for Mulvey, it is celluloid's "*burdensome physicality*"—the "attribute of film that most are happy to lose"—that grounds the authenticity of its materialist ontology: "the metronome beat of the spool as it turns" seems to the artist to imply "the time it takes to implement an idea," in precisely the same way that the "'natural magic'" of the "chemical reaction between light and photo-sensitive material" seems to the critic to offer a phenomenal guarantee of "the material connection between object and image."<sup>116</sup> Both artist and critic take care to acknowledge that celluloid and digital images, per se, retain the potential for dialectical interaction. But since each understands the transition to a digital *dispositif* to have secured the triumph of the less physically dense, less phenomenally secure medium, her assessment of the

---

<sup>115</sup> "Film," 16.

<sup>116</sup> Mulvey, *Death 24x a Second*, 19.

outcome of regime change can only be convulsed by bitter regret. Consequently, and in different ways, both the artist and the critic deploy a position on the cusp—that long transitional period between then and now shared by anyone who can claim experiential knowledge of both media *dispositifs*—toward the time-sensitive task of memorialization.<sup>117</sup> At base, both strive to underscore that “analogue, the word, means equivalent” while “digital is not the analogue of analogue”; and “we presently have both so why deplete our world of this choice?”<sup>118</sup>

I want to move away from the accusation that an absolutist defense of the analog *dispositif* implies only sentimentality or a reliance on a discredited concept of the index by recognizing that both this artist and critic perform the work of cultural memory in striving to secure the ongoing viability of a particular aesthetic way of being in the world.<sup>119</sup> Grasped as a rhetorical synecdoche for the expressive subject’s cathexis with the non-isomorphic materiality of her medium of expression, for example, Dean’s emphasis on the unique materiality of photochemical film comes into focus as an attempt to deflect the annihilation of the *future* of an aesthetic form: “film is my working material, and I need the stuff of film like a painter needs the

---

<sup>117</sup> See Tate Channel, “Tacita Dean: Film (Video Interview),” (London: Tate Modern, <http://www.tate.org.uk/context-comment/video/tacita-dean-film>, accessed May 20, 2015, 11 October 2011).

<sup>118</sup> Dean, “Film,” 21.

<sup>119</sup> It is worth noting that Dean’s problem is more pragmatic than Mulvey’s since it is as a practicing artist working with celluloid that she hopes to prevent photochemical film from passing out of active use and becoming an entirely archival medium. Dean has consequently taken on the mantle of an activist, and this practical advocacy has tended to clarify her target as *industry*, rather than culture. See: Kate Bland and Tacita Dean, “Tacita Dean: Save This Language,” (London: BBC RADIO 4, <http://www.bbc.co.uk/programmes/b040llzm>, accessed May 20, 2015, 2014); Tacita Dean, “Save Celluloid, for Art’s Sake,” The Guardian <http://www.theguardian.com/artanddesign/2011/feb/22/tacita-dean-16mm-film>(22 February 2011).



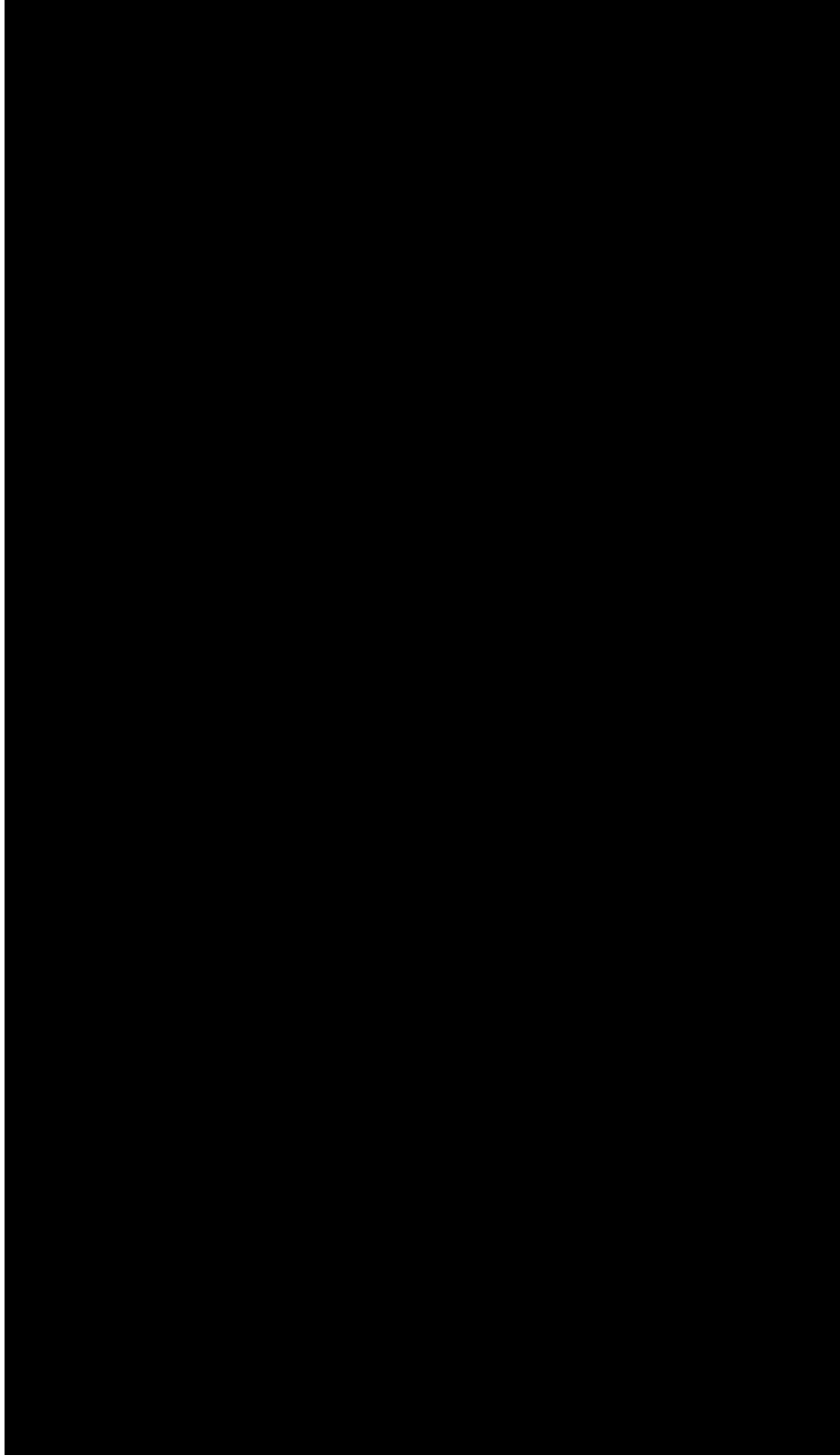


Figure 3.8: Tacita Dean, frame from *FILM*. 2011. 35mm, color & b&w portrait format anamorphic film with hand tinted sections, silent. 13 min, continuous loop installation. Commissioned by Tate Modern, London, for the Turbine Hall as the inaugural work in The Unilever Series devoted to the moving image. Published in *Tacita Dean: FILM*, ed. Nicolas Cullinan. London, Tate Publishing, 2012. *Image not reproduced due to copyright restrictions.*



Figure 3.9: Tacita Dean, notebook showing preparatory drawings and sketches for *FILM*. Published in *Tacita Dean: FILM*, ed. Nicolas Cullinan. London, Tate Publishing, 2012. *Image not reproduced due to copyright restrictions.*

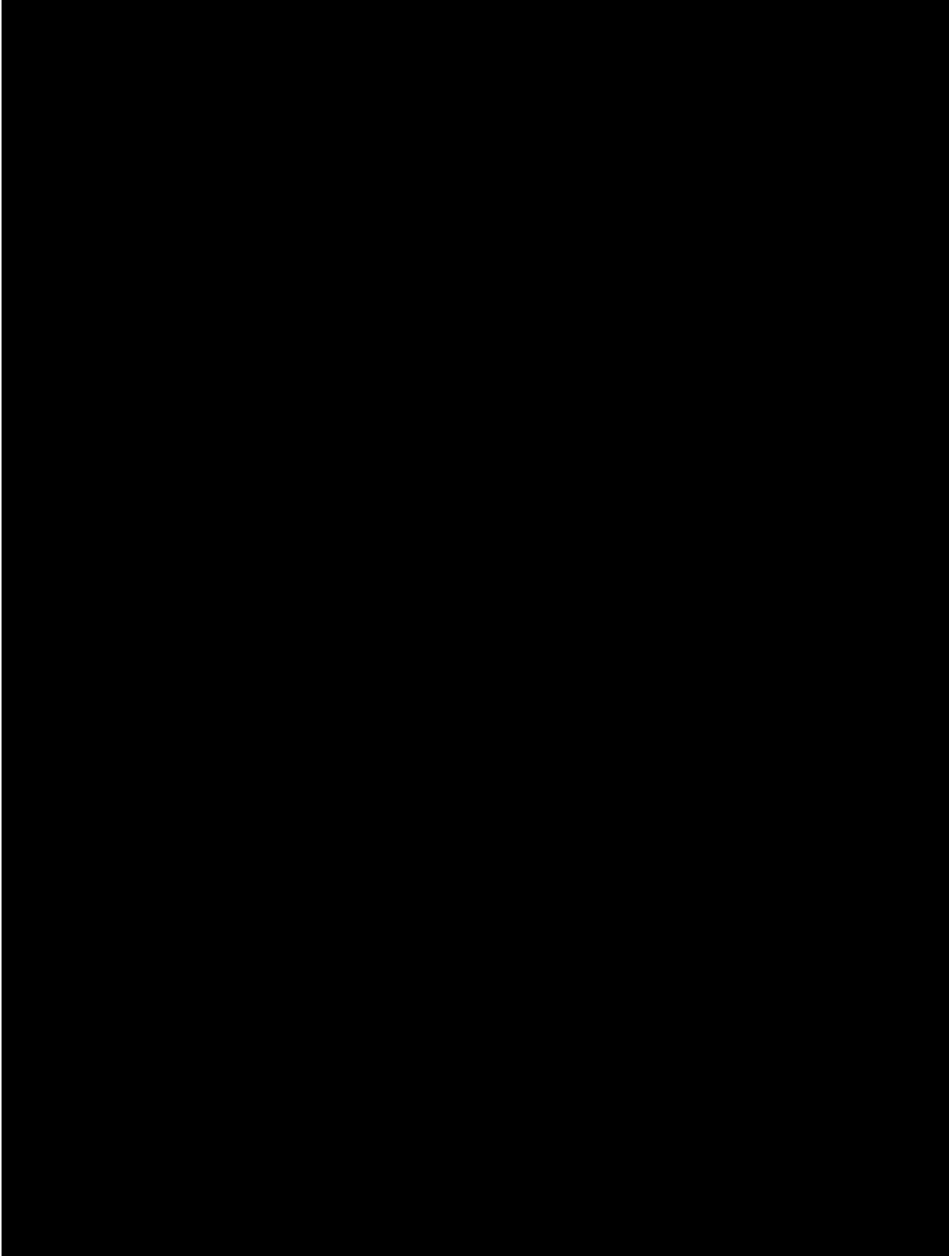


Figure 3.10: Tacita Dean, frames from *FILM*. 2011. 35mm, color & b&w portrait format anamorphic film with hand tinted sections, silent. 13 min, continuous loop installation. Commissioned by Tate Modern, London. Published in *Tacita Dean: FILM*, ed. Nicolas Cullinan. London, Tate Publishing, 2012. *Image not reproduced due to copyright restrictions.*

stuff of paint.”<sup>120</sup> The same affectively-charged defense of a technical *dispositif* that has subtended an art-form is everywhere evident—if left deliberately latent—in the tone of Mulvey’s argument for the priority of analog media.<sup>121</sup> As such, I will accept this particular claim for the phenomenological priority of celluloid as an aesthetic judgement. Instead of rejecting its legitimacy, I will attempt to counterpose this judgement of taste with an alternative judgement of taste.

The claim for the unique materiality of celluloid images has no inherent priority over the unique materiality of digital images, because celluloid and digital media are neither better or worse, or more or less phenomenologically authentic mediums of expression. Mulvey’s own diagnostic in *Death 24x a Second* points to the reality of the digital image as only an alternative configuration of technical media: one that, far from functioning as a binary opposite to celluloid, is capable of absorbing the inscriptions of celluloid into its own inscriptive logic. This incorporative capacity of the digital is more usefully conceptualized as ‘plasticity’ than as a

---

<sup>120</sup> Dean writes, for example, that “I have heard in these last few months more versions of the “Get real, darling!” mantra than I care to recount. I know it is inevitable progress, and I’m as invested in the digital world as much as the next person. This is not my point: cinema made with film and shown as film is very different from cinema made and shown digitally. Within art this is mostly understood, because the world of art has appreciated medium specificity since before the Renaissance: Giotto’s mural is a fresco, conceived, made, and seen differently from an oil painting by Leonardo da Vinci; we understand that an etching is not a watercolour, and a drawing not a relief; they are made differently and the experience of seeing them and handling them is different. They might share the same content, the same images, and even be copies of one another, but they are not the same. However, they are all still *pictures*. But for some reason there is a cultural blindness towards the difference between film and digital: a blindness with an underbelly of commercial intent that is invested in seeing one replaced by the other, so the difference can be quickly forgotten. Both film and digital are *pictures*, perhaps copies of one another, but they are not the same thing—one is light on emulsion and one is light made by pixel, and they are also conceived, made, and seen differently.” “Film,” 13.

<sup>121</sup> While I mean to acknowledge that Mulvey’s book is an often moving effort to come to terms with the digital present from *within* the framework of film studies, I do not mean to understate the negative import of her minimization of the potentially animating scope of the digital’s implications for the study of twentieth- and twenty-first-century cinema. An ambitious theoretical analysis of the analog/digital transition from the point of view of film studies should involve a *less elegiac* recognition of the need for a comprehensive re-conjugation of the discipline. Put differently, film studies should preserve the tools of its hard-won disciplinarity by taking on the unavoidable task of adaptation as an internal battle.

threatening or annihilating engulfment, because the meta-question at stake in the critical assessment of digital aesthetics is bound up with the issue of collective lived experience.

In a world in which all experience is digital experience, digital aesthetics are a fact of our time and the tenor of the future. Within this situation a self-conscious emphasis on the differences that distinguish analog and digital inscription can clarify the *aesthetic* stakes of transition. To paint the digital *dispositif* as univocally carnivorous is to simplistically transpose a feature of the market into a discursive realm in which contradiction, obsolescence, and convergence must be allowed to retain the potential to signify as complex cultural values. In response to the claim for the phenomenological uniqueness of celluloid, then, I want counterpose a refusal of the *priority* of celluloid. There can be no inherent hierarchy between alternative configurations of technical media if we understand media *dispositifs* historically, as alternative “distributions of the sensible.”<sup>122</sup> Analog and digital photographic and cinematic images each proffer a unique weave of stillness and movement: an imbrication of the seeable, the sayable, the tactile, and the inscriptive whose non-isomorphic materiality implies an inherent latitude to act as the medium for aesthetic expression. If the discursive terrain of media aesthetics is presently the scene of a painful, industrially-imposed extinction, there is plentiful evidence to suggest that the death of celluloid is accompanied by the vital life of the celluloid cinema’s original genus—the moving image. A more constructive response to the destabilizations of the analog/digital transition, then,

---

<sup>122</sup> I borrow here from Jacques Rancière’s Foucauldian updating of the language of Kantian aesthetics: “I call the distribution of the sensible the system of self-evident facts of sense perception that simultaneously discloses the existence of something in common and the delimitations that define the respective parts and positions within it.” I read this as a Marxist conjoining of the Foucauldian notion of the *dispositif* and the Kantian language of sensible experience. Jacques Rancière, *The Politics of Aesthetics: The Distribution of the Sensible*, trans. Gabriel Rockhill (London; New York: Continuum, 2004), 12.

would be to pose an inductive question about the *representational* outcomes of regime change.

As Bellour observes:

It is still not fully understood to what extent [video] leads the arts of mechanical reproduction that preceded it—photography and the cinema—into an unprecedented situation, via the opening of a realm where the question of reproduction is overwhelmed by the as yet barely glimpsed possibilities of the computed image. That is to say a potentiality that is itself unaware of the mutation that the timeless human capacity to create images—and more specifically to define them as art—will discover deep within itself.<sup>123</sup>

In Bellour's assessment, is it the Benjaminian question of technological reproducibility that seems likely to be "overwhelmed by the as yet barely glimpsed possibilities of the computed image"; because the "potentiality" he spies in the inscriptive capacities of early electronic video is unambiguously convergent and intermedial. And indeed the digital spectator who uses a keyboard, touchscreen device, or video remote to re-temporalize the flow of what Barthes called "the fictional cinema" flips between temporalities of looking with a fluidity that Benjamin and Kracauer—and even Barthes—could only conceive of as an 'impossible' horizon.<sup>124</sup> What emerges from the aesthetic horizon of this vernacular digital image is a spectatorial agency intimately tied to the erasure of a once-hard distinction between still and moving images. And the resulting re-imbrication of the categories of aesthetic signification does indeed lead the "arts of mechanical reproduction that preceded [video]—photography and the cinema—into an unprecedented situation." The digital reorganization of the media *dispositif* has generated in intermedial aesthetic situation in which the dialectical interaction between types of images and interpretive categories allows former polarities to become redefined by their proximity to the

---

<sup>123</sup> Bellour, "Between-the-Images (1990)," 16.

<sup>124</sup> Barthes, *Camera Lucida*, 117.

other. It is this interaction of fact and fiction, story and document, pictorial plasticity and technical indexicality that is anticipated in the logic of Jacobs' film form, both on the level of its refusal to acknowledge hierarchical distinctions between the contents of the media archive, and its capacity to wrest photographic time from the directional temporality of narrative cinema.

A skeptic might observe that to enlarge detail from found and pre-recorded footage is only to recover what was already buried within the document; so that in a certain sense, "there is nothing fundamentally new here."<sup>125</sup> But the line of argument that extends from Benjamin and Kracauer and Bellour affirms a Foucauldian point: that a genuinely new epistemological consciousness can be sparked by the making-visible of something previously unseeable. It is on this level of epistemological re-seeing that the film form inaugurated by Jacobs' *Tom, Tom* prefigures the elective relation to cinematic time Mulvey characterizes as a post-celluloid reality. Jacobs is entirely cognizant of this dimension of formal anticipation, in part because "it was an enormous move then, before remotes," in the cinema of 24fps, to go from "moviegoer to where on the inside it was possible to stop and look around between frames."<sup>126</sup>

In fact, Jacobs has worked exclusively in digital video since the format's advent in the early 2000s, and has facilitated the conversation of many pre-digital films and performances,

---

<sup>125</sup> Mulvey, *Death 24x a Second*, 8.

<sup>126</sup> Ken Jacobs, "Painted Air: The Joys and Sorrows of Evanescent Cinema," *Millennium Film Journal* 43/44(Summer/Fall 2005).

sometimes even re-editing old works for the new format.<sup>127</sup> This wholly unsentimental embrace of alternate configurations of the technical image—an adaptive capacity that has enabled him to negotiate the gap not only between analog and digital media, but between photography, stereoscopy, early cinema, types of animation, and 3D cinema—is an indication of the degree to which Jacobs’ oeuvre is predicated on an interrogation of the celluloid cinema’s ontological status as a form of *media*. The ethics of his practice harmonizes intuitively with the Framptonian insistence that the media archive encompasses every scrap of existent footage—“the world of film, the world on film”—because Jacobs, like Frampton, operates within the logic of a concept of “paleocinema” that apprehends the configuration of movement in devices as only a local and bounded expression of movement’s a priori position as the fundamental reality.<sup>128</sup>

Jacobs is that radical filmmaker for whom cinematic movement is *not enough*: insufficiently vital as a re-presentation of the sheer energy of “the actual present of film,” whose technical mechanics have fossilized a ghostly shadow of the “vivacious doings of persons long dead.”<sup>129</sup> When the camera in *Tom, Tom* “closes in” on the projected image “to better ascertain [its] infinite richness,” for example, the real at stake in the act of enlargement is not the realism of a

---

<sup>127</sup> In the essay accompanying the digital release of this now-canonical film Jacobs invites the spectator to “make liberal use of your remote watching this tape, continuing my prying-eyes ravishing ... of this wonderful ‘primitive’ film which unfolds like a picture history of art. ... You will see (via the magnificent analytical tool that is the common VCR or DVD player) each film-frame appear twice running.” “‘Tom, Tom’ and the Physicality of Film.” Phil Solomon reflects that in their conversion to digital formats, Jacobs’ films are remade: “[*Star Spangled To Death*] is now a work created specifically for the interactive possibilities of the DVD format by using the remote control to retrieve information that flashes, like a mind bulletin or a sudden thought, in the wink of a single frame.” Phil Solomon, “Nervous Ken: ‘Xcxhxexrxixexsx’ and After,” in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 194.

<sup>128</sup> “A few feet or reels of 16 or 35mm film, silent or sound, home movies, scientific studies of every sort, x-ray or computer-derived images. Atmospheric studies... The world of film, the world on film.” “Press Accompanying ‘Live Film Concert,’ at the Whitney Museum Biennial,” in Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York (New York: Whitney Museum of American Art, 1995). Frampton, “For a Metahistory of Film,” 137.

<sup>129</sup> Jacobs, “‘Tom, Tom’ and the Physicality of Film.”



naturalistic representation.<sup>130</sup> Rather, Jacobs apprehends the cinematic document as a profoundly fragmentary experiential record—no more than a hint, a visceral residue, of the lived presence of that pro-filmic real whose density is indicated by the fact that “a 1905 hand happened to sink into the frame” and left a mark “preserved, recorded in a spray of emulsion grains.”<sup>131</sup> By boring into the pictorial surface of what happened to be filmed or photographed, he performs an act of excavation intended only to amplify this aspect of historical dimensionality. The fundamental aesthetic question of this oeuvre centers on the formal and conceptual significance that can be ascribed to a rigorous investigation of surface, because Jacobs does not perceive the technical image to hold out the possibility of a referential memorialization of “those persons long dead,” evidence of whom “ceases at the edges of the frame.”<sup>132</sup> Rather, the wholly romantic ambition “to show the actual present of film” is backlit by an acute consciousness that “*life took place in front of a camera.*”<sup>133</sup> In remediating shards of post-indexical celluloid, Jacobs strives for nothing less than to restore something of the scene’s lost experiential volumetricity, through the affordances of an *affective* realism. In his own words:

You know, there was always movement. If you have a still photograph, you have the movement of the eyes, and a still photograph can be exhibited in all kinds of ways. ... But the old stereographs, you just sat there—you could sit there for easily an hour and watch a movie with your eyes moving around within the space. Do you ever look at those pictures? One can roam within them for a long time, and move within them.<sup>134</sup>

---

<sup>130</sup> Ibid.

<sup>131</sup> Ibid.

<sup>132</sup> Ibid.

<sup>133</sup> “These aren’t mere images on a screen. Life took place in front of a camera.” Jacobs in Schwartz et al., “Interview with Ken Jacobs (Aug 10, 11, 1989),” 41. My emphasis.

<sup>134</sup> Jacobs, in Menzies, “Interview with Ken Jacobs (2 August 2011).”

To claim that “if you have a still photograph, you have the movement of the eyes” is at once to locate movement in a perceptual space anterior to the operations of an apparatus and to acknowledge its efficacy *between* and *within* the frames of what was filmed and photographed. Thus in recent video works such as *Capitalism: Child Labor* (2006) and *Capitalism: Slavery* (2006) Jacobs animates the dual frames of a nineteenth-century stereoscopic photograph to generate a digital film form literally modeled on the perceptual act of roaming within pictorial space via “the movement of the eyes.”<sup>135</sup> Far from an expression of nostalgia, this turn to the re-animation of pre-cinematic media is the expression of a metahistorical effort to carve a backward path into the *un*-filmed recesses of the historical experiential archive. “In my teens I saw a short on television that had used an earlier recording” he recalls in an interview, and “the phenomena of this early recording was very, very striking. I think it alerted me to [the fact] that there was a transition from a world without movies, without moving images, to this thing today that we take for granted.”<sup>136</sup> For Jacobs, the surviving documents of early and pre-cinematic vernacular media are only seashells on the shore of an ocean of experiential time before technical media.<sup>137</sup> In attempting to give barely-represented subjects “something of the third dimensional,” he seeks to endow forms of experience that were not filmed and barely photographed with the minimal reality effect of a technical duration.

---

<sup>135</sup> Ken Jacobs, *Capitalism: Child Labor* (2006), digital video, color, sound by Rick Reed, 14 min.; and *Capitalism: Slavery* (2006), digital video, color, silent, 3 min.

<sup>136</sup> Menzies and Jacobs, in *Ibid*.

<sup>137</sup> Gunning writes: “History is what divides the approaches of early film from those of the avant-garde. If one of the projects of the avant-garde is to return to the origins of cinema, that return can only be historically aware. Early cinema offers a number of roads not taken, ambiguities not absorbed into commercial narrative cinema. But for the avant-garde these need not be seen as history’s dead-end streets. They can be inspirations for new understands of tradition and for new films.” Tom Gunning, “An Unseen Energy Swallows Space: The Space in Early Film and Its Relation to American Avant-Garde Film,” in *Film before Griffith*, ed. John L. Fell (Berkeley & L.A.: University of California Press, 1983), 366.



Figure 3.11: Ken Jacobs, frames from *Capitalism: Child Labor*, showing (top) the original stereoscopic card. 2006. Digital video, color, sound by Rick Reed. 14 min. Courtesy the artist.



Figure 3.12: Ken Jacobs, frames from *Capitalism: Slavery*, showing (above) the original stereoscopic card. 2006. Digital video, color, silent. 3 min. Courtesy the artist.



In the Metahistory essay Frampton postulates that “there is nothing in the structural logic of the film-strip” that can justify restricting cinematic movement to a particular frame-rate.<sup>138</sup> Jacobs articulates this claim aesthetically, by demonstrating that the cinematic experience cannot be restricted to the celluloid support. The claim that “*there was always movement*” speaks to a sense of cinematic movement wholly detached from the representational naturalism of the cinema of 24fps; and it is for this reason that its aesthetic enactment in Jacobs’ oeuvre clarifies the cinema’s historical identity as *media*. In wresting in the extra time of pensive spectatorship from within the celluloid *dispositif* for a viewer otherwise constrained to the voracious directionality of “the fictional cinema,” Jacobs uncovers an idea of cinematic movement so independent of 24fps that it demands to be made thinkable *before* and *after* celluloid.<sup>139</sup> It is as a media continuous “with those that preceded it—photography and the cinema—” that the technical image persists after the analog/digital transition.<sup>140</sup> Considered from the other side of the long analog/digital transition, then, Jacobs’ celluloid-based oeuvre can be said to have put the material structure of the digital image to work aesthetically, *avant la lettre*. The film form inaugurated with *Tom, Tom* demonstrates that there is nothing in the aesthetic logic of the moving image that can justify restricting the term ‘cinema’ to the determinations of celluloid; because we can say, speaking with both Jacobs and Frampton, that:

There is nothing in the structural logic of the film-strip that can justify such an assumption. Therefore we reject it. From now on we will call our art simply: film.<sup>141</sup>

---

<sup>138</sup> Frampton, "For a Metahistory of Film."

<sup>139</sup> Barthes, *Camera Lucida*, 117.

<sup>140</sup> Bellour, "Between-the-Images (1990)," 16.

<sup>141</sup> Frampton, "For a Metahistory of Film," 137.

Kracauer and Benjamin did not have access to the digital image, while Frampton only lived on its cusp. But Jacobs is an artist who has negotiated the actuality of the digital present, and on the level of aesthetic form. If the celluloid image in Jacobs' hands established aesthetic conditions of possibility for thinking the spectatorial consequences of the *digital* image, then the digital image in this artist's hands provides a framework for thinking the aesthetic re-set of the digital *dispositif* more widely. Specifically, the digital image in Jacobs' hands provides me with a rich representational context through which to describe the Bergsonian "mutation" that has emerged from the reorganization of stillness and movement in a digital *dispositif* in which we continue to "create images—and more specifically to define them as art."<sup>142</sup>

### III. A Bergsonian Artist

An important essay on the cinematic imaginary can provide a framework by which to articulate the Bergsonian tenor of Jacobs' significance to the discursive terrain of a digital media aesthetics. In "The Myth of Total Cinema" (1946) André Bazin proffers the opinion that "*the nostalgia that some still feel for the silent screen does not go back far enough into the childhood of the seventh art.*"<sup>143</sup> Turning a skeptical gaze upon histories of the moving image that trace its genesis through a teleology of technological development, Bazin's argument posits the origins of cinema elsewhere: in an inarticulate, almost wordless longing for a mode of imagistic verisimilitude so full as to offer the beholder "a total and complete representation of reality."<sup>144</sup> Locating the

---

<sup>142</sup> Bellour, "Between-the-Images (1990)," 16.

<sup>143</sup> Bazin, "The Myth of Total Cinema," 21.

<sup>144</sup> "The Myth of Total Cinema," 20. My emphasis. Bazin claims that "nothing had stood in the way, from antiquity, of the manufacture of a phenakistoscope or a zootrope." Compare to Frampton: "Photography was not mapped back upon the sparse terrain of paleocinema until the first photographic phenakistoscope was made." "The Myth of Total Cinema," 18. "For a Metahistory of Film," 133.

origins of cinema in the fevered dreams of its most “disinterested pioneers”—that is, pre-cinematic cinephiles who were “neither industrialists nor savants, just men obsessed by their own imaginations”—Bazin deconstructs the priority of celluloid as an adjunct to a refusal of the privilege usually awarded to the inventors of devices: Edison and Lumière, Marey, Muybridge, Leroy, Joly, Demeny, Nadar. In their stead, he restores first-ness to the collective imaginings of “numberless writings, all of them more or less wildly enthusiastic, in which inventors conjure up nothing less than a total cinema that is to provide that complete illusion of life which is still a long way away.”<sup>145</sup> This re-writing of the cinematic birth narrative around a “reversal of the historical order of causality” generates a concept of ‘total’ cinema as an imaginative paleocinema—that is, as a pre-technological cinema before devices. Within the logic of this counter-teleology, Bazin concludes wryly, “every new development added to the cinema must, paradoxically, take it nearer and nearer to its origins,” because each alternate configuration of visual media can be said to draw the technical image closer to its originary dream in an impossible image of *life*.<sup>146</sup>

Jacobs has repeatedly claimed that “advanced filmmaking leads to Muybridge, to Marey.”<sup>147</sup> Like these pre-cinematic savants, he is fundamentally disinterested in the representational illusion of movement. Rather, his aesthetic preoccupations centre on an exploration of movement as *time*—a fascination routed through an examination of “the very specific possibilities inherent to a particular strand of film”; and expressed in a modernist aspiration to “trigger the

---

<sup>145</sup> Ibid.

<sup>146</sup> “The Myth of Total Cinema,” 22, 17, 21.

<sup>147</sup> This claim, first articulated circa 1965, is oft repeated in Jacobs’ program notes: “Divide (the moment and conquer); advanced filmmaking leads to Muybridge, to Marey.” Ken Jacobs, “On the Nervous System: What, Where, and Wherefore: Program Notes, Ken Jacobs: Illuminations and Improvisations,” (Department of Film and Media, The Museum of Modern Art, March 14-17, 2004).

transcendent (rather than escapist) function of art.”<sup>148</sup> I will argue through this section—and conclusively, for this chapter—that Jacobs, like Bazin and Frampton, understands “cinema [as] an idealistic phenomenon.”<sup>149</sup> As such, his persistent reference to the experiments of Muybridge and Marey does not valorize technological teleologies so much as express a metahistorical concept of “infinite cinema” as “*paelocinema*.”<sup>150</sup> “After a century of cinema industrialized, standardized, economically determined and ‘rationalized’” he declares:

we need a return to the possibilities of a Cubist cinema (Cubism would’ve been unthinkable without the revelations of pioneering cinema).<sup>151</sup>

In fact, Jacobs was a student of the German abstract painter Hans Hofmann in his youth. While his interests were to shift definitively toward the medium of film, he never abandoned a formative allegiance to Hofmann’s central aesthetic principal that the pursuit of “the Real” in the visual arts orients the painter toward plastic values of the pictorial surface, rather than to content.<sup>152</sup> A charismatic émigré whose pedagogy emphasized the notion that “each expression medium has its own laws which are to be exclusively mastered, intuitively out of the development of the creation,” Hofmann was the ideal mentor for a young artist fascinated by both painting and cinema within an intellectual climate increasingly galvanized by the association of aesthetic modernism with the ‘purity’ of the medium.<sup>153</sup> Disciplinary art history

---

<sup>148</sup> Ibid.

<sup>149</sup> Bazin, “The Myth of Total Cinema,” 17.

<sup>150</sup> Frampton, “For a Metahistory of Film,” 133. My emphasis.

<sup>151</sup> Jacobs, “On the Nervous System: What, Where, and Wherefore.”

<sup>152</sup> Statement in Hans Hofmann, exhibition catalog (New York: Kootz Gallery, 1952), republished in Hans Hofmann, “Text and Lectures by Hans Hofmann,” in Hans Hofmann, ed. Cynthia Goodman (New York and Munich: Whitney Museum of American Art, in association with Prestel-Verlag, c1990), 174. Jacobs studied at the Hans Hofmann School of Fine Arts in Manhattan between 1956 and 1957, and again over the summer of 1959 in Provincetown, Massachusetts. Dates provided in Tina Dickey, *Color Creates Light: Studies with Hans Hofmann* (Salt Spring Island, B.C.: Trillistar Books, 2011).

<sup>153</sup> Hans Hofmann, “Plastic Creation (1932),” in Hans Hofmann, ed. James Yohe and Sam Hunter (New York and London: Rizzoli and Troika, 2002), 42.



now understands Hofmann's highly relational approach to the construction of pictorial space —“space is not only a static, inert thing, space is alive; space is dynamic”—to have had a direct influence on the discursive formation of Abstract Expressionism.<sup>154</sup> If Jacobs' mode of abstraction is distinguished from the post-war trajectory of American painting on the level of its commitment to historical representation and to the material specificity of technical media, Hofmann's impact on its development was no less fundamental.

In the context of a quest for a language of cinematic abstraction adequate to the compound temporality of the painting he most admired—that of Paul Cézanne, the Cubists, the early Franz Kline, Jackson Pollock, Willem de Kooning—this mentor's advocacy of a pictorial method grounded in “the inherent laws of the picture surface” visibly inflects Jacobs' approach to the task of media archeology as a matter not of excavating subterranean content, but of an intensification of perception inevitably expressed as a positive act of vision—“I'm up for looking at air, if there's discernible change frame to frame.”<sup>155</sup> In “Search for the Real in the Visual Arts” (1948), for example, Hofmann proposes that “depth, in a pictorial, plastic sense, is not created by the arrangement of objects one after another toward a vanishing point, in the sense of the Renaissance perspective, but on the contrary (and in absolute denial of this doctrine) by the creation of forces in the sense of *push and pull*.”<sup>156</sup> By comparison, Jacobs characterizes the impact of his training in the following way:

I should mention as part-explanation of my willingness to cuddle up to dirt that I “attended,” back in the Fifties, The New York School Of Painting, aka Abstract

---

<sup>154</sup> “Plastic Creation (1932),” in Hans Hofmann, ed. James Yohe and Sam Hunter (New York and London: Rizzoli and Troika, 2002), 43.

<sup>155</sup> “The Resurrection of the Plastic Arts (1954),” 49. Jacobs, “Program Notes, Live Film Concert.”

<sup>156</sup> Hofmann, “The Search for the Real in Visual Arts (1948),” 46.

Expressionism and/as Action Painting. One learned to see the effect of *anything* impinging on the initial perfection of the stretched canvas, to see the object/ground activity that could be stimulated by a shadow falling across it, as well as the flung loop of color. One can, for instance, find cigarette butts or dropped car-keys in a Pollock. (Bad example: he could be a slob.) It goes back to Picasso's embedding of pieces of actuality in his cubist work, painting that spoofed on the fixedness of things in the domain of weighty reality. These objects could be seen for what they were at the same time that they could be seen *as if they were painted...to function...as ambivalent spatial indicators*.<sup>157</sup>

I want to suggest that Hofmann's unambiguously temporal approach to the construction of painterly space offered Jacobs an important framework by which to grasp the screen as a kind of canvas, animated by a movement internal to the dynamics of pictorial surface. An aesthetic pedagogy enacted in the sensitization of the eye to the dimensional effects of "*anything* impinging on the initial perfection of the stretched canvas"—a shadow, a car-key, a "flung loop of color"—allows the screen itself to be reimagined as an active, materialist plane. The sense of movement implicit in this perception of the canvas as "resistive surface" is much less continuous with the representational illusion of movement than with the figural aesthetics of that impossible image Kracauer describes as emerging from the photograph's *break* with the indexical claim. Put differently, as the inheritor of a painterly tradition in which in which "pieces of actuality" embedded within the surface of the picture plane could be posited as material objects and, simultaneously, as "ambivalent spatial indicators" to be read "*as if they were painted*," Jacobs was able to comprehend the spatial concreteness of detail in the technical image as an indexical signifier *and* an abstract carrier for the projective temporality of figure/ground relations. Refracted through the lens of this mentor's influence, the historical zeitgeist of Abstract Expressionism comes into focus as a critical backdrop through which the young Jacobs was able to arrive at a conception of cinematic movement radically independent, in an era of

---

<sup>157</sup> Jacobs, "'Tom, Tom' and the Physicality of Film."

celluloid, from both the truth claims of photographic indexicality and the regulated pace of 24fps.

It is worth contextualizing this claim for the import of Jacobs' involvement with Abstract Expressionism within the frameworks of art history, because American art history lacks a substantiated account of the moving image in the New York avant-garde of the 1950s and 60s—that is, in the period of this artist's formation, prior to the advent of electronic video in the late 1960s. This discursive lacuna has generated a number of ongoing consequences for the critical assessment of Jacobs' five-decade oeuvre, whose implications cut across the still a-symmetric fields of film studies, art criticism, and curatorial practice. The art historian Rosalind Krauss, for example, has described the emergence of “the portapak, and its televisual effect” onto the scene of the 1960s visual arts as a “shatter[ing of] the modernist dream.”<sup>158</sup> This influential characterization of the moving image as *the* definite postmodern medium has effectively annihilated the visibility of its modernist history.<sup>159</sup> Grasped in its equidistance to modernist painting and media aesthetics, however, Jacobs' mature style comes into focus as a missing link in the story of the mid-century American avant-garde. The film form inaugurated by *Tom, Tom* emerges from an inextricably dual commitment, to cinema and to painting. It is as an abstractionist whose formal lineage runs alongside that of his Abstract Expressionist peers that Jacobs' practice has maintained a sustained, media specific interrogation of the spatio-temporal

---

<sup>158</sup> “Television and video seem Hydra-headed, existing in endlessly diverse forms, spaces, and temporalities for which no single instance seems to provide a formal unity for the whole” Krauss writes, and “modernist theory found itself defeated by such heterogeneity—which prevented it from conceptualizing video as a medium. Krauss, *Art in the Age of the Post-Medium Condition*, 30, 31.

<sup>159</sup> Krauss effectively views the moving image as a component of art history only after the entry of electronic video into the field of then-contemporary artistic practice—a phenomena that followed quickly from the commercial release of the first handheld video camera, the Sony DV-2400 Video Rover Portapak, between 1965-6.

pictorial surface to emerge from the cumulative modernist experimentation of Cézanne, the Cubists, and Hofmann himself. An account of his achievement situated within the history of New York School formalism consequently fills in an important gap in the disciplinary story of the moving image as art. The very fact of an intermedial aesthetic modernism that unfolds in an unbroken line from the American '60s to the present provides a backstory that can repudiate Krauss' wholly negative diagnosis of a contemporary 'post-medium' condition; one in which "the intermedia loss of specificity" supposedly triggered by the pervasion of media in art "simultaneously implodes the idea of an aesthetic medium and turns everything equally into a readymade that collapses the difference between the aesthetic and the commodified."<sup>160</sup> Jacobs is the model of a practice of media aesthetics whose contours weave across the parallel lines of American art history and the history of experimental cinema.<sup>161</sup>

It all goes back, as Jacobs himself puts it, to a practice of modernist painting that "spoofed on the fixedness of things in the domain of weighty reality."<sup>162</sup> In the spring of 1912 Pablo Picasso, then engaged in a "friendly rivalry with [Georges] Braque," glued a piece of oilcloth printed with an image of chair-caning onto an oval canvas.<sup>163</sup> He painted elements of a traditional cafe still life over this mediated ground, and framed the whole composition with a loop of coarse rope. The resulting work, *Still Life with Chair-Caning* (1912), enjoys a canonical status in the history of art as Picasso's inaugural collage, an exemplar of Cubist painting, and a synecdoche for

---

<sup>160</sup> Art in the Age of the Post-Medium Condition, 24, 20. My emphasis.

<sup>161</sup> The fact that there are, in Anthony McCall's words, "still two sets of practices"—"an experimental film tradition carrying on outside the art world" and an almost parallel tradition within the art world—is a practical consequence of American art history's trenchant resistance to the modernist history of the moving image. Anthony McCall in Menzies, "Art/Film: A Conversation with Anthony McCall," 98.

<sup>162</sup> Jacobs, "'Tom, Tom' and the Physicality of Film."

<sup>163</sup> Christine Poggi, In Defiance of Painting: Cubism, Futurism, and the Invention of Collage (New Haven: Yale University Press, 1992), 67.

the aspirations of turn-of-the-century modernist painting. “The invention and early practice of collage provide an excellent focal point for an analysis of Cubist realism” writes the art historian Christine Poggi in a summary of the latter position, because “the double status of these elements recapitulates the essential paradox of the Cubist work itself, which appears to exist both as a material object (and to call attention to itself such) and as a mode of representation.”<sup>164</sup>

Rephrased, the significance of *Still Life with Chair-Caning* is understood to stem from Picasso’s incorporation of untransformed vernacular materials into “the traditionally privileged domain of painting” in a manner that awards these bits of reality a dual aesthetic function as concrete material referents *and* pictorial characterizations of the real.<sup>165</sup> The rough edge “where the oilcloth meets canvas ground” in *Still Life with Chair-Caning*, for example, points “to Picasso’s future collage practice, in which it is the distinction between the collage element and the drawing rather than their integration that is most often emphasized”; even as this materialist gesture is immediately counterposed with a rhetorical move in the opposite direction, since the ‘framing’ of the work with rope is intended to secure its legibility within the genre of *trompe l’œil* still life.<sup>166</sup> For Poggi, the innovation of Cubist collage is bound up with Picasso’s multiplication of the epistemological frameworks plausibly available to the beholder now confronted with the layering of two distinct, conflicting modes of representation—the literal and the figural, or the phenomenological and the illusionistic—within a single, complex image.

---

<sup>164</sup> In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage* (New Haven: Yale University Press, 1992), 60.

<sup>165</sup> In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 1.

<sup>166</sup> In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 67.

In the autumn of 1912, following a period of absorption, Picasso embarked on the first of the three distinct series of collages produced between 1912 and 1914. Each of these bodies of work extends the implications of *Still Life with Chair-Caning* by attenuating what Poggi characterizes as “the slippery critical distinction between the real and the represented, or the literal and the figural” established in that inaugural work.<sup>167</sup> In the collage *Musical Score and Guitar* (fall 1912), for example, Picasso builds pictorial depth by overlapping and layering opaque, flat surfaces composed of vernacular materials—colored paper, sheet music, and charcoal shading—to reverse the normative relation of recessed and projecting planes. *Violin and Newspaper* (winter 1912), a still-life composed with oil and sand directly on a sheet of glass, extends the experiment in a different direction. Here the construction of an image on a transparent ground renders the Cubist juxtaposition of representational frameworks literally phenomenological, since the viewer looks through negative pictorial space, or the ‘unfinished’ ground, to see elements of the real world enter into the field of the deliberately composed picture plane. This self-consciously irreverent play with the distinction between real and illusionary depth redefines ‘transparency’ as a material characteristic *and* a painterly device—in Poggi’s words, “an effect created by an absence or break in the continuous surface or skin of a work.”<sup>168</sup> What emerges from these cumulative experiments with the stability of the pictorial ground is an *animated* picture plane wherein “figure and ground seem to merge in the oscillating play of opaque and transparent forms.”<sup>169</sup> For Jacobs, such an approach to the construction of dimensional space in painting appeared to hold out an unambiguously cinematic provocation: a “mixing [of] the

---

<sup>167</sup> In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 61.

<sup>168</sup> In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 52-3.

<sup>169</sup> In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 68.

dimensional range of visual imagery—3½, 3, 2½, 2D,” to borrow a phrase from Len Lye.<sup>170</sup>

“When I was studying painting, I also got a projector... a silent analytic projector,” he recalls, because “I was tremendously interested in cubism. So I’m watching these points of view, these intervals, and how they relate in space and time, and that’s where things are exciting for me.”<sup>171</sup>

Encountered under the aegis of Hofmann’s influence, the implications of Cubist collage seemed to Jacobs literally spatio-temporal:

Cubism itself aims to offer ... a resistant surface. It made you work at the surface before expanding and doing all kinds of impossible spatial tricks, spatial convolutions and changes, which identifiable objects fixed in space cannot. But making a painting which affirms a surface and then breaks into depth, and then contradicts its depth because it isn’t so determined to be loyal to the representation of objects, it can play with the momentary presentation of an object in a certain way, and then annul it, and do something else, and go through all kinds of crazy changes. ... so it wasn’t simply the fake picture window. But you worked and you won this chunk of space, and that chunk of space, you won this event and that event, by your own concentration and determined observation and mental labor. It was really an accomplishment for the viewer.

I think I wanted to offer that kind of thing in film. I wanted to make that kind of event, from flat to depth, from nothing to something. To create that step.<sup>172</sup>

This reading of the import of European modernist painting speaks to the direct influence of a European modernist, because the countervailing influence of Clement Greenberg on the mid-century American avant-garde would have otherwise impeded such a materialist description of Cubist collage. Greenberg’s impactful theory tied aesthetic value in the arts to a notion of ‘medium-specificity’ by defining modernism itself as a teleological drive—localized within each

---

<sup>170</sup> Len Lye, "A Note on Dance and Film (1967)," in *Figures of Motion: Len Lye, Selected Writings*, ed. Wystan Curnow and Roger Horrocks (Auckland, New Zealand: Auckland University Press, 1984), 56; Poggi, *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 52-3. check

<sup>171</sup> Jacobs in Schwartz et al., "Interview with Ken Jacobs (Aug 10, 11, 1989)," 35-6.

<sup>172</sup> Jacobs in "Interview with Ken Jacobs (Aug 10, 11, 1989)," 37.

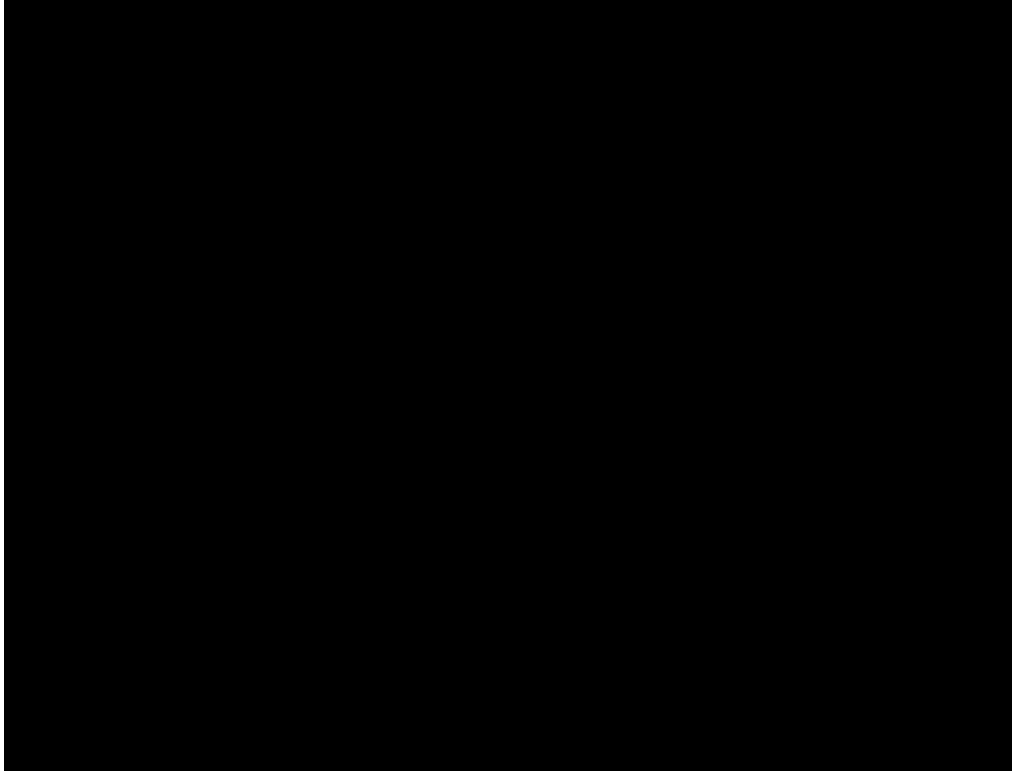


Figure 3.13: Pablo Picasso, *Still Life with Chair Caning*. Paris, spring 1912. Oil on oilcloth stuck on oval canvas, framed with rope. 29 x 35 cm. Collection of Musée Picasso, Paris. *Image not reproduced due to copyright restrictions.*

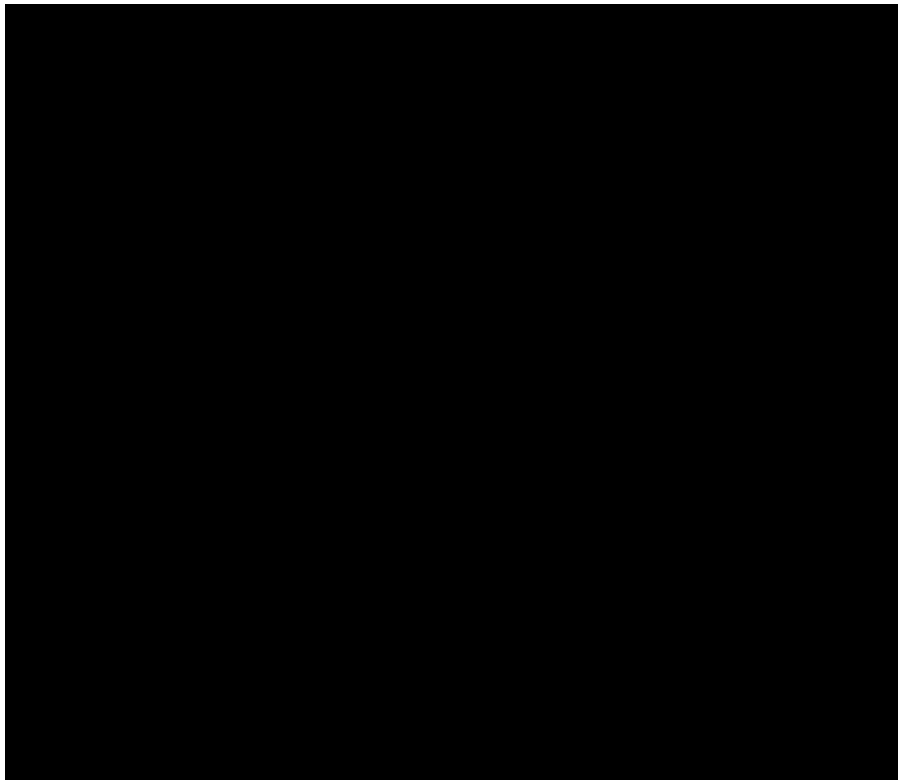


Figure 3.14: Pablo Picasso, *Musical Score and Guitar*. Paris, autumn 1912. Cut, pasted, & pinned colored paper & sheet music, & charcoal on paper. 42.5 x 48 cm. Collection of Centre Pompidou, Musée national d'art moderne, Paris. *Image not reproduced due to copyright restrictions.*



art-form—for the isolation and attenuation of “the effects exclusive to itself.”<sup>173</sup> Within this framework modernist painting is associated with the “ineluctable flatness of the surface,” because Greenberg deemed flatness “the only condition painting shared with no other art.”<sup>174</sup> “When Greenberg identified *modernism* with the pursuit of aesthetic value in art,” summarizes the philosopher Diarmuid Costello, “he was thereby identifying *medium-specificity* with the pursuit of such value, for the simple reason that cleaving to the specificity of their respective media is what made the modernist arts modernist.”<sup>175</sup> A critic operating from within this discursive framework could only remain blind to the image of Cubism that emerges from Poggi’s interpretation, which emphasizes Picasso’s overriding preoccupation with pictorial *depth*.<sup>176</sup> Thus Poggi writes:

It has sometimes been argued by modernist critics such as Clement Greenberg that the Cubists pasted pieces of paper to their canvas grounds in order to affirm the flatness of the picture plane. This emphasis on flatness is taken as a confirmation of the necessary, originary flatness of the medium of painting itself. Yet such works as *Violin and Newspaper* call attention to the ground in order to render it problematic rather than secure. The relief of certain areas and the visibility of objects and cast shadows behind

---

<sup>173</sup> Clement Greenberg, “Modernist Painting,” in Clement Greenberg: The Collected Essays and Criticism, ed. John O’Brian (Chicago: University of Chicago Press, 1986-1993), 86.

<sup>174</sup> “Modernist Painting,” in Clement Greenberg: The Collected Essays and Criticism, ed. John O’Brian (Chicago: University of Chicago Press, 1986-1993), 87.

<sup>175</sup> Costello offers a useful summary of Greenberg’s position: “The conceptual cornerstone of modernism, as Greenberg theorized it, was ‘medium-specificity’: the self-reflexive investigation of the constraints of a *specific* medium through the ongoing practice of the discipline in question. In this spirit, Greenberg conceived modernist painting as an investigation into the essential nature of painting as an art that proceeded by testing its hitherto accepted ‘norms and conventions’ as to their ‘indispensability’ or otherwise, thereby gradually foregrounding what was ‘unique and irreducible’ to its medium—in Greenberg’s account, notoriously, ‘flatness and the delimitation of flatness.’” Diarmuid Costello, “Greenberg’s Kant and the Fate of Aesthetics in Contemporary Art Theory,” *Journal of Aesthetics and Art Criticism* 65, no. 2 (2007): 218.

<sup>176</sup> Picasso and Cubism are central to Greenberg’s arguments about modernist painting. “The collage played a pivotal role in the evolution of Cubism, and Cubism had, of course, a pivotal role in the evolution of modern painting and sculpture” he observes in a text that concludes that “Cubism, in the hands of its inventors—and in those of Léger too—achieved a new, exalted and transfigured kind of decoration by reconstructing the flat picture surface with the very means of its denial. They started with the illusion and arrived at a quasi-abstract literalness.” Clement Greenberg, “The Pasted-Paper Revolution (1958); Reprinted as Collage (1959),” in Clement Greenberg: The Collected Essays and Criticism Volume 4, *Modernism with a Vengeance, 1957-1969*, ed. John O’Brian (Chicago: University of Chicago Press, 1986-1993), 61, 65.

the picture plane negate the homogeneity and flatness of the ground as ideal features of the representational field. Any interpretation of Picasso's collages that emphasizes the artist's interest in calling attention to the medium in order to dramatize its integrity and primacy is blind to the radical disruptive force of Picasso's Cubist works. These are not self-contained, unified works that can be easily assimilated to the modernist aspiration for a timeless, pure, and ideal realm through art. Rather, collages such as *Violin and Newspaper* demonstrate the failure of the ground to hold, of the frame to enclose, and of the forms to signify a signal, unified reality.<sup>177</sup>

For Poggi, Cubism is unambiguous in declaring the ontological stability of the pictorial surface “*problematic* rather than secure.” Rather than confirming flatness, a picture plane that emphasizes “the relief of certain areas and the visibility of objects and cast shadows behind the picture plane” underscores its own permeability by dramatizing a movement of de-figuration: “the failure of the ground to hold, of the frame to enclose, and of the forms to signify a signal, unified reality.” It is the sense of motion implicit in the instability of this temporized picture plane that lies behind Jacobs' declaration of Cubism as “unthinkable without the revelations of pioneering cinema.”<sup>178</sup> In Poggi's view, any account of modernist painting that attempts to assimilate Cubist collage into a discursive ratification of flatness is involved in an active repression of Picasso's ironic, often playful presentation of a layered and dynamic pictorial surface.

Yet “Greenberg was reluctant to acknowledge that in Picasso's constructions the formal distinctions between painting and sculpture have been undermined” Poggi writes, because “his emphasis on flatness had been intended, after all, to preclude such an erosion of limits.”<sup>179</sup> Indeed a theory of aesthetic modernism predicated on the conflation of a concept of the aesthetic *medium* with a concept of aesthetic *purity* cannot, by definition, understand intermediality as an

---

<sup>177</sup> Poggi, In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 73.

<sup>178</sup> Jacobs, “On the Nervous System: What, Where, and Wherefore.”

<sup>179</sup> Poggi, In *Defiance of Painting: Cubism, Futurism, and the Invention of Collage*, 256.

aesthetic value; much less recognize intermediality as an inherent condition of modernist painting. The Greenbergian association of modernist value with medium-specific purity effectively posits intermediality—the mixing of the effects of the arts, or of the arts with vernacular culture—as the binaristic opposite of aesthetic value. For this critic to have described Cubist collage in Poggi or Jacobs’ terms—as engaged in a negotiation of the materiality and potential equivalence of “the signs of the fine arts and those of popular culture”—would be to destabilize the foundational logic of an interpretive paradigm constructed to exclude popular culture and technical media from being defined as modernist aesthetic mediums.<sup>180</sup> Given the canonical status of Cubist collage for the question of modernist painting, then, what is at stake in Greenberg’s disavowal of Picasso and Braque’s play with the interchangeability of painting and sculpture through an activation of pictorial depth is the very stability of a theory of modernism whose constitutive terms repudiate the viability of media aesthetics; and further, the aesthetic status of any form of interaction between the fine arts, popular culture, and technological media.

It was by short-circuiting this ideology of modernist purity entirely that Jacobs was able to devise “an out-of-the-artmarket Abstract Expressionism picking up on Marey-Muybridge while keeping in mind the lessons of Hans Hofmann.”<sup>181</sup> When Hans Hofmann emigrated permanently to the United States in 1930 he was an mid-career artist, having spent a formative period in Paris

---

<sup>180</sup> “Picasso and Braque were not inspired to ‘use a little dust against our horrible canvas’ merely in order to undermine it as a ground or origin,” Poggi writes. Rather, “their attack on modernist purity and autonomy was the result of a broader challenge to the mythical aura of painting and sculpture and to the notion that these media constituted eternal forms of expression devoted to the revelation of truth, whether of the object represented or of the work of art as object. Everywhere that the modernist tradition sought a sense of necessity or certainty, the Cubists substituted the ambiguous fragment, the formal paradox, the opposition of conflicting signs. The homogenous, unified field of representation was thereby ruptured and opened to a different process of cultural exchange, one in which the signs of the fine arts and those of popular culture proved to be of equal value.” Ibid.

<sup>181</sup> Ken Jacobs, “In Respect of Things,” in *Cinema & Painting. Catalog of an Exhibition Held at the Adam Art Gallery, Wellington, March 11-May 11, 2014*, ed. Michelle Menzies (Wellington, New Zealand: Adam Art Gallery, Victoria University of Wellington, 2015), 119.

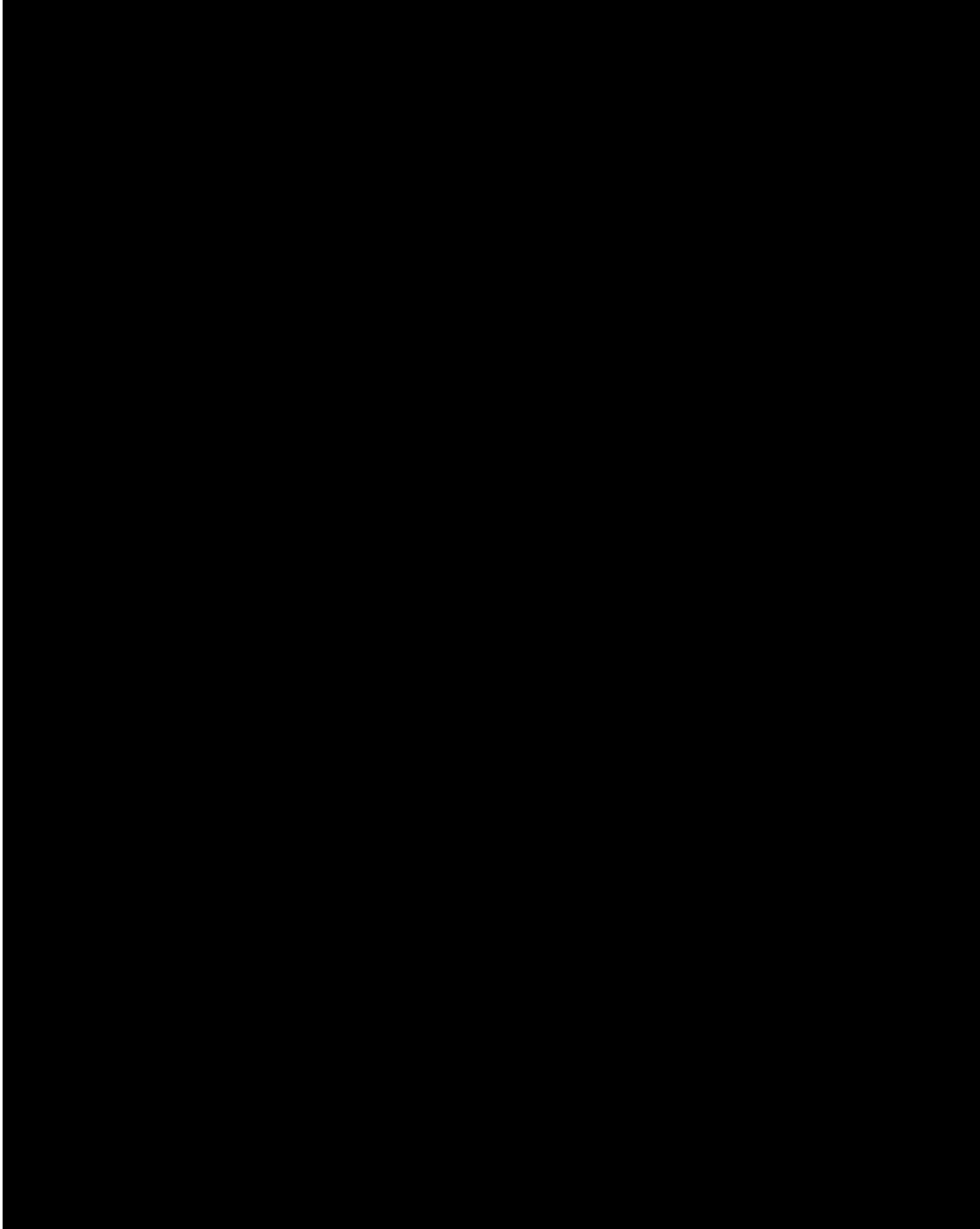


Figure 3.15: Pablo Picasso, *Violin and Newspaper*. Paris, autumn 1912. Oil and sand on glass. 65.6 x 51 cm. Collection of Musée Picasso, Paris.

Photograph taken in Picasso's studio. Because *Violin and Newspaper* is painted on glass, elements of the real world enter the field of the deliberately composed picture plane through the 'unfinished' areas of the pictorial ground. For instance, the horizontal lines on the bottom of the painting in this photograph are actually a section of railing on the wall against which the painting is leaning.

*Violin and Newspaper* is chronologically coincident with Marcel Duchamp's independent experiments with the use of glass as a pictorial ground in *Glider Containing a Water Mill in Neighboring Metals* (1913-1915), made with oil and lead wire on glass; and in the monumental *The Bride Stripped Bare by Her Bachelors, Even (The Large Glass)* (1915-1923), in which Duchamp 'painted' with oil, varnish, lead foil, lead wire, and dust on two large glass panels. *Image not reproduced due to copyright restrictions.*

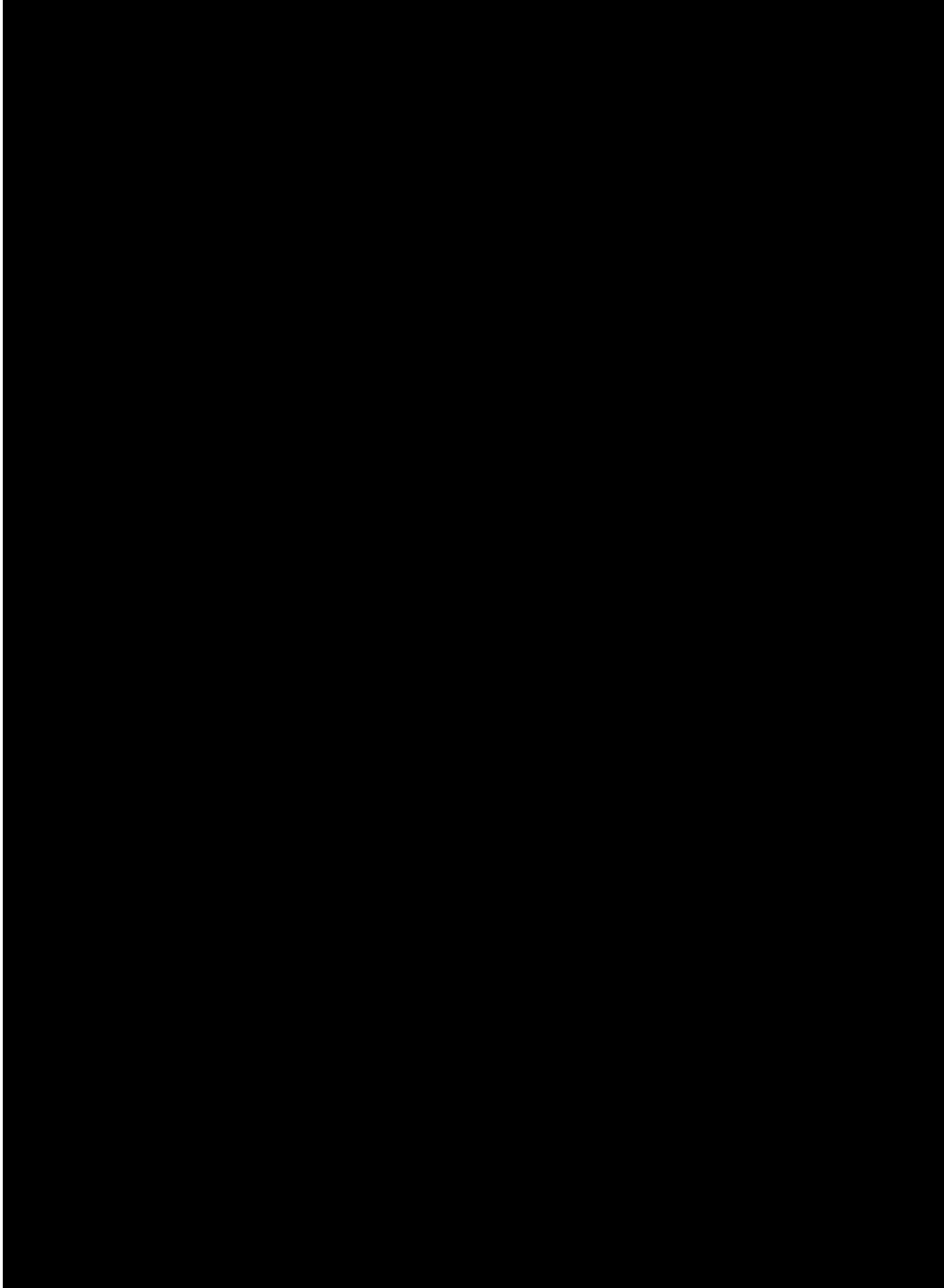


Figure 3.16: Pablo Picasso, Still life with *Guitar*. Paris, assembled before November 15, 1913. Paperboard, paper, string, and painted wire installed with cut cardboard box. Overall: 76.2 x 52.1 x 19.7 cm. Collection of the Museum of Modern Art, New York.

Photograph taken by Picasso in his studio. This montage of artworks is one of three photo-compositions published in the little magazine *Les Soirées de Paris*, no.18, November 15, 1913, in an issue edited by Guillaume Apollinaire, Jean C  russe (pseudonym for Helene d'Oettingen), and Serge Jastreboff. Picasso preserved and donated the cardboard *Guitar* to MOMA in 1973, along with a sheet-metal version, *Guitar* (c. winter 1914).

*Guitar* is a suggestive example of Picasso's tendency to explore a number of directions simultaneously—for instance, making sculptures, 3D assemblages, 'mixed-media' paintings, photographs, drawings made over photographs, and montages documented with photography alongside the enormous variety of paper collages (themselves made with diverse vernacular materials, on a wide range of grounds) produced between 1912-14, the pivotal period for the development of Cubist style. *Image not reproduced due to copyright restrictions.*

between 1904 and 1914, and two decades running the successful Hans Hofmann School of Fine Arts in Munich. The School was reestablished in Manhattan in 1932 (and as a summer school in Provincetown, Massachusetts in 1934), and this pedagogical structure provided an important framework for the dissemination of Hofmann's ideas in America. The curator Lowery Stokes Sims reports that by the early 1940s both schools were flourishing, and Hofmann "had also made his mark on the New York art scene through a series of lectures given at his New York school in 1938 and 1939 that were attended by future influential luminaries in American art such as painter Arshile Gorky and critic Clement Greenberg."<sup>182</sup> In a 1958 review, for example, Greenberg observes that Hofmann's "paint surfaces *breathe* as no others do, opening up to animate the air around them," and "it is thanks in part to Hofmann that the 'new' American painting in general is distinguished by a new liveness of surface, which is responsible in turn for the new kind of 'light' that Europeans say they find in it."<sup>183</sup> This descriptive emphasis on the influence of Hofmann's "open, pulsating surfaces" circles the distinctive cast of his theory of painting, as well as its sovereignty from Greenberg's.<sup>184</sup> "Hofmann could afford to paint in disregard of what New Yorkers at the time considered to be historical imperatives," notes curator Henry Geldzahler, because direct contact with a French avant-garde peopled by Picasso, Braque, Sonia and Robert Delauney, Wassily Kandinsky, and Henri Matisse, among others, allowed him a degree of aesthetic independence then unusual in the American scene.<sup>185</sup> Indeed Hofmann's particular

---

<sup>182</sup> Stokes Sims notes that "Greenberg acknowledged the impact of Hofmann's lectures on his own thoughts, and [the curator Irving] Sandler also suggested that Harold Rosenberg's concept of 'action painting ... had some roots in Hofmann's idea of painting as 'push and pull.'" Lowery Stokes Sims, "Hans Hofmann in Twentieth-Century Art," in Hans Hofmann in the Metropolitan Museum of Art. Catalog of an Exhibition Held at the Metropolitan Museum of Art, April 13 to Oct. 17, 1999, ed. Lowery Stokes Sims (New York: Metropolitan Museum of Art, 1999), 8.

<sup>183</sup> Clement Greenberg, "Hans Hofmann," in *Art and Culture: Critical Essays* (Boston: Beacon Press, c1961), 195.

<sup>184</sup> *Ibid.*

<sup>185</sup> Henry Geldzahler, in the catalog to the exhibition *Hans Hofmann: The Renate Series*, The Metropolitan Museum of Art, 1972, cited in Sims, "Hans Hofmann in Twentieth-Century Art," 6.

combination of artistic and pedagogical experience allowed him to act as a kind of translator to the New York School, and this role as a bridge between European and American modernism is an important facet of his critical legacy.

Hofmann understood the task of art as a metaphysical quest: “the *search* for the essential nature of reality.”<sup>186</sup> The vocation of the artist was to be enacted via the enlivenment of her particular artform’s “medium of expression” not through a reductive specificity, but through “the subjective spiritual projection of the impulses in which space is disclosed to us as a plastic and living entity.”<sup>187</sup> Key to this statement of aesthetic intent is a grasp of movement as the fundamental phenomenal *a priori*. Hofmann’s lectures and writings reiteratively emphasize a sense that “space is imbued with movement; space vibrates and resounds and with it vibrates form to the rhythm of life”; because “life does not exist without movement and movement does not exist without life. Movement is the expression of life.”<sup>188</sup> In the essay “Plastic Creation” (1932), for instance, he observes that “a represented form that does not owe its existence to a perception of movement is not a form, because it is in this respect spiritless and inert. Form is the shell of life.”<sup>189</sup> For Hofmann, as for Bergson, “there is no form, since form is immobility and the reality is movement”; so that for Hofmann, as for Bergson, the artist’s task is to convey the reality of movement. In “The Search for the Real in the Visual Arts” Hofmann writes:

---

<sup>186</sup> Hofmann, “The Search for the Real in Visual Arts (1948),” 45. “I have devoted my whole life to the search of the Real in painting. I never believed in an academic training—I had none.” Statement in Hans Hofmann, exhibition catalog (New York: Kootz Gallery, 1952), republished in “Text and Lectures by Hans Hofmann,” 174.

<sup>187</sup> “Plastic Creation (1932),” 44.

<sup>188</sup> “Plastic Creation (1932),” 43.

<sup>189</sup> “Plastic Creation (1932),” 44.

A line cannot control pictorial space absolutely. A line may flow freely in and out space, but cannot independently create the phenomenon of *push and pull* necessary to plastic creation. *Push and pull* are expanding and contracting forces which are activated by carriers in visual motion. Planes are the most important carriers, lines and points less so.

The forces of push and pull function three dimensionally without destroying other forces functioning two dimensionally. The movement of a carrier on a flat surface is possibly only through an act of shifting left and right or up and down. To create the phenomena of push and pull on a flat surface, one has to understand that by nature the picture plane reacts automatically in the opposite direction to the stimulus received; thus action continues as long as it receives stimulus in the creative process. Push answers with pull and pull with push.<sup>190</sup>

The Hofmannian model of painterly aesthetics is distinguished by an overriding emphasis on the activity of the picture plane, whose animation is to be achieved through a *volumetric* activation.<sup>191</sup> A line is deemed insufficient to “independently create the phenomenon of push and pull necessary to plastic creation” because not enough volume is involved; while “planes are the most important carriers” of visual tension when activated by the dynamism of an illusion of movement. A phenomenology of movement is at the ground of this specification of the ontology of painting in the plastic invocation of depth, conveyed routed through a ‘push and pull’ effect understood as “expanding and contracting forces which are activated by carriers in visual motion.” In Hofmann’s paintings space goes in and comes back, while shapes seem to move and take on depth, and the overarching effect is a redistribution of the beholder’s gaze across the whole expanse of the pictorial surface. An approach to modernist painting routed through Hofmann consequently produces a very different picture plane than one turned

---

<sup>190</sup> "The Search for the Real in the Visual Arts," in *Search for the Real, and Other Essays*, ed. Sara T. Weeks and Bartlett H. Hayes (Cambridge, Mass.: M.I.T. Press, 1967), 44-5.

<sup>191</sup> “A picture must be made, dictated, through the inherent laws of the surface,” Hofmann notes, so that “the highest three-dimensionality is two-dimensionality, which no layman can ever understand. Depth is nothing less than suggested volume.” Hofmann, cited in Frederick Stallknecht Wight, *Hans Hofmann* (Berkeley: University of California Press, 1957), 23.



toward Greenberg. The vitalist core of Hofmann's aesthetic theory—a crucial influence on Jacobs — is conveyed in the following description of Cézanne's achievement:

At the end of his life and at the height of his capacity Cézanne understood color as a force of *push* and *pull*. In his pictures he created an enormous sense of volume, breathing, pulsating, expanding, contracting through his use of colors.<sup>192</sup>

If Hofmann, like Greenberg, understood the picture plane as the key “expression-medium of painting,” he differed from Greenberg in positing the task of modernist painting as the recovery of the dynamics of this pictorial surface.<sup>193</sup> “The resurrection of the plastic arts is identical with the rediscovery of the life-endowed picture surface as a plastic means” he writes in the “The Resurrection of the Plastic Arts” (1954), because “its concealed plastic secrets were lost with the discovery of perspective.”<sup>194</sup> This critique of linear perspective is predicated on the argument that the picture window inherited from the Italian Renaissance is devoted to an illusionistic, unidirectional image space in which “depth does not answer back pictorially.”<sup>195</sup> In Hofmann's view “‘depth’ is not created on a flat surface as an illusion, but as a plastic reality” through the interaction of push and pull.<sup>196</sup> Here one might say that for Hofmann, as for Bazin, “perspective was the original sin of Western painting.”<sup>197</sup> Framed against the long history of European painting, Hofmann understood Cézanne's pictorial phenomenology as a radical break with the tradition of naturalism carried forward into modernist abstraction by the Cubist interrogation of

---

<sup>192</sup> "The Search for the Real in Visual Arts (1948)," 47.

<sup>193</sup> “The expression-medium of painting is the picture plane; and the creative elements of paintings are sight, and the colorbearing lines.” "Plastic Creation (1932)," 43.

<sup>194</sup> "The Resurrection of the Plastic Arts (1954)," 49.

<sup>195</sup> Ibid.

<sup>196</sup> "The Search for the Real in Visual Arts (1948)," 46, 47.

<sup>197</sup> Bazin, "The Ontology of the Photographic Image," 12.

the status of the pictorial ground.<sup>198</sup> Hofmann himself sought to advance this materialist line by advocating for abstraction as an experiential realism: a pictorial expression of the reality of space as “alive, dynamic, fluctuating, and ambiguously dominated by forces and counter-forces, by movement and counter-movement.”<sup>199</sup> Jacobs paraphrases the pedagogical directive implicit in this theory of painting in the following way: “Hans Hofmann had stressed the primacy of the surface, even as depth was to be constantly referenced,” so that “actual illusion-making, like Dali's painted-pairs copied from stereo Kodachromes, was entirely off the grand concourse initiated when Cezanne began to paint the argument of left and right eye perspectives that distended his crockery.”<sup>200</sup> In direct contrast to an Greenbergian orthodoxy of flatness, then, Hofmann describes the foremost task of modernist painting as the animation of the latent plasticity of the pictorial surface:

*Plasticity means to bring the picture surface to “automatic” plastic response. The picture surface answers every plastic animation ‘automatically’ with an aesthetic equivalent in the opposite direction of the received impulse. Push answers with the corresponding equivalent of pull, and pull correspondingly with push. A plastic animation ‘into the depth’ is answered with a radar-like ‘echo’ out of the depth, and vice versa. Impulse and echo establish two dimensionality with an added dynamic enlivenment of created breathing depth.*<sup>201</sup>

A theory of abstraction that understands ‘plasticity’ to mean “bring[ing] the picture surface to “automatic” plastic response” can accommodate an idea of cinema and painting as correlative

---

<sup>198</sup> Hofmann understood Impressionism to have reinforced the illusionistic picture window inherited from the Italian Renaissance by “reestablishing the two dimensionality of the picture plane”—“The Impressionists, insofar as they attained the unity of life, led painting back to the two-dimensional in the picture plane,” he writes, because “light forces itself into the picture plane in an illusionary manner and in the same manner flows out against from the illusionary depths of the picture place.” By comparison, he sees Cubism as having “brought up the form problem in relation to the picture plane.” Put differently, “Cubism was a revolution in that the artist broke with tradition by changing from line to a cone concept.” Hofmann, “The Search for the Real in Visual Arts (1948),” 45; “Plastic Creation (1932),” 43.

<sup>199</sup> “The Resurrection of the Plastic Arts (1954),” 49.

<sup>200</sup> Jacobs, “Painted Air.”

<sup>201</sup> “The Resurrection of the Plastic Arts (1954),” 44.

screen-based arts. Put differently, in its predication on a definition of the medium less committed to an ideology of purity, Hofmann's theory of 'push and pull'—"a plastic animation 'into the depth' is answered with a radar-like 'echo' out of the depth, and vice versa"—remains open to an intermedial conception of the vocation of modernist painting. In this, Hofmann provided Jacobs with a crucial formal model by which to synthesize a stylistic orientation to the history of painting with a materialist commitment to media. Transferred to the cinematic picture plane, the phenomenology of movement implied in Hofmann's temporalized theory of abstraction—"the picture surface answers every plastic animation 'automatically' with an aesthetic equivalent *in the opposite direction of the received impulse*"—becomes redefined as a *real time* push-and-pull activation of the latent plasticity of the film screen. The profound impact of this mentor's influence on the development of Jacobs' style is clarified by a consideration of the trajectory of its development in the years following the formal breakthrough of *Tom, Tom*.

Between 1975 and 1980 Jacobs adapted the re-filming apparatus inaugurated with *Tom, Tom*, *The Piper's Son* into the technical basis for a series of film performances, each titled with the prefix *THE IMPOSSIBLE*.<sup>202</sup> The first of these works (*THE IMPOSSIBLE: Chapter One*, "Southwark Fair", 1975) reworked *Tom, Tom*'s opening vignette into a live spectacle that offered its viewer a rhythmic, quasi-abstract collage of "impossible" cinematic spaces.<sup>203</sup> By 1980 this projection apparatus, dubbed 'The Nervous System,' had stabilized into the form in which it

---

<sup>202</sup> These works include *THE IMPOSSIBLE: Chapter One* "Southwark Fair" (1975), *THE IMPOSSIBLE: Chapter Two* "1896" (1979), *THE IMPOSSIBLE: Chapter Three* "Hell Breaks Loose" (1980), *THE IMPOSSIBLE: Chapter Four* "Shilling" (1980), *THE IMPOSSIBLE: Chapter Five* "The Wrong Laurel" (1980). William Rose, "Annotated Filmography and Performance History," in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 270-1.

<sup>203</sup> Jacobs in Lindley Hanlon, Ken Jacobs: Interview (June 10, June 12, 1979) (Minneapolis: Film in the Cities and Walker Art Center, 1980), 9.

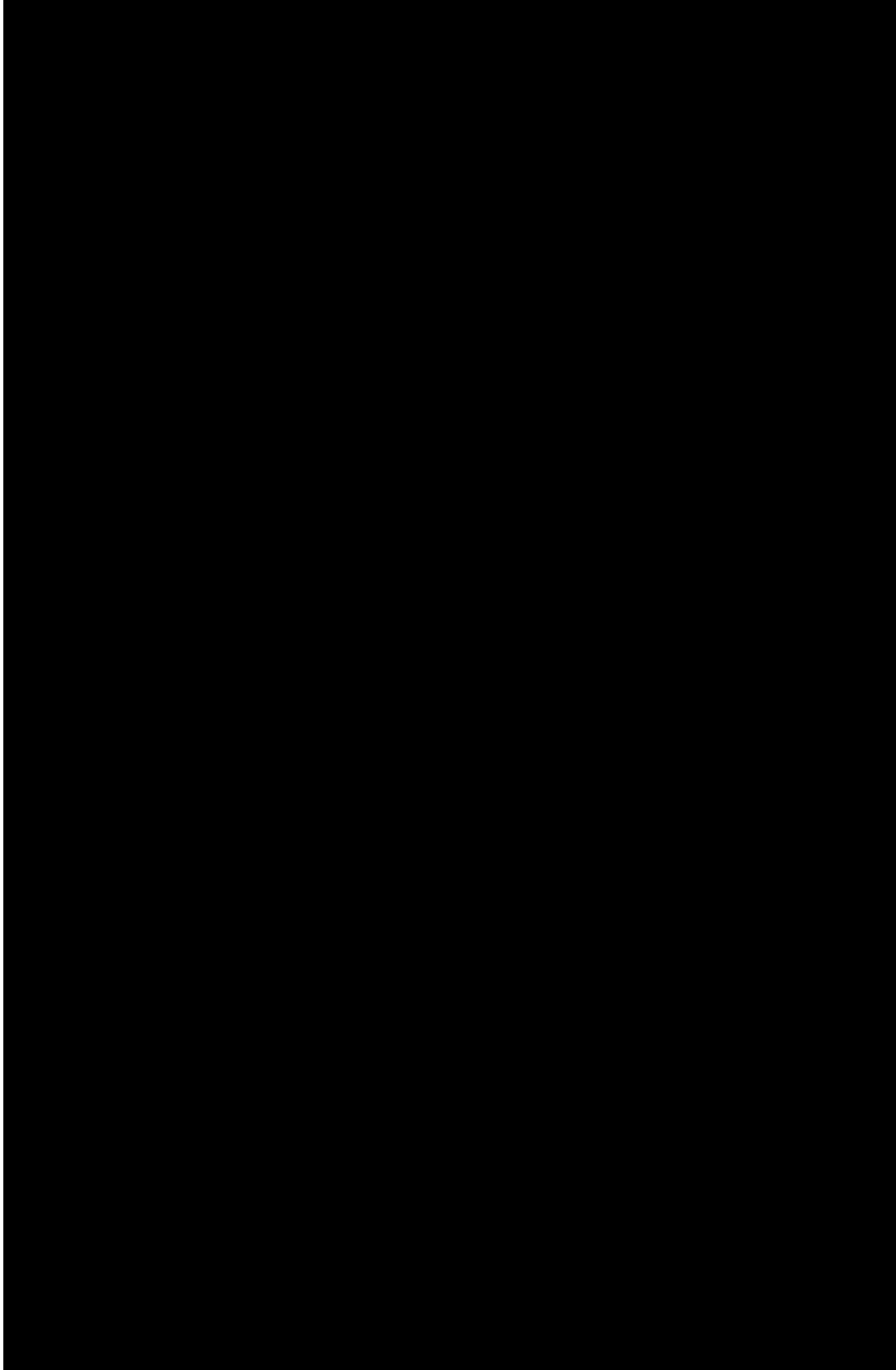


Figure 3.17: Hans Hofmann, *Cathedral*. 1959. Oil on canvas. 188.6 x 122.6 cm. Private Collection. *Image not reproduced due to copyright restrictions.*

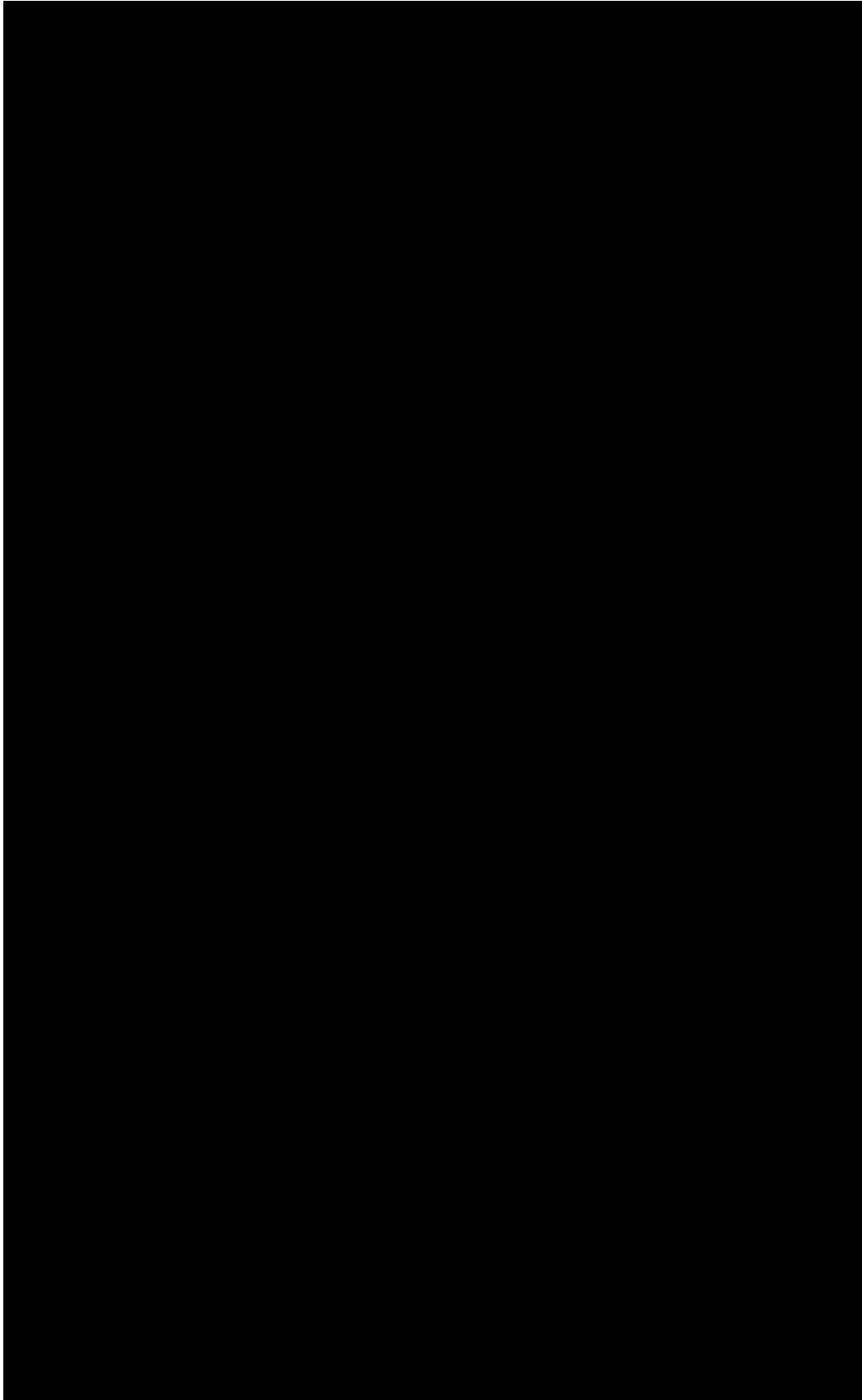


Figure 3.18: Hans Hofmann, *Pompeii*. 1959. Oil on canvas. 214 x 132.7 cm. Tate Collection, London.  
*Image not reproduced due to copyright restrictions.*

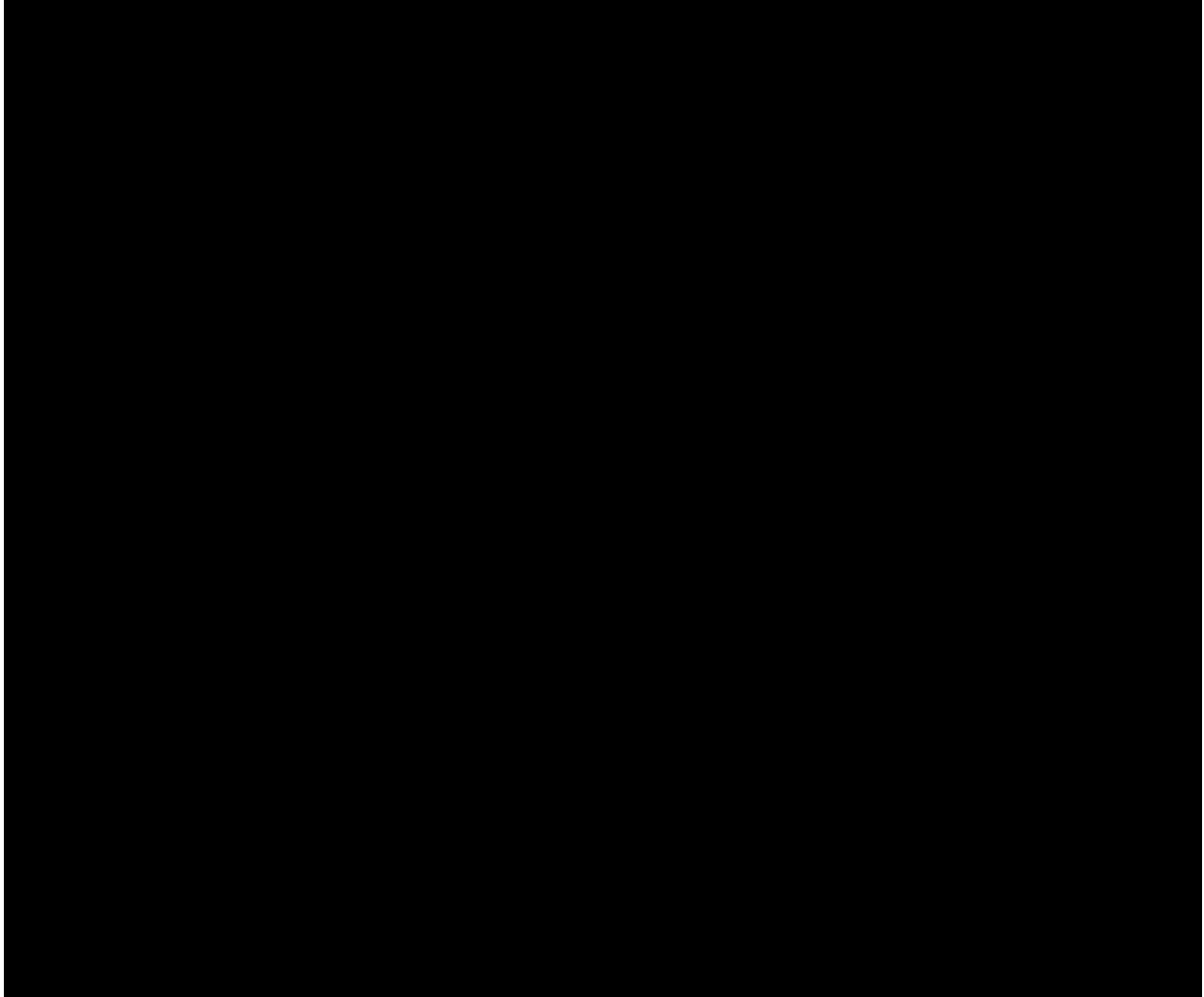


Figure 3.19: Hans Hofmann, *The Golden Wall*. 1961. Oil on canvas. 152.4 x 182.9 cm. Collection of the Art Institute of Chicago, Chicago. *Image not reproduced due to copyright restrictions.*

would subtend his practice for the following two and a half decades.

This instrument for live cinema was a bricolage consisting of two analytical projectors placed into a side-by-side configuration allowing a concurrent, slightly a-synchronic playback of identical 16 or 35mm celluloid prints. A later adjustment positioned an exterior shutter between the two projectors to act as an external shutter, blocking out one image, then the other, and then both, in a rapid alternation designed to blend the frames into a stereoscopic 3D effect.<sup>204</sup> The whole ensemble was mounted onto a tripod-like platform that allowed each projector a span of horizontal, vertical, and diagonal adjustability; ensuring that “small changes during performance in speed, placement and direction of propeller spin [would] cause radical changes in the visual event produced onscreen.”<sup>205</sup> Combined with the analytical projector’s native capacity for reverse playback, single-frame advance, and extended freeze-frame—a feature whose conceptual salience had been definitively established by *Tom, Tom*—this adjustability provided the artist-performer with an almost orchestral degree of control over the mechanics of cinematic playback. More specifically, by allowing Jacobs to supplement what Frampton describes as that “mechanical virtuoso performer, the projector” with a *human* performer, the Nervous System allowed Jacobs to improvise with the tempo of a given film performance; even permitting him to mould the rhythm of playback on “the content [of the image on the screen], how rich the three-

---

<sup>204</sup> Phil Solomon notes that because “Jacobs has control vertical and horizontal registrations of each projector, as well as control over the propeller speed and the rate of change of successive frame projections... when the frames are aligned in a certain way, an uncanny two-dimensional/three-dimensional possibility exists... without the use of glasses or polarizing filters.” Footnote 1 in Phil Solomon, “Nervous Ken: ‘Xcxhxexrxixexsx’ and After,” in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 195.

<sup>205</sup> Ken Jacobs. *Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures*. United States, Filed Jan 22, 2002.

dimensional event was.”<sup>206</sup> Jacobs worked with the Nervous System between 1975 and 2000, producing twenty two distinct works.<sup>207</sup> Each was a projection-based performance that mapped his now-characteristic interventionist enlargement of found media onto the concrete duration of a real time unfolding.

Spectatorial accounts of the Nervous System performances have tended to emphasize the paradox of their status as highly ephemeral live events (“one-offs of the most vulnerable sort”) yet possessed of an experiential intensity that lingers in the mind’s eye.<sup>208</sup> “Jacobs’ films pursue the slippery slope of experience rather than the deceptive clarity of ideas” Gunning writes of a sense that in “play[ing] on [his] apparatus like a musician,” Jacobs “break[s] the automatic whirr of 24 frames a second” in a manner that “returns cinema to its prehistory in Marey and Muybridge’s analysis of motion.”<sup>209</sup> “A lot of cinema characteristics are alive in a shadow play” Jacobs himself observes in an 1979 interview that describes this vernacular, pre-celluloid form as the “original, non-mechanical form of cinema”—“the popular movie at one time, until the

---

<sup>206</sup> Hanlon, Ken Jacobs: Interview (June 10, June 12, 1979), 9; Frampton, "For a Metahistory of Film," 138.

<sup>207</sup> Most Nervous System works were performed several times over a number of years, and running times vary. For a complete Nervous System filmography see Rose, "Annotated Filmography and Performance History," 269-72.

<sup>208</sup> The filmmaker Fred Worden provides a outline of the vicissitudes of the Nervous System method of filmmaking: “Right now, I can close my eyes and conjure images of Ken and Flo lugging Nervous System equipment down the five flights of stairs of their building, into cabs or subway cars, just to get it to some New York City avant-garde watering hole. A half day to set up the equipment once arrived and the constant threat of equipment failures or unforeseen mechanical glitches bedeviling every Nervous System performance. Topping off all these burdensome practicalities was the excruciating, existential ephemerality of every Nervous System performance. No record of what transpired on the screen endured. If you were lucky enough to be in the audience, you would be shown something utterly unique and utterly unrepeatable. Nervous System screenings are live performance art—one-offs of the most vulnerable sort. When Ken shut the power off at the end of a performance, it all evaporated, quicker than the visible wisp of a human breath in chilled winter air.” Fred Worden, "I Owe Ken Jacobs," in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 246-7.

<sup>209</sup> Gunning, "'Films That Tell Time'," 4, 8.



mechanized, recorded movies began to happen.”<sup>210</sup> It is the clarity of this comprehension of cinematic movement in terms wholly detached from celluloid that allowed the film form consolidated by the Nervous System to re-temporalize the *tense* of the cinematic experience. For in their configuration as performances—unique, unrepeatable events—the temporal structure of Nervous System works bear a more direct relation to shadow plays or magic lantern shows than to the normative unfolding of cinematic replay.<sup>211</sup> Jacobs at his apparatus is like jazz musician; an animator; a puppeteer; and most of all an Action Painter in possession of a set of pictorial devices by which to endow the playback of live action footage with an utterly Hofmannian plasticity. “The possibility of motion haunts these trembling images” Gunning recounts of the experience of a Nervous System performance, because “the screen itself seems to rotate slightly or its surface becomes convulsed by a sudden ripple” in which “the trajectory of motion pauses, reverses itself, breaks down and reconstitutes itself.”<sup>212</sup> In the perceptive words of the filmmaker Lewis Klahr, the invention of this apparatus allowed Jacobs to:

extend the language of *Tom*, *Tom*’s sublime cinematic history lesson into an ongoing realm of improvisatory abstraction.<sup>213</sup>

Central to Nervous System’s distinctive pictorialism was a visual effect named ‘eternalisms’: a looping playback technique whereby a figural detail isolated within two frames of found footage—the turn of a head, the flow of fabric on a body, a step into the void—could be attenuated into a

---

<sup>210</sup> Lindley Hanlon, "Kenneth Jacobs, Interviewed by Lindley Hanlon [Jerry Sims Present]," *Film Culture* 67-68-69(1979). Cited in John Hanhardt, "Researches and Investigations into Film: Its Origins and the Avant-Garde (Program Notes Accompanying the Impossible-Chapter One: Southward Fair, a Performance by Ken Jacobs)," (Document, Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York: Department of Film and Video, Whitney Museum of American Art, 17 November 1979).

<sup>211</sup> In fact, that over twenty five years of Nervous System films have a certain archival invisibility—"they're gone," writes Jacobs, "and that's something one has to live with doing ephemeral things." Jacobs, "Painted Air."

<sup>212</sup> Gunning, ""Films That Tell Time"," 8.

<sup>213</sup> Lewis Klahr, "Ken Jacobs and Estatic Abstraction," in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 214.

form of ‘push and pull’ animation and melded into a smooth illusion of ongoing movement. In the live situation, Jacobs’ performance of an eternalism generated an uncanny effect of persistent motion: “pedestrians, caught in brief loops separated by black frames” might seem to flow “forward with the liquidity of molten lava until they reached their origin point, only to begin their journey again”; or appear suspended in “unfrozen slices of time, sustained movements going nowhere, unlike anything in life.”<sup>214</sup> “The intensity of the experience of seeing it still vibrates within me” Jonas Mekas writes in a letter to Jacobs that recalls “a river of images, or maybe an ocean, irrationally/it seemed/controlled, as they rolled and rolled and swerved and grew in intensity, swelling, swelling.”<sup>215</sup> This oceanic description conveys, with a certain experiential clarity, the significance of the eternalism as a pictorial device that permitted Jacobs to consolidate the formal logic of his cinematic *punctum* by attenuating the duration of cinematic detail into a quasi-abstract image of continuous motion.

More fundamentally, as a fragment of live-action celluloid animated by a Hofmannian activation of the cinematic picture plane—“impulse and echo establish two dimensionality with an added dynamic enlivenment of created breathing depth”—a Nervous System eternalism was a simultaneously indexical and plastic image.<sup>216</sup> As such, it can be said to constitute a pre-digital mode of cinematic painting that allowed Jacobs to synthesize a Bergsonian grasp of the time-movement matrix with Hofmann’s painterly directives. The centrality of this device to the conceptual logic of his mature style is such that while the Nervous System was time-bound and

---

<sup>214</sup> Ibid. Jacobs, “On the Nervous System: What, Where, and Wherefore.”

<sup>215</sup> Jonas Mekas, “Texts on Ken Jacobs,” in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 38.

<sup>216</sup> Hofmann, “The Resurrection of the Plastic Arts (1954),” 49.

split definitely into two, the eternalism device has continued to dominate Jacobs' post-celluloid practice.

Over the course of the 1990s Jacobs developed a new system for improvisatory projection performance dubbed The Nervous Magic Lantern. Like the Nervous System, this device is a bricolage designed to supplement the mechanics of cinematic playback with the actions of a human performer. The point of distinction from its predecessor, however, was that Jacobs' newer apparatus for projection performance largely dispensed with celluloid.

The Nervous Magic Lantern consists of an empty box containing a single-element glass lens, a light source, and a spinning shutter. It is performed by the placement of a variety of transparent and semi-transparent materials—most often abstract painted slides, textured and indented by bubbling or scratching—between the lens and the beam of light. “Only one projector is used with no moving parts other than myself and the turning shutter before the lens” Jacobs notes, and yet the Nervous Magic Lantern conjures a transfixing, almost hallucinatory experience of cinematic movement composed entirely from animated reflections, abstract patterning, and phenomenal eddies of colored light.<sup>217</sup>

Like the Nervous System, the Nervous Magic Lantern's spectacle of pulsing, immersive, “uncanny 3-dimensional illusion” is predicated on a real-time activation of the plasticity of the cinematic picture plane: “I place things in the path of light and now and again in the course of a performance I manipulate or replace them, refreshing the screen image.”<sup>218</sup> Yet, and as Phil

---

<sup>217</sup> Ken Jacobs, "Three Essays," Jacket2 (2011).

<sup>218</sup> Ibid.

Solomon observes, “the whole setup is so nineteenth century—wooden platforms, metal cranks, shafts, shutters, gears, lens alignments, film strips—right out of depictions of Magic Lantern shows one sees in every film history book,” that the experience of a Nervous Magic Lantern performance invokes “primordial cinema.”<sup>219</sup> Jacobs himself characterizes this singular approach to the construction of moving images as “*cinema without film or electronics*”; admitting that the device’s mechanics are “strikingly low-tech and could have come about centuries ago.”<sup>220</sup>

Grasped as a para-cinematic device for the construction of *pre*-celluloid, *pre*-indexical eternalisms, however, the radically manual character of this apparatus and its total independence from indexical media comes into focus as the sign of a self-conscious negotiation of the analog/digital transition.<sup>221</sup> The development of the Nervous Magic Lantern paralleled Jacobs’ exploration of the expressive possibilities of the *digital* image, and by the year 2000 it had replaced the Nervous System as his primary apparatus for live projection-based cinema.<sup>222</sup>

---

<sup>219</sup> Phil Solomon, “Nervous Ken: “Xcxhxexrxixexsx” and After,” in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 188-89.

<sup>220</sup> Jacobs, “Painted Air.” My emphasis.

<sup>221</sup> It is worth noting that Jacobs’ refers to the Nervous Magic Lantern’s imagery of continuous motion as ‘Eternalisms,’ even as he analogizes the Nervous Magic Lantern to a kind of primal camera obscura: “A lightweight propeller steadily turns, interrupting a beam of light. This is almost the only difference from when sunlight, coming in through a small opening into a dark space, sent an inverted image of the outside world onto cave walls.” “Three Essays.”

<sup>222</sup> The last Nervous System performance was *Un Petit Train De Plaisir* (1998). In Jacobs’ own words: “The Nervous System as performance is over. The Nervous Magic Lantern is on.” “Painted Air.”

In 1999 Jacobs' wider practice performed a decisive migration from celluloid film to digital video.<sup>223</sup> Since this year all his work with technical media has been made with the 'Eternalism' method: digitally expressed in the form of a custom editing software that converts the eternalism device into an animation tool. In a patent application submitted for this software Jacobs describes his invention as "a method for creating an appearance of sustained three-dimensional motion-direction of unlimited duration, using a finite number of pictures."<sup>224</sup> Rephrased, this software reproduces the analytical projector's mode of playback by placing several near-identical frames of indexical media next to "a bridging interval (a bridging picture) which is preferably a solid black or other solid-colored picture."<sup>225</sup> The outcome is a stabilization of the Nervous System's mode of cinematic painting into a unit of continuous motion that Jacobs describes as a digital impossible image:

The idea of an interval of action running in place without apparent beginning, middle and end, forever swelling or turning or rising or opening, forever seeming to evolve without ever actually doing so can be literally unimaginable, so alien is it to our experience. Neither in life or on film or in electronic imagery has it been possible to create the optical illusion of a door forever cracking open or a muscle rippling or head turning or any other limited gesture continuing as such into potentially unlimited time—*until the advent of*

---

<sup>223</sup> While William Rose observes that "Jacobs stopped performing with the Nervous System in 2000 to focus his attention on the Nervous Magic Lantern and the translation of selected Nervous System works to digital video," there is relatively little scholarly assessment of the implications of Jacobs' shift between types of cinematic devices from the point of view of media theory. Jacobs' own account of his migrations draws a direct line between abstract painting, *Tom, Tom*, and the Nervous Magic Lantern: "I believe the canvas as record of performance led to Happenings. And that Happenings, for me, someone split between painting and cinema, led to STAR SPANGLED TO DEATH as a way of incorporating many such actions in a master-design. I would later fasten onto TOM, TOM, THE PIPER'S SON as a "scene of a crime". Process would step further into receiver territory with the Nervous System film performances. Abstraction (see the word action tucked in there?) of a kind achieved by those artists who along with Hofmann set standards for me, setting the deep-conscious goals determining my choices, would be achieved with the Nervous Magic Lantern." Rose, "Annotated Filmography and Performance History," 270; Jacobs, "Painted Air."

<sup>224</sup> Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures. 2.

<sup>225</sup> Ibid.

*this invention*. We have termed this phenomenon Eternalism, and we speak of pictured forms or objects, scenes or gesture being Eternalized into Eternalisms.<sup>226</sup>

Like their celluloid-based predecessors, digital Eternalisms attenuate the duration of cinematic details into quasi-abstract images of push-and-pull movement: intervals “of action running in place without apparent beginning, middle and end, forever swelling or turning or rising or opening, forever seeming to evolve without ever actually doing so.” Considered structurally (as a kind of animated gif) they are seamless celluloid-to-digital transcriptions of the Nervous System’s simultaneously painterly and indexical film form.

Yet grasped as a recordable stabilization of a pre-digital mode of cinematic painting, a software generated digital eternalism can also be characterized as a born digital artifact. In fact, Jacobs’ digital Eternalisms and Eternalizing are paradoxically both/and entities: authentically digital units of continuous motion only distinguishable from their celluloid-based equivalents as no longer exclusively live cinematic events. This counterintuitive fact reflects the status of the original Nervous System eternalism as an analog device that *anticipated the material structure of the digital image*.

Indeed, if we accept that the enlargement of fugitive details caught between consecutive frames of technical media is a spectatorial possibility native to the digital *dispositif*, then the digital image can be posited to have always been a more adequate medium for Jacobs’ approach to the cinematic experience. The decisive and voluntary character of this artist’s shift from analog to

---

<sup>226</sup> Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures. My emphasis.

digital media can then be partly attributed to the fact that the Nervous System's mode cinematic painting was always-already post-celluloid.

Put differently, the simultaneity of Jacobs' turn to the Nervous Magic Lantern and the Eternalism software—these pre- and post-celluloid devices for creating eternalisms—underscores the clarity of his comprehension that cinema's persistence *as media* after the long analog/digital transition requires that cinematic movement be made aesthetically thinkable before and after celluloid. In the period after Jacobs' digital transition, the Nervous System's formal logic has been redistributed in two directions: distilled into a mode of pure abstraction imaginatively correlative with the Bazinian fantasy of a total cinema before devices; and refined and stabilized into an authentically digital mode of cinematic Action Painting. I want to work through the Metahistorical implications of this approach to the representational framework of the digital *dispositif* by considering a work of art emblematic of Jacobs' navigation of the vertiginous inscriptive capacities of the digital image via the Eternalism software: *New York Ghetto Fishmarket 1903* (1993, 2006).

In the New York City of 1903 the Edison Company dispatched a cameraman, J.B. Smith, to an immigrant neighborhood near Hester Street in Manhattan's Lower East Side to shoot a city scene. The three-minute actuality resulting from his foray shows a bustling outdoor fish market shot from above in a diagonal pan that scans the scenario from right to left. "The day is sunny, the sounds (not preserved) boisterous" Jacobs comments, "but the buying and selling of fish...is intense and few people notice the Edison cameraman."<sup>227</sup> In fact, Smith's *New York City*

---

<sup>227</sup> Jacobs, inter-title to "New York Ghetto Fishmarket 1903: Nervous System 3d," (New York: Tzadik DVD Edition, 2006).

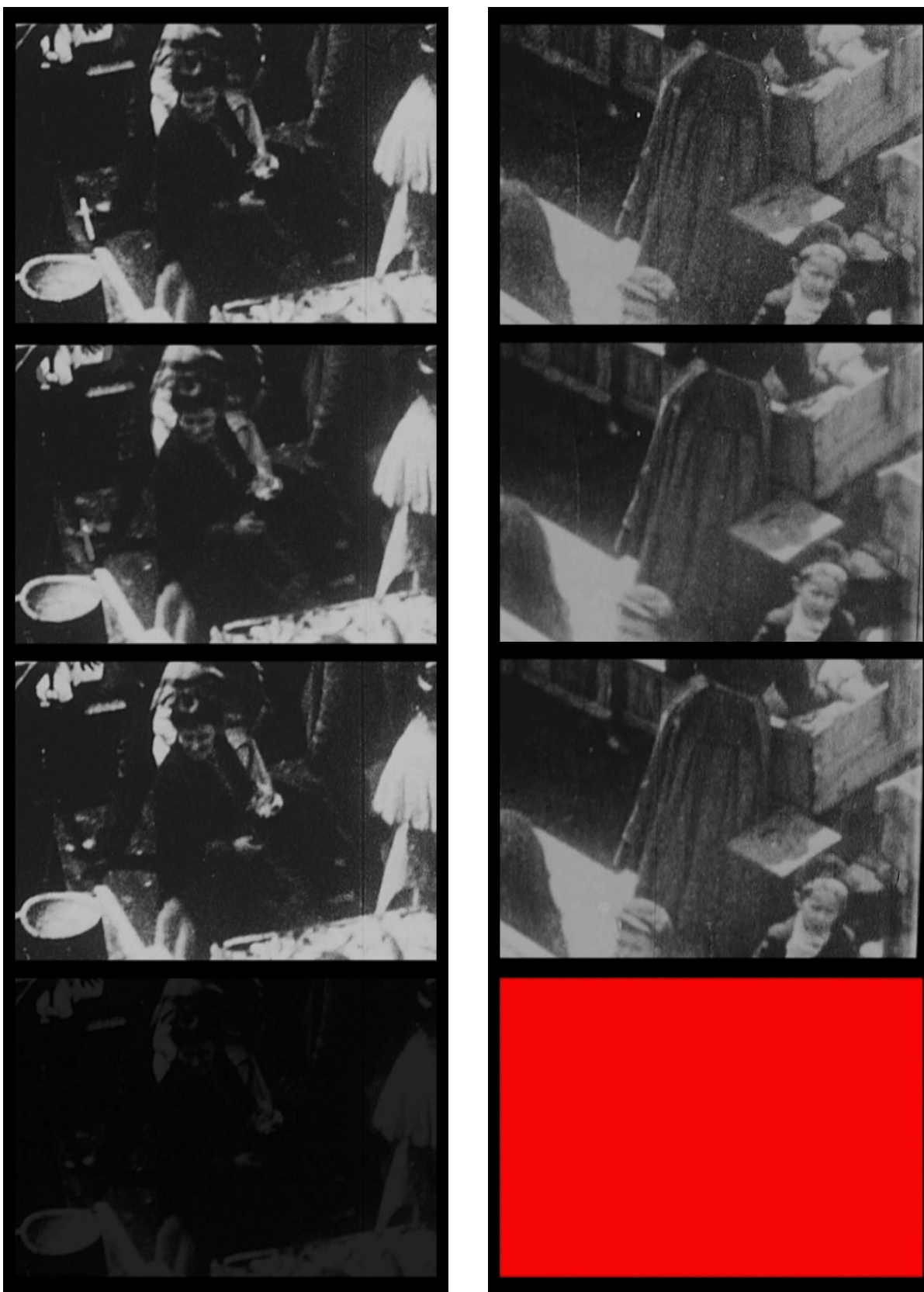


Figure 3.20: Ken Jacobs, frames from *New York Ghetto Fishmarket 1903* showing the structure of two digital Eternalisms. 2006. Digital video, b&w & color, sound by Catherine Jauniaux and Tom Cora. 132 min. Courtesy the artist.



*"Ghetto" Fishmarket* (1903) is one of a number of actualities produced by the Edison Company in New York City between 1900 and 1903 as representations of a community of recently transplanted Eastern European Jews.<sup>228</sup> "That these films were produced for the amusement of non-Jewish audiences is clear from the entries in Edison catalogues" the film scholar Michele Pierson notes, for rather than "local films made for the amusement of the local communities who appear in them," this corpus was conceived as "New York City and ethnic attractions bound for exhibition far beyond the Lower East Side."<sup>229</sup> In fact, Smith's cinematography displays this quasi-anthropological ambition on the level of film form. The camera's elevation to a vantage high above the depicted subjects inserts a panoptic distance between the cameraman and his field of representation; and this compositional device endows the film with a quality of dispassionate surveillance that distinguishes its visual texture from an otherwise close generic cousin like the Lumières' *Workers Leaving the Factory* films.

This Edison Company early American actuality took on a new life in 1993 when it was found by Ken Jacobs in the Paper Print Collection of the Library of Congress, purchased by Flo Jacobs, and subsequently rephotographed. Like Bitzer's *Tom, Tom*, Smith's film provides Jacobs with source material for an entirely new work: this time in two distinct formats. The first was a Nervous System performance debuted in 1993, initially incorporating elements of Nervous

---

<sup>228</sup> Others include *Panoramic View of the Ghetto, New York City* (1900); *East Side Urchins Bathing in a Fountain* (1903); *Move On* (1903); and *Emigrants [i.e. immigrants] landing at Ellis Island* (1903). See the Library of Congress catalog of the Edison Company's New York City actualities at: <https://www.loc.gov/search/?fa=contributor%3AThomas+a.+edison%2C+inc%7Clocation%3Anew+york+city>

<sup>229</sup> Michele Pierson, "Jacobs' Bergsonism," in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 202.

Magic Lantern imagery.<sup>230</sup> The second was a digital video edited with the Eternalism software, and released as a DVD in 2006.

Both versions of *New York Ghetto Fishmarket 1903* are accompanied by Catherine Jauniaux and Tom Cora's original (and originally live) score. In its digital translation this acoustic construction takes the form of a densely-layered soundtrack combining orchestral music and intervals of absolute silence with electronic sampling, sung lamentations, and voice-over declamations ("Fish! Fish! Fish!"). Jacobs' edit of the image track is similarly multi-dimensional, juxtaposing a panoply of cinematic enlargement devices—blow-ups, freeze-frames, superimpositions, and jump-cuts—with surreal passages composed of documentation of previous Nervous System performances; an introductory section narrated through inter-titles; and a playful deployment of digital masking to stretch and pixellate the screen. In the inter-titles, which are composed as a form of direct-address to the viewer, Jacobs confides:

I have some digital fun with [the translation to video], now that the migrants have migrated to still another state of being.<sup>231</sup>

At the heart of both live and digital versions of *New York Ghetto Fishmarket 1903* is Jacobs' negotiation with the politics of the Edison footage, which are inextricably bound to the representation of Jewish subjects who had "fled from what was worse in Europe and would get worse still."<sup>232</sup> Contextualized against this fact, the aesthetic specificity of the digital film can be conceived in relation to the video format's capacity to preserve and transmit the materialist

---

<sup>230</sup> This Nervous System performance was produced as a commission for Harvestworks Digital Media Arts Centre, 1993. Jacobs notes that "I first ventured into [The Nervous Magic Lantern] in 1990 for the intro to NEW YORK GHETTO FISHMARKET 1903 (dropped for making the work too long) and the piece CHRONOMETER but then almost 10 years passed before returning to it." Jacobs, "Three Essays."

<sup>231</sup> Jacobs, inter-title to *New York Ghetto Fishmarket 1903* (2006).

<sup>232</sup> Jacobs, inter-title to *New York Ghetto Fishmarket 1903* (2006).

An intrepid mechanic-cameraman is sent by Thomas Edison to film the picturesque Yids of The Lower East Side, recently escaped from the church-led pogroms of Eastern Europe. American industry preferred then as it prefers now to hire desperate non-union people who have no choice but to accept lousy conditions and work for bupkis.



Figure 3.21: Ken Jacobs, frames and inter-titles from *New York Ghetto Fishmarket 1903*. 2006. Courtesy the artist.

The day is sunny, the sounds (not preserved) boisterous.  
The cops are there, swaggering through the crowd  
like Cossacks, but the buying and selling of fish  
(poor fish, breathing their last, mindless  
things, yes? but slippery, struggling)  
is intense and few people notice  
the Edison cameraman.



Figure 3.22: Ken Jacobs, frames and inter-titles from *New York Ghetto Fishmarket 1903*. 2006. Courtesy the artist.

Vivid individuals perform in the open pit a one-time-ever dance.  
 Had the movie-camera recorded a minute sooner or later  
 we'd be seeing an entirely different dance, but this one  
 centers on a territorial dispute between peddlers  
 and has great moments of paper being torn  
 for fish-wrapper, plus a mother carrying  
 a wide-eyed child who also enjoys  
 the spectacle of the market.

Not only is the scene history but the film itself bears a history  
 in its scratches and splices of its own escape from extinction  
 as a paper print at The Library of Congress for a half-century  
 before someone thought to re-film it so it could again be seen  
 on-screen, a look at what life was like for the millions that had  
 fled from what was worse in Europe and would get worse still.

Sightlines swing and momentarily meet.  
 The ground is slippery with melted ice.  
 Talk and thought is in Yiddish, language  
 of a people on the move, with words  
 picked up from many countries folded into  
 a base of medieval German. The price  
 of fish is crucial in the life of the ghetto,  
 where profit tangles directly with poverty.  
 I was born later, in 1933, but was dressed  
 identically to the little boys seen here.  
 Grandpa wore a derby, read *The Forward*.  
 I look for my grandmother in the crowd.

The video was a blessing to make,  
 in 2006, less than a mile from the once-location  
 of the fishmarket (and a 3-minute walk from the 9.11 site)  
 as a way out of thinking of America's vicious imperial fiasco.  
 "A curse upon Columbus", disappointed people would say  
 in their respective languages and dialects. But I say *forget*  
 this morbid reality! Movie-escape is the only escape  
 a reasonable person should now expect. Come see  
 NEW YORK GHETTO FISHMARKET 1903,  
 Edison by way of Ken Jacobs  
 assisted by Erik Nelson and Flo Jacobs,  
 music by Catherine Jauniaux and Tom Cora.

"The movie projector's a kind of clock",  
 my friend Ed Batchellor said.  
 The perforated film winding though it,  
 and all that's depicted on it,  
 enmeshes with its clockworks.

This huge accident we call real life,  
 whatever tiny portion of it is caught on film  
 becomes itself clockworks,  
 repeating mechanically  
 whenever it passes through the machine.

What was accident is thus transformed  
 into precise choreography.  
 The turn from clattering machine to electronics  
 is only to a more inclusive  
 and reliable clock.

A mind once looked out of  
 each person in this picture,  
 picturing its own version of events.  
 Our challenge is to imagine  
 the arrangement of things each person saw.

Figure 3.23: Ken Jacobs, inter-titles from *New York Ghetto Fishmarket 1903*. 2006. Courtesy the artist.



I have some digital fun with it,  
now that the migrants have migrated  
to still another state of being.

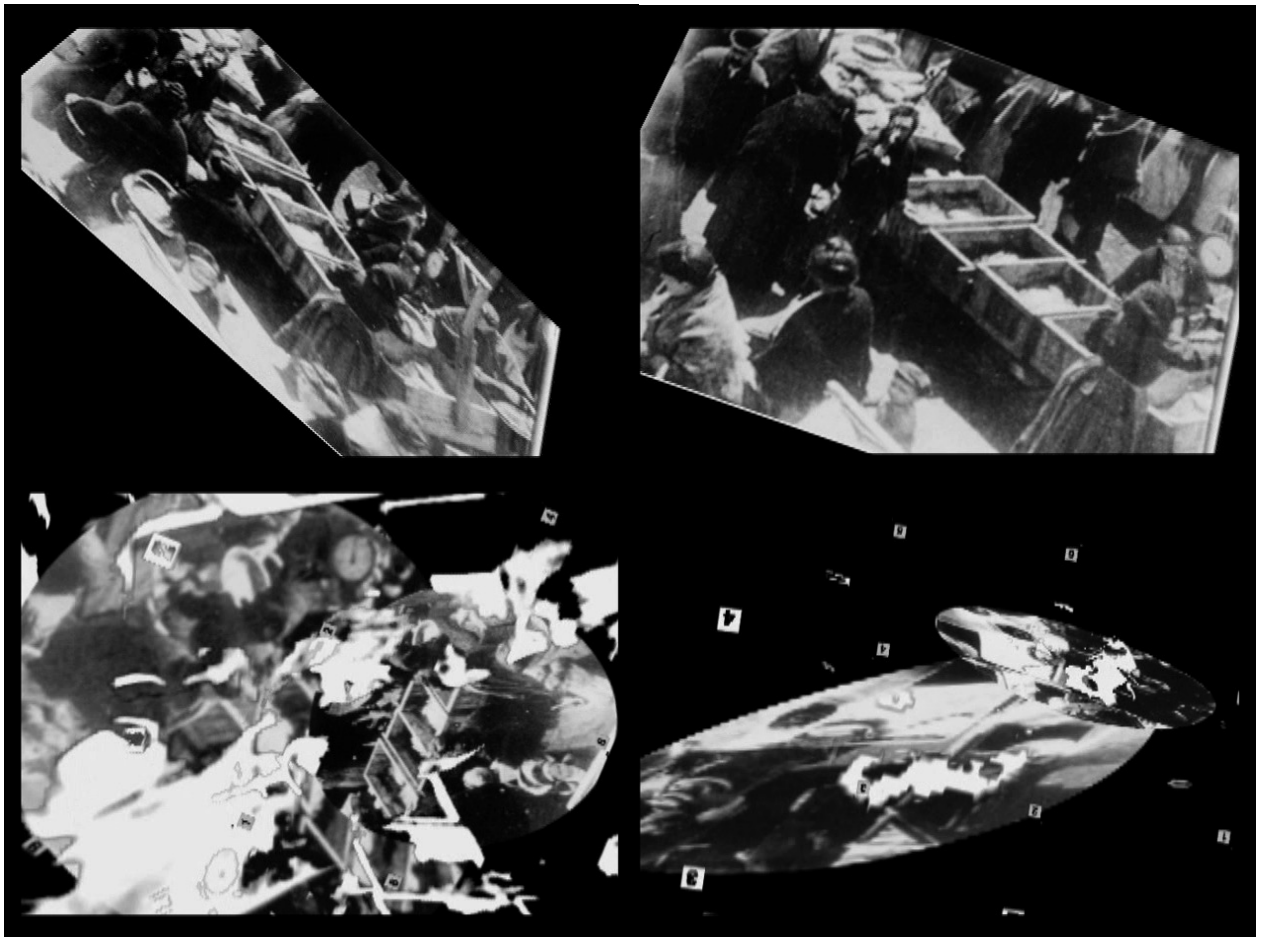


Figure 3.24: Ken Jacobs, frames and inter-titles from *New York Ghetto Fishmarket 1903*. 2006. Courtesy the artist.

contours of *all* previous media. The transmutation of a Nervous System / Nervous Magic Lantern film performance into single-channel video is a primary act of re-situating that allows *New York Ghetto Fishmarket 1903* to enter another medium by, in Jacobs' words, going "underwater, or something like that."<sup>233</sup> Yet this reconstitution by digitality does not significantly affect the film's conceptual horizon, because for this artist "it's the same impetus, the same elements I'm working with, and this way, it survives, [whereas it couldn't] survive as a live performance."<sup>234</sup> In fact, by actively facilitating his work's migration across the analog/digital transition Jacobs actually enlarges the incorporative character of digital inscription into a much broader trope of survival.

An open display of the film's status as a born-digital reformulation of an unrepeatable live performance becomes a formal device by which Jacobs underscores the original print's dizzying trajectory across the whole history of twentieth-century media: from participation in the cinema of attractions to an archival paper print, a live projection performance, and a digital video. The layering of identifiable visual evidence of these historical patinas upon the surface of a digital screen (the jerkiness of early film butting up against celluloid degradation, video blur, pixellated masking) has the effect of conjoining the theme of the media archive with the historical resonance of Smith's portrait of "the picturesque Yids of the Lower East Side, recently escaped from the church-led pogroms of Eastern Europe" on the level of digital form.<sup>235</sup> Put differently, by underscoring the status of the digitally subtended media archive as a kind of Ur archive of

---

<sup>233</sup> "It entered another medium. It went underwater, or something like that" Jacobs, in Menzies, "Interview with Ken Jacobs (2 August 2011)."

<sup>234</sup> Menzies and Jacobs, in *Ibid.*

<sup>235</sup> Jacobs, inter-title to *New York Ghetto Fishmarket 1903* (2006).

experience, Jacobs reframes the analog/digital transition allegorically, in stylistic terms. It is in this vein that the inter-titles to *New York Ghetto Fishmarket 1903* offer the following reflection:

The movie projector's a kind of clock  
The perforated film winding through it,  
and all that's depicted on it,  
enmeshes with its clockworks.

This huge accident we call real life,  
whatever tiny portion of it is caught on film  
becomes itself clockworks,  
repeating mechanically  
whenever it passes through the machine.

What was accident is thus transformed  
into precise choreography.  
The turn from clattering machine to electronics  
is only to a more inclusive  
and reliable clock.

A mind once looked out of  
each person in this picture,  
picturing its own version of events.  
Our challenge is to imagine  
the arrangement of things each person saw.<sup>236</sup>

This description of the movie projector as “a kind of clock”—a device to frame time as movement—can return a formal analysis of *New York Ghetto Fishmarket 1903* to Kracauer and Benjamin via a digital re-focalization. For Jacobs, as for Kracauer, the image of experience preserved on the surface of a ribbon of celluloid is only a partial transcription of “this huge accident we call real life, whatever tiny portion of it is caught on film.” Yet the wonder of what Frampton called the cinema’s “exceptional machine” is that an action, gesture, and micro-event

---

<sup>236</sup> Jacobs, inter-title to *New York Ghetto Fishmarket 1903* (2006).



that happened to pass through the cinematic clockworks “*becomes itself clockworks*, repeating mechanically whenever it passes through the machine.”<sup>237</sup>

This primary recomposition of experience as cinema has the transformative effect of rendering contingency into a “precise choreography.” More fundamentally, the stabilization of the image of space in recordable media bestows the fragments of experience that happened to have been filmed and photographed with the archeological potential for an encounter with the viewer from the future. In the strong claim that “*the turn from clattering machine to electronics is only to a more inclusive and reliable clock*,” then, Jacobs emphasizes the status of the digital recomposition of *cinema* as *media* as a secondary reconstitution that secures and ratifies the recording’s archeological vocation by preserving it—along with the totality of the surviving media archive—in a manner that creates new access to its pictorial contents.

Indeed Jacobs’ approach to digital film form is characterized by a sense of the energized, non-isomorphic convergence between historical iterations of media in a manner that signals his appreciation of this aspect of archival intensification as *the* representational newness of digital inscription. *New York Ghetto Fishmarket 1903* demonstrates, for example, on the level of film form, an awareness that cinema’s becoming media under the conditions of an all-encompassing digital *dispositif* has consolidated—and even radicalized—the media archive’s Kracauerian role as the ‘medium’ for a genuine historical consciousness. Jacobs’ deployment of digital style can even be said to enlarge the aesthetic ambition of the form inaugurated by *Tom, Tom* to the digital *dispositif* per se, because *New York Ghetto Fishmarket 1903* centers its

---

<sup>237</sup> Frampton, “For a Metahistory of Film,” 135.



Figure 3.25: Edison Company, frames from *New York City "Ghetto" Fish Market*. 1 May 1903. Camera operator: J. B. (James Blair) Smith. 35mm, 15fps, b&w, silent. 2min53sec. Paper Print Collection, Library of Congress, Washington. ([Source](#)).



Figure 3.26: Ken Jacobs, frames from *New York Ghetto Fishmarket 1903* showing celluloid and paper-print degradation. 2006. Courtesy the artist.



Figure 3.27: Ken Jacobs, frames from *New York Ghetto Fishmarket 1903* showing video documentation of a previous Nervous System performance. 2006. Courtesy the artist.

representational horizon around the historical affectivity of another impossible image:

A mind once looked out of / each person in this picture, / picturing its own version of events. / Our challenge is to imagine / the arrangement of things each person saw.

In this, I want to suggest that *New York Ghetto Fishmarket 1903* extends the implications of Kracauer and Benjamin's analyses into the digital present; and in a manner that allows the notion of an 'impossible' image to perform the analytic work of articulating the contour of a specifically digital style. The enlargement of time as movement in *New York Ghetto Fishmarket 1903* materializes a fantasy of aesthetic re-animation correlative, in aspiration and mood, to the restless search for incandescent presence that backlights Benjamin and Kracauer's scrutiny of old photographs for "the tiny spark of contingency, of the here and now, with which reality has (so to speak) seared the subject."<sup>238</sup> One might observe, for example, that the pictorial structure of Smith's original film is organized by the rhythm of camera movement—seeming to almost sway with the momentum of the depicted scene as the cinematographer pans across the horizontal movements of bodies, and the centripetal gesticulations of buying and selling. It is this underlying structure that Jacobs harnesses for deconstruction through a virtuosic deployment of the spatio-temporal attenuations of digital Eternalizing.

When we watch, in exaggerated replay, as a woman in a shawl performs a particular turn in negotiating a table full of fish, or a policeman strides through the market with a characteristic gait, what leaps to the fore and "hold[s] the gaze tight" is the affective charge that trails movement's capacity to designate experiential singularity.<sup>239</sup> This dilation of a phenomenology

---

<sup>238</sup> Benjamin, "Little History of Photography," 510.

<sup>239</sup> Kracauer, "Photography," 55.

of physiological and mechanical gesture—the turn of a head, a crinkle of newspaper wrapping, the flow of fabric against the contours of a body, the panning of the camera itself—enlarges an order of detail that Bellour or Mulvey would call *cinematic*: absolutely temporal details embedded within the flow of cinematic time, and whose stabilization for pensive spectatorship relies on the mechanics of digital clockwork.

Over the course of the film, the Eternalizing device has its intended effect of collapsing the spatial gulf separating the zone of the cinematographer from the arena of the subjects. A *digital* mechanical “resurrection of bodies in space from their dismembered trajectories” thus allows Jacobs to wrest intimacy and proximity from a document produced as a dispassionate act of surveillance.<sup>240</sup> What is specifically digital about this representational outcome, however, is not its historicity or powerful affectively, but the conjoining of these qualities within an intermedial combine that imbibes the cinematic plane with the sensuality of a stabilized *figural* signification. In Jacobs’ words:

Jacobs: This [kind of rescue] is something that is rarely shown, and people will look at it and say, oh, ‘old movies.’ And if they attend to the people at all, it will be as kind of funny, weird natives. So I tried to give them back three dimensions, as much as could be done when it's all film.

MM: To give them back something like life.

Jacobs: Yes, that's right. A semblance of life.<sup>241</sup>

What is the figural? It is an aesthetic invocation of the body unpinned from pictorial or indexical depiction. For Jacobs, as particularly for Benjamin, the figural signification operates on an allusive register: is not literal or symbolic, though it remains physical and poetic. As such, the

---

<sup>240</sup> Frampton, "For a Metahistory of Film," 135.

<sup>241</sup> Menzies and Jacobs, in Menzies, "Interview with Ken Jacobs (2 August 2011)."

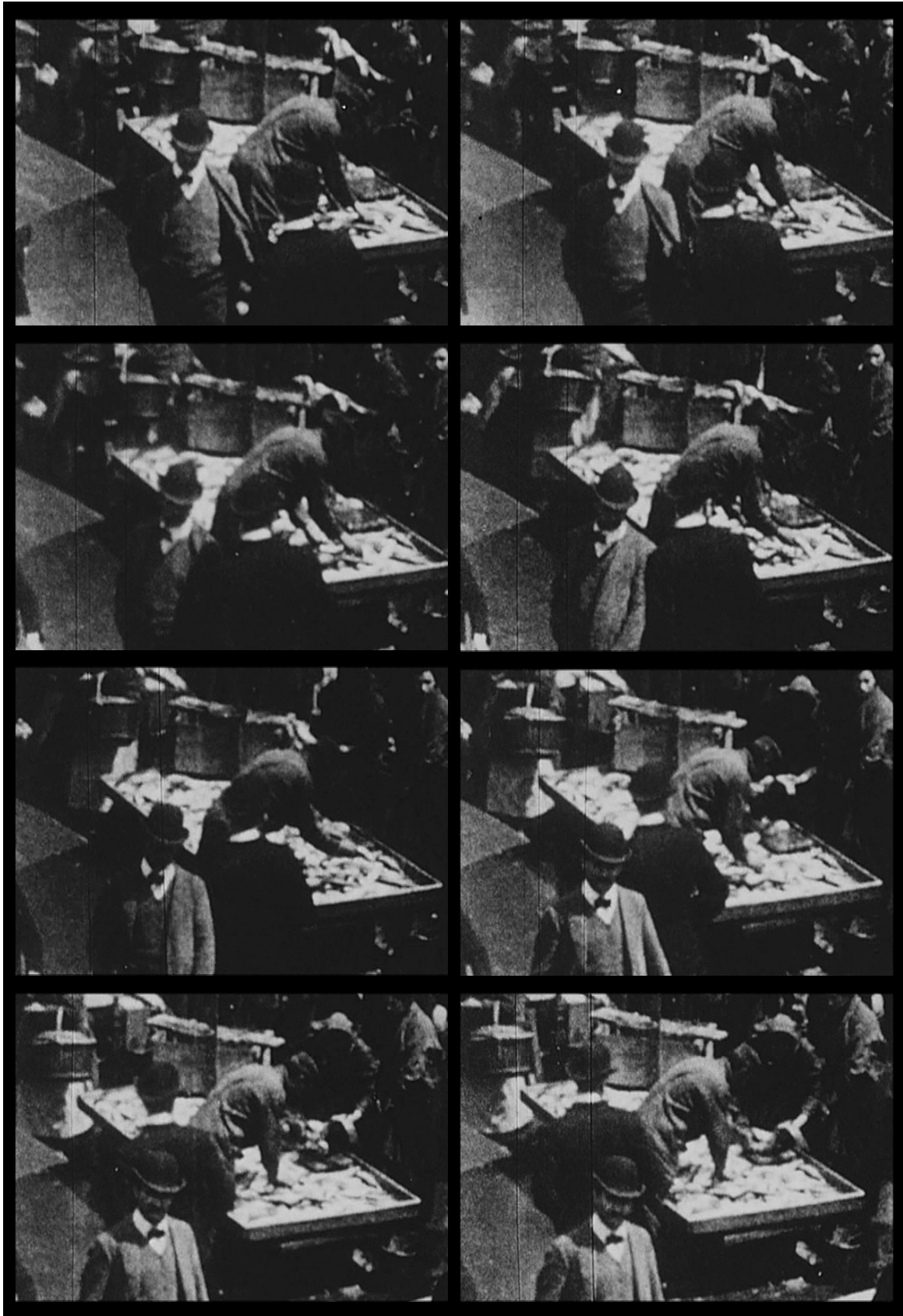


Figure 3.28: Ken Jacobs, frames from *New York Ghetto Fishmarket 1903* an Eternalization of gait. 2006. Courtesy the artist.

figural transmits a distilled aesthetic liveness clouding “around and even in the figure.”<sup>242</sup> Yet this manifest corporeality remains mysteriously un-confined by figurative representations of form in shape, volume, or color. “The position of art indicates a function of the figure, *which is not signified*” Jean-François Lyotard has written in an influential text that characterizes the figural as an aesthetic conveyance of desire.<sup>243</sup> In Lyotard’s account “art covets the figure” because “art stands in alterity as plasticity and desire, a curved expanse against invariability and reason,” and “‘beauty’ is figural, unbound, rhythmic.”<sup>244</sup> This alignment of the aesthetics of the figural with rhythm and sensuousity is useful in drawing its description into an explicitly Bergsonian territory.

As a principal of embodiment, the figural indicates a body in motion: the body conveyed as gesture and contour, rather than in the stability of an absolutely demarcated form. To this extent the figural in art tests the limits of a descriptive hermeneutics. Yet to attempt this articulation is, in the words of Hans Hofmann, “necessary,” because “from this aspect do we learn, and upon the understanding of this is built the progress of a tradition.”<sup>245</sup> I want to characterize Jacobs’ aesthetic as both Bergsonian and figural in its ambition to arrive at a mode of realism whose

---

<sup>242</sup> Jean-François Lyotard, *Discourse, Figure* (Minneapolis: University of Minnesota Press, 2011), 7.

<sup>243</sup> For Lyotard this paradoxical “position indicates that the symbol’s transcendence is the figure, that is, a spatial manifestation that linguistic space cannot incorporate without being shaken, an exteriority it cannot interiorize as *signification*.” This is because “a true symbol gives rise to thought, but not before lending itself to ‘sight.’” Thus the fascination of the figural is that its “mystery [as] that the symbol remains to be ‘seen,’ that it remains steadfastly within the sensory, that there remains a world that is a story of ‘sights,’ or an interworld that is a store of ‘visions,’ and that every form of discourse exhausts itself before exhausting it.” *Ibid.*

<sup>244</sup> *Ibid.*

<sup>245</sup> “In a sense,” Hofmann writes, “great art surpasses analysis. It affects us most profoundly through the spirit out of which it has evolved and through the expressive statement of the artist. However, it is equally necessary to discern its aesthetic quality: the form which gives to [an artwork] its character of solidity as an object to be concrete and durable in the changing circumstances of time. From this aspect do we learn, and upon the understanding of this is built the progress of a tradition” *Brochure*, Hans Hofmann School of Fine Arts, New York, 1937-38. Reprinted in Hofmann, *Text and Lectures by Hans Hofmann*, 165.

experiential intensity—a cinematic *élan vital*—will provide the beholder with a “semblance” of affective contact with the depicted subject.

It is in an important commentary on Jean-Gaspard-Félix Laché Ravaissou (a philosopher-artist he admired) that Bergson discusses the figural’s significance for an aesthetics of *durée*:

There is, in Leonardo da Vinci’s *Treatise on Painting*, a page that that Ravaissou loved to quote. It is the one where the author says that the living being is characterized by the undulous or serpentine line, that each being has its own way of undulating, and that the object of art is to render this undulating distinctive. “The secret of the art of drawing is to discover in each object the particular way in which a certain flexuous line which is, so to speak, its generating axis, is directed through its whole extent, like one main wave which spreads out in little surface waves.”

It is possible, moreover, that this line is not one of the visible lines of the figure. It is not in one place more than in another, but it gives the key to the whole. It is less perceived through the eye than thought by the mind. “Painting,” said Leonardo da Vinci, “is a mental thing.” And he added that it is the soul which creates the body in its image. ...

Let us look for a moment at the portrait of Mona Lisa or even at the picture of Lucrezia Crivelli: does it not seem to us that the visible lines of the figure rise toward a virtual centre, located behind the canvas, where would be revealed all at once, gathered into a single word, the secret we shall never have finished reading, phrase by phrase, in the enigmatic physiognomy? ...

For Leonardo da Vinci, then, the painter’s art does not consist in taking in detail each trait of the model, in order to transfer it to the canvas and reproduce, portion by portion, its materiality. Neither does it consist in picturing some impersonal and abstract type, where the model one sees and touches is dissolved into a vague ideality. True art aims at portraying the individuality of the model and to that end it will seek behind the lines one sees the movement the eye does not see, behind the movement itself something even more secret, the original intention, the fundamental aspiration of the person: a simple thought equivalent to all the indefinite richness of form and color.<sup>246</sup>

In its immateriality and precision, this trope of “the undulous or serpentine line” is an adequate figure for the idea of the virtual at the center of Bergson’s aesthetics. Ravaissou’s account of Leonardo da Vinci is centered around the notion that the artist’s pictorial production expresses a quite specific conviction: that “the living being is characterized by the undulous or serpentine

---

<sup>246</sup> Bergson, “The Life and Work of Ravaissou,” 196.

line, that each being has its own way of undulating, and that *the object of art is to render this undulating distinctive*.” His description of “the secret of the art of drawing” as an inductive sensitivity to worldly life places a phenomenology of movement at the ground of Leonardo’s achievement; because this “undulous or serpentine line” transmits the ontological essence of “the living being” through a figural distillation of its movement.

‘Pictoriality’ itself seems subtly transformed in Ravaisson’s idea of an invisible virtual line that can reorganize the image around its absolutely indivisible temporality: forming, “so to speak, its generating axis,” “like one main wave which spreads out in little surface waves.” This “certain flexuous line,” even if conveyed by an artist, is “less perceived through the eye than thought by the mind”; and it cannot be isolated “in one place more than in another” by being lodged within particular details or areas of a composition. Instead, like an aerial or atmospheric diffusion that “gives the key to the whole” it is manifested across the picture’s “whole extent.” It is a *virtual* enlivenment whose visible effect is to transform the image into a figural carrier of movement. And considered in relation to Hofmann’s definition of pictorial plasticity—“*plasticity means to bring the picture surface to ‘automatic’ plastic response...with an added dynamic enlivenment of created breathing depth*”—this theory of a figural activation of ‘pictoriality’ can be seen to provide Bergson with an idea of the portrait as a virtual image of movement.<sup>247</sup>

Precisely this notion of an image reorganized and made plastic by an upswell of duration grounds Bergson’s reading for Leonardo’s most emblematic portraits: of Lucrezia Crivelli (*Portrait of a Woman* or *La Belle Ferronnière*, 1495–1499) and the *Mona Lisa* (*Portrait of Lisa*

---

<sup>247</sup> Hofmann, “The Resurrection of the Plastic Arts (1954),” 44.



*Gherardini* or *la Gioconda*, 1503–1506). Both these pictures, Bergson suggests, are dominated by a quality of excess resulting from the fact that “the visible lines of the picture” seem to “rise toward a virtual centre, located behind the canvas.” This unrepresented point cannot be fully accessed through the painting’s manifest content because it has been placed by the artist “*behind* the canvas.” It is for this reason that the fascinated beholder will never finish reading the “secret” implied by the depicted woman’s “enigmatic physiognomy.”

“Although the perceiving eye cannot see it, the ‘original intention’ of the sitter stirs deep beneath the representational facade” the art historian Todd Cronan has written in an analysis of this passage that emphasizes “it was the artist’s task to grasp the sitter’s intention and convey it to the beholder through form and color.”<sup>248</sup> Bergson was able to recognize this task of the artist because, as Maurice Merleau-Ponty has succinctly observed, “*Bergson had the intuition of subjectivity as duration.*”<sup>249</sup> And if the art of metaphysics arises from the philosopher’s intuition of *subjectivity as duration*, then the metaphysics of art—“the painter’s art”—is to convey *duration as subjectivity*.

The challenge of this conception of the task of portraiture cannot be met in a realism that aims for verisimilitude by “taking in detail each trait of the model, in order to transfer it to the canvas”; nor by a substitutive abstraction that involves “picturing some impersonal and abstract type, where the model one sees and touches is dissolved into a vague ideality.” Rather, the great

---

<sup>248</sup> Cronan’s reading continues: “That this ‘single word’ of the sitter’s personality could not be fully uttered—that it was both revealed and concealed by the artist, requiring close and repeated attention by the beholder—helped explain the continuing hold of Leonardo’s achievement. Leonardo, on Bergson’s account, was like a depth psychologist. He sought to picture his sitter’s deepest thoughts, beliefs, and desires. Situated at the virtual center of his subject, the painter marks his surface ‘phase by phase,’ seeking the elusive goal of expressing himself and the other through his medium.” Todd Cronan, *Against Affective Formalism: Matisse, Bergson, Modernism* (Minneapolis, MN: University of Minnesota Press, 2013), 69.

<sup>249</sup> Merleau-Ponty, *Nature*: Course Notes from the Collège De France, 58. My emphasis.

artist rises to the metaphysical horizon of Bergson's demand of the artwork by organizing the portrait around a "virtual centre"—an invisible point located beyond the picture plane, outside the purview of the beholder's rapacious gaze. Leonardo's artistic genius seems to Bergson manifested in his pictorial conveyance of the experiential reality of "the model [he] sees and touches" via an image that "aims at portraying the individuality of the model," and that is consequently mapped to the pre-formal contour of an utterly individualized figural movement. The outcome of such an approach to the creation of a portrait is an image that will leave the beholder seeking for the subject by looking "behind the lines one sees [for] the movement the eye does not see," and "behind the movement itself something even more secret, the original intention, the fundamental aspiration of the person."

Put differently, the great artist seems to Bergson to preserve a sense of the subjectivity of the model by providing the beholder with *a deliberately incomplete portrait*. What is laterally articulated in Bergson's reading of Ravaissou on Leonardo, then, is a concept of portraiture structurally equivalent to the that circled in Benjamin's "Little History of Photography."<sup>250</sup> In both instances the beholder judges the artwork—whether painted and photographic—to be charged with a high affective signification. This intensely temporal image satisfies the metaphysical demand of Bergsonian aesthetics by indicating the representational incommensurability of the depicted subject.

Michele Pierson has characterized Jacobs as "one of the most Bergsonian of filmmakers" because "his thinking about the relation between perception and experience; his sense that art

---

<sup>250</sup> Bergson, "The Life and Work of Ravaissou (1904)," 197.

makes contact with something real when it is most open to contingency, most indeterminate; and his implicit critique of a certain kind of intellectualism all find sympathetic support in Bergson.”<sup>251</sup> Beyond this useful catalog, I want to suggest that Jacobs is most emphatically a Bergsonian artist in his perception of the latency of *durée* in the media archive. The relation between Jacobs and Bergson is one of structural sympathy—that of an aesthetics and a metaphysics that seem to “interpenetrate and be animated with a common life.”<sup>252</sup> It is precisely this kind of echo of the art of Leonardo da Vinci in Aristotle’s philosophy that struck Bergson in his reading of the work of Ravaissou: “The whole philosophy of Ravaissou springs from the idea that *art is a figured metaphysics, metaphysics is a reflection of art, and it is the same intuition, variously applied*, which makes the profound philosopher and the great artist.”<sup>253</sup> Jacobs’ equally Bergsonian approach to the experience of time in the image is summarized in the following statement:

‘Slowed down’ is a very tricky thing, because [the film is] not slowed down. I tend to think of it in a way that Dziga Vertov talks about it, as an expansion rather than a slowing down, as a magnification of time. Nothing has actually been slowed down, we’re just finding more time in that time. There’s much more time in that time than we ever imagined, in two frames. 16 or 18 or 24 frames per second, that’s infinite time, and infinite motion is taking place, infinite numbers of events are taking place, and [the Nervous System] begins to explore that. I’ve never exhausted the time bounded by two frames. I take some things I want and I continue, I skip so much more that’s possible in just two frames.<sup>254</sup>

---

<sup>251</sup> Pierson, "Jacobs' Bergsonism," 196.

<sup>252</sup> Bergson, "The Life and Work of Ravaissou (1904)," 197.

<sup>253</sup> Bergson asks “How can one help being struck by the resemblance between the aesthetics of Leonardo da Vinci and the metaphysics of Aristotle as interpreted by Ravaissou?” He concludes that “Ravaissou took possession of himself, became master of his thought and his pen the day that [this particular connection between aesthetics and metaphysics] revealed itself clearly to his mind. The identification occurred the moment the two distinct currents carrying him toward art and philosophy merged in him. And the junction took place when the two geniuses who, in his eyes, represented what was most profound in philosophy and highest in art, Aristotle and Leonardo da Vinci, seemed to him to interpenetrate and be animated with a common life.” Ibid. Extended emphases mine.

<sup>254</sup> David Schwartz, Tom Gunning, and Jacobs in Schwartz et al., "Interview with Ken Jacobs (Aug 10, 11, 1989)," 41.

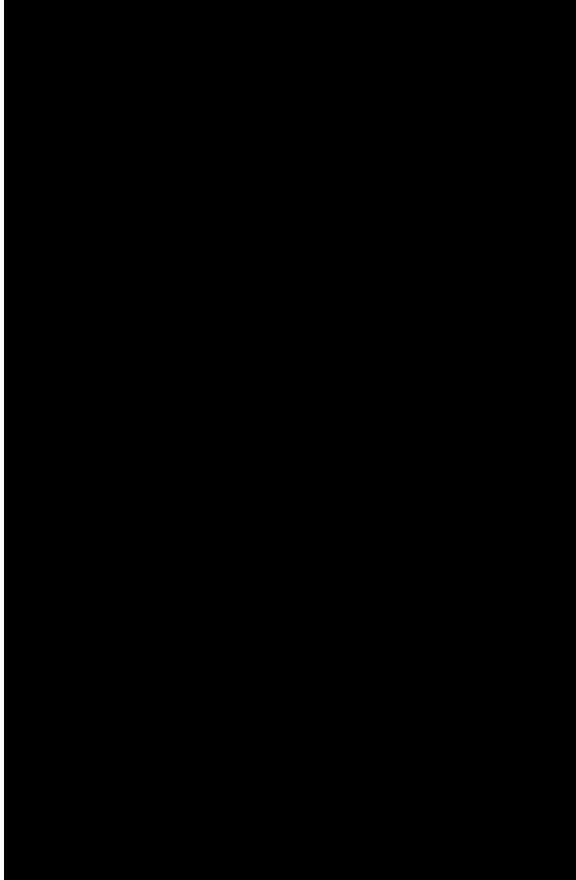


Figure 3.29 (left): Léonardo da Vinci, *Portrait of Lisa Gherardini*, wife of Francesco del Giocondo, called *Mona Lisa*, *la Gioconda* or *la Joconde*. 77 x 53 cm. 1503–1506. Collection of Musée du Louvre, Paris. *Image not reproduced due to copyright restrictions.*

Figure 3.30 (right): David Octavius Hill and Robert Adamson, *Mrs. Elizabeth (Johnstone) Hall, Newhaven Fishwife at Rock House, Edinburgh*. c.1843-1845, printed posthumously 1916. Carbon print, 20 x 14.5 cm. Collection of the National Gallery of Canada.



Figure 3.31: Ken Jacobs, frames from *New York Ghetto Fishmarket 1903* showing Eternalized gesture. 2006. Courtesy the artist.

To understand the media archive as an archive of experience is to see any increment of media-time as always potentially endless, because “infinite motion is taking place, infinite numbers of events are taking place” on the level of detail. The enlargement of cinematic detail consequently does not ‘slow’ the film down so much as subject the pace of cinematic movement to an aesthetic dilation. This intervention “an expansion rather than a slowing down,” “a magnification of time,” because its function is to produce *extra time*. Jacobs’ re-temporization creates a space for the manifestation of *durée* in the image by loosening the film’s spatial weave to a latent undercurrent of strong time. The subsequent upswell of duration reorganizes the picture around a virtual center that he figures in the image of “infinite time”: “I’ve never exhausted the time bounded by two frames.” And the vertiginousness of this claim—a succinct expression of Jacobs’ Bergsonianism—also locates the logic of his digital Eternalizing.

“Consider, for example, the action of a door opening,” he suggests:

Select from that entire action only the fraction of time that it would take for the door to just begin to open, as it cracks open a narrow space alongside the doorframe, with the outer edge of the door swinging over little more than an inch of flooring. ... In reality, there would be no way to sustain into unlimited time the very limited action of the door cracking open; to keep opening and only opening yet never moving past that very limited phase of just cracking open. ... The Eternalism technique is a sort of cinematic conveyor belt moving in an opposing direction to any moving image placed on it.<sup>255</sup>

“In reality” there is no way to sustain “the fraction of time that it would take for the door to just begin to open” in a manner that will allow the door to seem to open, and *only* open. But digital Eternalizing allows for a thickening of this “very limited action” into a potentially “unlimited time” by allowing any increment of media-time to be transformed into an *interval* of

---

<sup>255</sup> Ken Jacobs. Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures. United States Patent US 7030902 B2, Apr 18, 2006, and issued Apr 18, 2006. 11.

infinite time. As an animation tool that functions like a “cinematic conveyer belt moving in an opposing direction to any moving image placed on it” this software allows for the creation of a wholly imaginative experience of movement: a rolling oscillation between figuration and re-figuration that is like almost nothing else “in reality.” Instead, the *jouissance* of the Eternalism’s figural image motion is linked to the primary pleasures of visuality; and on this level the fascination of digital Eternalizing emblemizes an aesthetic outcome that has been made general by the digital *dispositif*.

“If I like a photograph, if it disturbs me, I linger over it” Barthes observes toward the end of *Camera Lucida*:

What am I doing, during the whole time I remain with it? I look at it, I scrutinize it, as if. . . . I want to outline the loved face by thought, to make it into the unique field of an intense observation; I want to enlarge this face in order to see it better, to understand it better to know its truth. . . . I believe that by enlarging the detail “in series” (each shot engendering smaller details than at the preceding stage), I will finally reach my mother’s very being. What Marey and Mubridge have done as *operators* I myself want to do as *spectator*: I decompose, I enlarge, and, so to speak, I *retard*, in order to have time to *know* at last.<sup>256</sup>

Here enlargement at once a visual strategy, and a psychological device. Barthes before a photograph of his recently deceased mother is like Kracauer’s grandchildren before a photograph of their once-young grandmother in attempting to turn an affectively-saturated mode of close looking into a kind of portal into “the individuality of the model”: “I want to outline the loved face by thought, to make it into the unique field of an intense observation; I want to enlarge this face in order to see it better, to understand it better to know its truth.” The beholder searches almost desperately for a point of access to the lived reality of the depicted subject, and arrives

---

<sup>256</sup> Barthes, *Camera Lucida*, 99.

(once again) at the ‘medium’ presented by concrete visual detail: “I believe that by enlarging the detail...I will finally reach my mother’s very being.”

More specifically, Barthes seeks to perform “as *spectator*” what “Marey and Mubyrige have done as *operators*”—to decompose, enlarge, and retard the latent eloquence of photographic detail so as to wrest the extra time necessary for a vertiginous close looking that will allow the speaker “to *know* at last.” The pathos of this fantasy of pensive spectatorship is directly proportional to the beholder’s recognition that the depicted subject will always remain unknowable, even if it were possible to enlarge “the detail ‘in series’ (each shot engendering smaller details than at the preceding stage).” Yet Barthes’ description of “what Marey and Mubyrige have done as *operators*” is precisely what Jacobs actually achieves as an artist-spectator who pushes past the spatiality of concrete detail with an absolute plasticity. Jacobs participates wholeheartedly in the affective incandescence of Barthes’ fantasy of pensive spectatorship—“I look for my grandmother in the crowd” he tells us in the inter-titles to *New York Ghetto Fishmarket 1903*.<sup>257</sup> And here, too, the beholder seeks to enter into the imaginative zone of “the individuality of the model” by activating the spatiality of detail in order to look endlessly, again and again with a maximum of intensity. But in turning to the cinema for tactics and devices by which to decompose, enlarge, and retard the surface of the image, Jacobs creates an aesthetic configuration of time quite different from the Barthesian *punctum*.

Bellour’s essay on The Pensive Spectator describes the photograph’s eruption into cinematic time as effecting a “cinema conceived in relation to photography,” a “cinema seized by

---

<sup>257</sup> This particular inter-title discloses: “I was born later, in 1933, but was dressed identically to the little boys seen here. Grandpa wore a derby, read The Forward. I look for my grandmother in the crowd.” Jacobs, inter-title to *New York Ghetto Fishmarket 1903* (2006).



photography,” in which “the photograph’s potency radiates in a fleeting moment.”<sup>258</sup> By comparison, Jacobs’ film form profiles an order of ‘photographic’ detail that has been remediated by its proximity to cinematic movement. A digital Eternalism is a Barthesian *punctum* brought into an experiential compact with movement, and this re-setting transforms the photographic *punctum* by turning it into a *cinematic punctum* whose ‘photographic’ stillness is enlivened by the duration and phenomenology of motion.

The figural image of ongoing movement stabilized by the push-and-pull style of a digital Eternalism presents us with the profile of a photographic *punctum* seized by cinematic duration. By thus setting the Barthesian *punctum* into a ground of cinematic motion Jacobs allows the potency of cinematic detail to radiate onward in a roiling ecstatic abstraction. The primal fascination of Jacobs’ film style derives partly from the fact that it compacts the *punctum*’s animating temporality with the cinematic impression of movement. In this, I want to suggest, Jacobs holds up a profoundly focalizing mirror to the major aesthetic transformation triggered by the digital *dispositif*.

On the one hand we know—and Jacobs has demonstrated—that the material structure of the digital image allows any digitalized image to shift easily between stillness and motion. And we also know the processes of digitization pervasive in contemporary life allow almost any kind of image to be drawn into the material logic of the digital image. The result is that any image is now conceivable—indeed, is implicitly conceived—relative to its potential for animation by cinematic movement. Put differently, the digital *dispositif* has reversed the historical hierarchy of

---

<sup>258</sup> Bellour, "The Pensive Spectator (1984)," 91, 90.

still and moving images Frampton summarized as the assumption “that cinema is a special case of the catholic still photograph.”<sup>259</sup> The catholic image is now is a moving image: specifically, a technical, cinematic image. The “unprecedented situation” into which Bellour sensed video was leading “the arts of mechanical reproduction that preceded it—photography and the cinema”—is bound up with the cardinal status of this reversal of foundational imagistic categories.<sup>260</sup>

The spectators left spellbound by the first Lumière projections, for example, were struck by the almost un-seeable newness of animated visual detail —“‘See, the leaves on the tree move!’ ‘Smoke comes out of the chimney’.”<sup>261</sup> The general eruption of movement into the catholicity of imagistic stillness is an equally fundamental intervention, and it implies another “shattering of tradition.”<sup>262</sup> Understood as a cinematic *punctum*, Jacobs’ Eternalising film style models this digital transfiguration of the image: the fact that the digital *dispositif* has made cinematic movement *the general condition of imagistic experience*, such that cinematic movement is now the epistemological-perceptual framework that conditions our encounter with the image per se.

Jacobs indicates something of the specifically aesthetic implications of this remapping in an important colorist sequence late in *New York Ghetto Fishmarket 1903*. Here a picture plane already agitated by being “Eternalized into Eternalisms”—“running in place without apparent beginning, middle and end, forever swelling or turning or rising or opening, forever seeming to

---

<sup>259</sup> Frampton, "For a Metahistory of Film," 134.

<sup>260</sup> Bellour, "Between-the-Images (1990)," 16.

<sup>261</sup> Francis Doublier, "Reminiscences of an Early Motion-Picture Operator," in *Image on the Art and Evolution of the Film: Photographs and Articles from the Magazine of the International Museum of Photography*, ed. Marshall Deutelbaum (New York and Rochester: Dover and International Museum of Photography, 1979), 23.

<sup>262</sup> Early cinema spectators, write Gunning, were responding to a “new perceptual and aesthetic experience” that simultaneously restructured the meaning of “traditional representation” and “the relation of spectacle to audience.” The sense of a primal virtual experience that reverberates in these spectatorial reactions provide us with a useful register of the acute perceptual newness implied by the presence of movement in a image previously characterized by stillness. Gunning, "An Unseen Energy Swallows Space," 356.

evolve without ever actually doing so”—is tinted with vivid hues of blue and red.<sup>263</sup> This color bleeds into the screen in an all-over saturation, transitioning between the tones, and in a single instance becoming wholly red. The pulsing of color into the image brings the partiality of Smith’s inadvertent portraiture into sharper relief, first by intensifying our sense of the document’s testimony, and its consequent status as a record of lived action. Jacobs’ further filling of the screen with sounds and colors not actually contained by the document has the effect of reminding us of everything that was *not* filmed and photographed. In this, his utterly non-naturalistic approach to animation via a form of cinematic painting pricks the realization that “there was a transition from a world without movies, without moving images, to this thing today that we take for granted.”<sup>264</sup> Yet we are also highly conscious that a digitized cinematic movement—the ‘thing today that we take for granted’—provides us with an imaginative and technical portal into this archive of experience. The recognition of these intersecting facts allows the screen itself—now grasped as a record of performance—to be re-imagined as a metaphysical divider between ‘us’ and ‘them.’ In this, the figures endlessly palpitating between figuration and re-figuration to come into focus as the subjects of a history painting.

Henri Matisse claimed to have created “the cinematography of my model’s private feelings,” because “in my work I am as unobtrusive as a cameraman who is standing at the front of a train and who films the various aspects of an unknown countryside.”<sup>265</sup> Jacobs’ extends this representational fantasy into a Bergsonian direction by seeking to encounter his subject across

---

<sup>263</sup> Jacobs. *Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures*.

<sup>264</sup> Jacobs in Menzies, “Interview with Ken Jacobs (2 August 2011).”

<sup>265</sup> Henri Matisse, quoted in Cronan, *Against Affective Formalism: Matisse, Bergson, Modernism*, 126.

the chasm of history. And as an artist “split between painting and cinema” across the American twentieth-century, his affective realism takes the form of a Cubist *and* Abstract Expressionist abstraction.<sup>266</sup> Specifically, Jacobs encounters the canvas of Smith’s cinematic clockwork as, simultaneously, a “resistant” Cubist surface and an Abstract Expressionist “record of performance.”<sup>267</sup> The activation of these histories of modernist painting in his cinematic abstraction endows the screen with an almost unspeakable concentration of movement. The tinted images in *New York Ghetto Fishmarket 1903* seem to take on “an amazing plasticity, tactility, and agency,” and be charged with a breathing, Hofmannian volumetricity.<sup>268</sup> This affective realism seems to coincide precisely with the Bergsonian description of “an art that neither emphasizes the material contours of the model, nor tones them down to the advantage of an abstract ideal, but simply centers them around the latent thought and generative soul.”<sup>269</sup> At the same time Jacobs’ stylistic remixing of the pictorial tradition into a kind of painterly assemblage seems utterly contemporary: a digital sampling of glitchy “parts and segments to create strange constructs... reminiscent of *dreams*.”<sup>270</sup> But it is the coherence with which this artist has opened his images to the movement of pictorial ground that clarifies the absolute contemporaneity of his film style. *New York Ghetto Fishmarket 1903* materializes a movement *in* the image to offer us a cinematography of the present—its pictoriality shifting from painting to

---

<sup>266</sup> Jacobs, “Painted Air.”

<sup>267</sup> Schwartz et al., “Interview with Ken Jacobs (Aug 10, 11, 1989),” 37; Jacobs, “Painted Air.”

<sup>268</sup> Hansen, *Cinema and Experience*, 36. Jacobs mulls on the long shadow of Hofmann’s influence in this way: “I saw something happening in painting and made it happen in clock-time. Something suggested, implicit, I made explicit.” Jacobs, “Painted Air.”

<sup>269</sup> Bergson, “The Life and Work of Ravaissou (1904),” 197.

<sup>270</sup> Kracauer, “Photography,” 62-3.



Figure 3.32: Ken Jacobs, frames from the tinted section of *New York Ghetto Fishmarket 1903*, 2006. Courtesy the artist.

cinema—in the form of a figural conveyance of death.<sup>271</sup>

The aesthetics of the colorist sequence in *New York Ghetto Fishmarket 1903* form, in this sense, a kind of aesthetic aporia—a *durée*-tinted “rend” in perception that the art historian Georges Didi-Huberman has described as a frontal encounter with visibility in which the experience of looking becomes:

like an endless movement, alternatively virtual and actual, powerful in any case. The frontality where the image placed us suddenly rends, but the rend in its turn becomes frontality; a frontality that no longer holds us in suspense, motionless, we who, for an instant, no longer know what to see under the gaze of this image. Then we are before the image as before the unintelligible exuberance of a visual event. We are before the image as before an obstacle and its endless hollowing. We are before the image as before a treasure of simplicity, for example a color, and we are there-before...as if facing something that conceals itself.<sup>272</sup>

The tinted screen in *New York Ghetto Fishmarket 1903* allows a “madness” Barthes detected as always “threatening to explode” from the *un*-tamed Photograph to erupt into view as an abstract image of *durée*.<sup>273</sup> Its affective realism, joined to the surging, environmental movement of the fishmarket, seems to carry forward a whole history and future of the image. The raw visibility of this image, which seems to look *back*, testifies to an encounter between still and moving images that is concretely historical as well as ontological. At the same time, Jacobs models our imagistic future with a Bergsonian twist, by figuring *durée* in a corporal image of Eternalized movement.

---

<sup>271</sup> Jacobs comments: “You know, these are people that escaped the pogrom in Europe, and the big pogrom that was going to come. You see them torn from their families. They’re not complete because the complete person has a family, the complete person has a background. They are torn from their background. ... They escaped here, and they escaped into poverty. They may have had delusions about the riches of America, but they escaped into poverty—terrible poverty. And this scene was exhibiting plenty, fish, eating. But they’re not just ordering fish. Giving up any money is a big deal, and they’re testing everything. They have to look for the fish, they have to examine it. ... The scene where everything goes red—what d’you think about that? ... It’s intended to invoke the Holocaust. It’s coming out of nowhere. What is this thing? It didn’t come out of nowhere, but it was unexpected. The size and thoroughness of this phenomena was unexpected.” Jacobs in Menzies, “Interview with Ken Jacobs (2 August 2011).”

<sup>272</sup> Georges Didi-Huberman, *Confronting Images: Questioning the Ends of a Certain History of Art*, trans. John Goodman (University Park, Pa.: Pennsylvania State University Press, 2005), 228.

<sup>273</sup> Barthes, *Camera Lucida*, 117.





Figure 3.33: Paul Cézanne, *Still Life with Apples and Oranges*. c.1899. Oil on canvas. 74 x 93 cm. Collection of the Musée d'Orsay, Paris. 1506. Collection of Musée du Louvre, Paris.

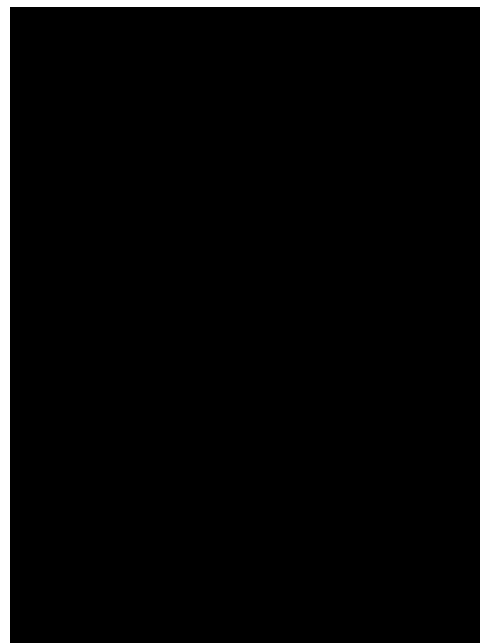


Figure 3.34 (left): Pablo Picasso, *Still life with Guitar*. Variant state. Paris, fall 1912. Paperboard, paper, string, and painted wire installed with cut cardboard box. Overall 76.2 x 52.1 x 19.7 cm. Collection of The Museum of Modern Art, New York.

Figure 3.35 (right): Pablo Picasso, *Guitar, Sheet Music, and Glass*. Paris, November 18, 1912, or later. Cut-and-pasted wallpaper, newspaper, sheet music, colored paper, and hand-painted faux bois paper, charcoal, and gouache on paperboard. 47.9 x 36.5 cm. Collection of McNay Art Museum, San Antonio. *Images not reproduced due to copyright restrictions.*

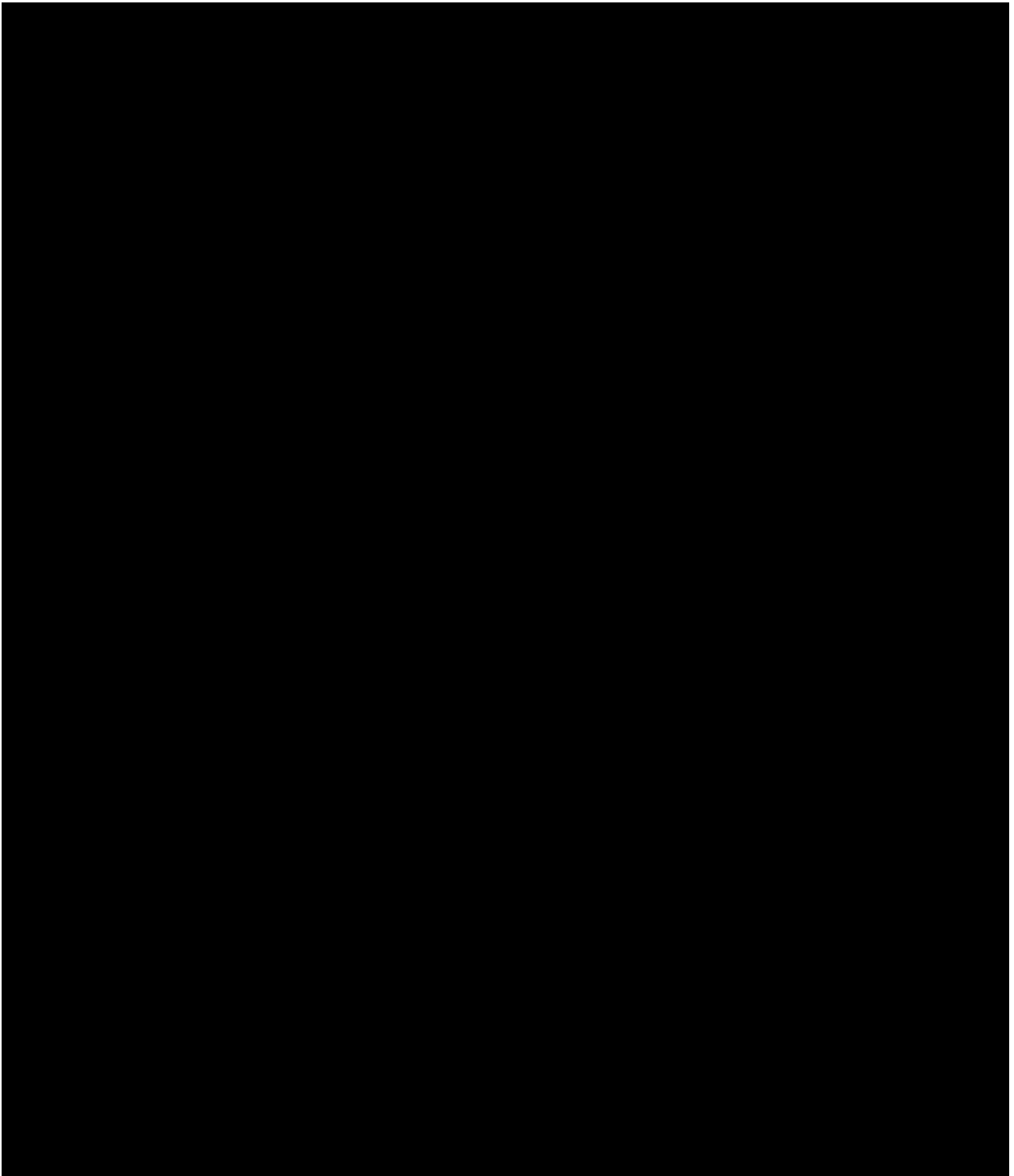


Figure 3.36: Hans Hofmann, *Sun in the Foliage*. 1964. Oil on canvas. 213.4 x 182.9 cm. Private Collection. *Image not reproduced due to copyright restrictions.*



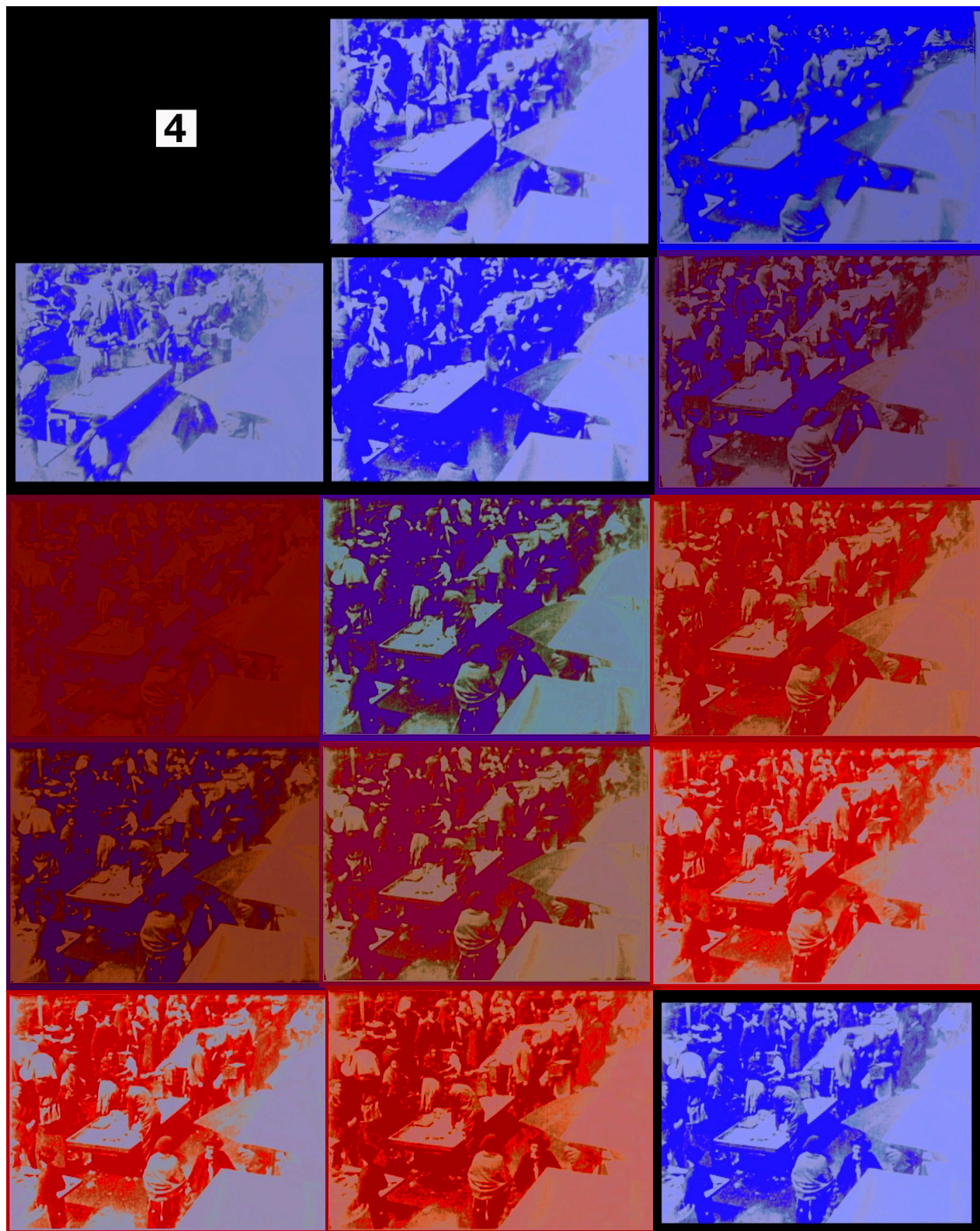


Figure 3.37: Ken Jacobs, frames from the tinted section of *New York Ghetto Fishmarket 1903*, 2006. Courtesy the artist.

## Conclusion: An Animate Archive

On the one hand, digital inscription has not been archival in the traditional sense—indeed, it has been so vulnerable to cycles of reinvention and development that the very concept of the archive has been reconsidered in its image.<sup>274</sup> But the material of digitality has already begun to stabilize; and there is little chance that the digital archive will dissipate, ghost-like, into the cloud.<sup>275</sup> Considered in relation to this assumption of persistence, then, the digital *dispositif* can be understood to have already generated a significant newness: another possibility of

---

<sup>274</sup> Jacques Derrida wrote in 1995 of the contemporary unsettledness of this concept of the ‘archival’: “Nothing is less reliable, nothing is less clear today than the world ‘archive’”; so that “nothing is thus more troubled and troubling today than the concept archived in this word ‘archive.’” Jacques Derrida, *Archive Fever: A Freudian Impression* (Chicago: University of Chicago Press, 1996), 90. See also: Eivind Røssaak, ed. *The Archive in Motion: New Conceptions of the Archive in Contemporary Thought and New Media Practices* (Oslo: Novus Press, 2010); Dieter Roelstraete, ed. *The Way of the Shovel: On the Archaeological Imaginary in Art*, Catalog to the Exhibition ‘the Way of the Shovel: Art as Archaeology’ at the Museum of Contemporary Art, Chicago, 9 November 2013–9 March 2014 (Chicago: Museum of Contemporary Art, Chicago in association with The University of Chicago Press, 2013).

<sup>275</sup> Gordon Moore, future co-founder of Intel Computing, predicted the social contour of the information age in 1965 when he postulated that the overall speed of computer processing would double every two years. This idea is became known as ‘Moore’s Law.’ At that pace of technological development, Moore predicted, “integrated circuits will lead to such wonders as home computers—or at least terminals connected to a central computer—automatic controls for automobiles, and personal portable communications equipment. . . . Computers will be more powerful, and will be organized in completely different ways. . . . Machines similar to those in existence today will be built at lower costs and with faster turn-around.” Moore proved to have been an accurate Cassandra, and Moore’s Law has determined the business model of the computing industry since the late 1960s: driving the appearance of the ever faster, smaller, and cheaper devices to which many are now habituated, and which has created the impression of an unsettled, constantly refreshing media-scape. However, this digital developmental curve may flatten within the conceivable future, because the computing industry has begun to encounter the limits of physics (i.e., how much data it can fit on silicon chips, even at a miniature scale). The end of Moore’s Law would require the industry to shift direction: either on the level of the material used to construct hardware (by moving away from silicon to a yet un-identified alternative); or on the level of another business model (continuing to use silicon chips, but accepting that ongoing developments in digital technology will be much less rapid). Whatever direction this change takes, I suggest that it is likely to result in a stabilization of the digital image. Even a wholesale shift to a new computing material will have to be integrative and convergent: to incorporate and exceed the established terms of computing (e.g., the binary language of coding), and by extension, the existing frameworks of digital space. Thus, even if the structure of the digital image is fundamentally adjusted in consequence to an encompassing adjustment of digital infrastructures, this change—like the flip from (analog) electronic video to digital video—is likely to endow a future post-digital image with more material stability than the late twentieth-/early twenty-first-century digital image ever possessed under the dictates of Moore’s Law. See: Daniel Robinson, “Intel Predicts Moore’s Law to Last Another 10 Years,” V3 <http://www.v3.co.uk/v3-uk/news/2403113/intel-predicts-moores-law-to-last-another-10-years> (8 Apr 2015); Gordon E. Moore, “Cramming More Components onto Integrated Circuits (1965),” *Proceedings of the IEEE* 86, no. 1 (January 1998): 82.

description. Digital inscription has provided us with a new *enunciative* possibility, and the aesthetic space opened up by this newness has a double inflection.

In the first instance, in a world in which all art is tinted by an atmospheric digital technicity, media aesthetics have become paradigmatic for aesthetics per se. It is this outcome that Rosalind Krauss' recent art critical and historical work pathologizes when, citing Fredrick Jameson's literary criticism, she characterizes "postmodernity as the total saturation of cultural space by the image."<sup>276</sup> The present situation of "complete image-penetration" has effected a "leeching of the aesthetic out into the social field in general," Krauss argues; and an art-world pervaded by video—her most privileged intermedial trope—has permitted the rise of "the international fashion of installation and intermedia work, in which art essentially finds itself complicit with a globalization of the image in the service of capital."<sup>277</sup> The tone of this critique indicates a conflation of the Greenbergian concept of the aesthetic medium with the bare possibility of politically committed art.<sup>278</sup> Yet I have tried to demonstrate, through a reading of Jacobs' practice mapped across media aesthetics and the history of modernist painting, the existence of a politicized *modernist* history of intermediality in very heart of the American field. As such,

---

<sup>276</sup> Krauss, *Art in the Age of the Post-Medium Condition*, 56.

<sup>277</sup> *Ibid.*

<sup>278</sup> I concur with Diarmuid Costello's argument that Krauss' contemporary project is awkwardly constrained by its commitment to argumentative terms established by Greenberg. Costello writes: "Unlike Fried, Krauss seeks to demonstrate the truth of the opposite [of Greenberg's equation of medium-specificity and aesthetic value], but because she fails to take issue with the conception of aesthetic value underlying that equation, she is obliged to defer, if only implicitly, to Greenberg's understanding of the aesthetic. As a result, her critique of the privileged terms of modernist theory is framed *within* the terms of the very theory she means to oppose. To the extent that Krauss opposes aesthetic ideals in the name of anti-, non-, or post- medium-specific art, and Fried opposes post-, anti-, or non- medium-specific art in the name of high aesthetic standards, both appear committed to the view that art after modernism has breached the internal conceptual or historical limits of aesthetic theory. But this only follows, or so I want to suggest, on the basis of the modernist conception of aesthetics Greenberg bequeathed to subsequent art history and theory." Costello, "Greenberg's Kant and the Fate of Aesthetics in Contemporary Art Theory," 6. See also "Automat, Automatic, Automatism: Rosalind Krauss and Stanley Cavell on Photography and the Photographically Dependent Arts," *Critical Inquiry* 38(Summer 2012).

there is no theoretical justification for Krauss' refusal of contemporary art on the basis of a judgment of its participation in a pervasive digital intermediality. Indeed "it was no accident that the moving image should have entered the art world in the 1990s as it did, *in such a definitive way*," Anthony McCall mulls, "because the screen had entered everyone's lives."<sup>279</sup> A contemporary art history and criticism re-oriented toward the discursive history of media aesthetics would find critical terms for a less obliterating description of the present. It is this critical possibility that Jacobs emblemizes. If his influence thus far has been restricted to that of "an *out-of-the-artmarket* Abstract Expressionism," his oeuvre is canonical when considered in relation to the future of the image.<sup>280</sup> For it is not the material heterogeneity of video itself that prevents the conceptualizing of an intermedial aesthetics, but only Krauss' inflexible commitment to an ongoing ratification of *Greenberg's* modernist theory.<sup>281</sup>

A second major aesthetic outcome of digital inscription is the re-situating of all images within a subtending, remediating atmospherics of 'digitality.' Cinema has become thinkable before and

---

<sup>279</sup> Anthony McCall in Menzies, "Art/Film: A Conversation with Anthony McCall," 99. My emphasis.

<sup>280</sup> Ken Jacobs, "In Respect of Things," *ibid.*, 119. My emphasis.

<sup>281</sup> No theory of aesthetics constructed upon Greenberg's modernist theory—which understands aesthetic value to exist in binary opposition to intermediality—can provide an adequate, reliable, or even comprehensible account of media aesthetics. It is this impossibility that Krauss purports to have constructed in a theory of "differential specificity" that describes the vocation of contemporary art as a dramatization of the loss of experience that follows the waning of aesthetic mediums. This pathological portrait of contemporary art is illustrated through the work of artists Krauss claims to be "do[ing] something as counterintuitive as inventing a new medium. Accordingly, they reach for modern, technological mechanisms as the 'supports' for their own work." In the performance artist Sophie Calle, particularly, Krauss discerns an appropriate movement of abjection: "Many of Calle's works are a search for affect, for emotion. ... [But] her work expresses itself as paradox: her medium not only unable to support, but contrived as well to deaden, the feelings she is looking for. That these feelings are able to surface...despite the deadpan nature of her chosen support, endows her medium with the special resonance that propels it into visibility for the audience of her art." I would suggest that such counterintuitive rhetorical arabesques are the sign of a monumental effort to legitimize media aesthetics on the basis of a Greenbergian tribunal that it has already overturned. Almost a hundred years ago Walter Benjamin wrote: "It was [a] fetishistic and fundamentally antitechnological concept of art with which the theoreticians of photography sought to grapple for almost a hundred years, naturally without the smallest success. For they undertook nothing less than to legitimize the photographer before the very tribunal he was in the process of overturning." Benjamin, "Little History of Photography," 508; Rosalind Krauss, "Two Moments from the Post-Medium Condition," *October* 116(Spring 2006): 58, 62. See also: Rosalind E. Krauss, *Perpetual Inventory* (Cambridge, Mass.: MIT Press, 2010); "Reinventing the Medium," *Critical Inquiry* 25, no. 2 (Winter 1999, "Angelus Novus": Perspectives on Walter Benjamin).

after celluloid as an adjunct to the generalization of cinematic movement as a condition of our imagistic experience, and here Kracauer's Photography essay can provide a framework for the "radically changed and changing conditions of referentiality" that ensue.<sup>282</sup> Rather than advancing a separatist or carnivorous conception of the relations between old and media, Miriam Hanse notes, Kracauer sought to locate the interaction between photography and film in the interstitial zone *between* media.<sup>283</sup> In this "intermedial space," she writes, "film does not 'remediate' photography by way of containing it; rather, photography, *running alongside* and *intersecting with* film both institutionally and ideologically, provides radical possibilities that film can draw on."<sup>284</sup> The new media remediates the old at a subtending level; while the old media provides the new media with a historical and aesthetic horizon. It is this latter possibility that Jacobs figures in a film style that posits the representational outcome of digital convergence as simultaneously new and preserving. By placing an Eternalizing movement at the ground of *all* types of still and moving images, he holds a mirror to the digital *dispositif's* radical adjustment of the conditions of imagistic referentiality.

These outcomes—in their paradoxes and complicated affects—are crystalized in the example of Tacita Dean's *FILM*. "*FILM*, and the accompanying book, are not valedictory; they refuse to be" the artist clarifies, and indeed the pitch of the work is unmistakably contemporary. Specifically, *FILM* is epistemologically legible as a work of contemporary visual art in its presentation as a moving image installation, and its framing in the portrait format.<sup>285</sup>

---

<sup>282</sup> Hansen, *Cinema and Experience*, 38. My emphases.

<sup>283</sup> In Hansen's account Kracauer "does not posit the relationship between photography and film in evolutionary terms" precisely because he seeks to articulate their relation in this "intermedial space." Ibid. My emphases.

<sup>284</sup> Ibid. My emphases.

<sup>285</sup> Dean, "Film," 21.

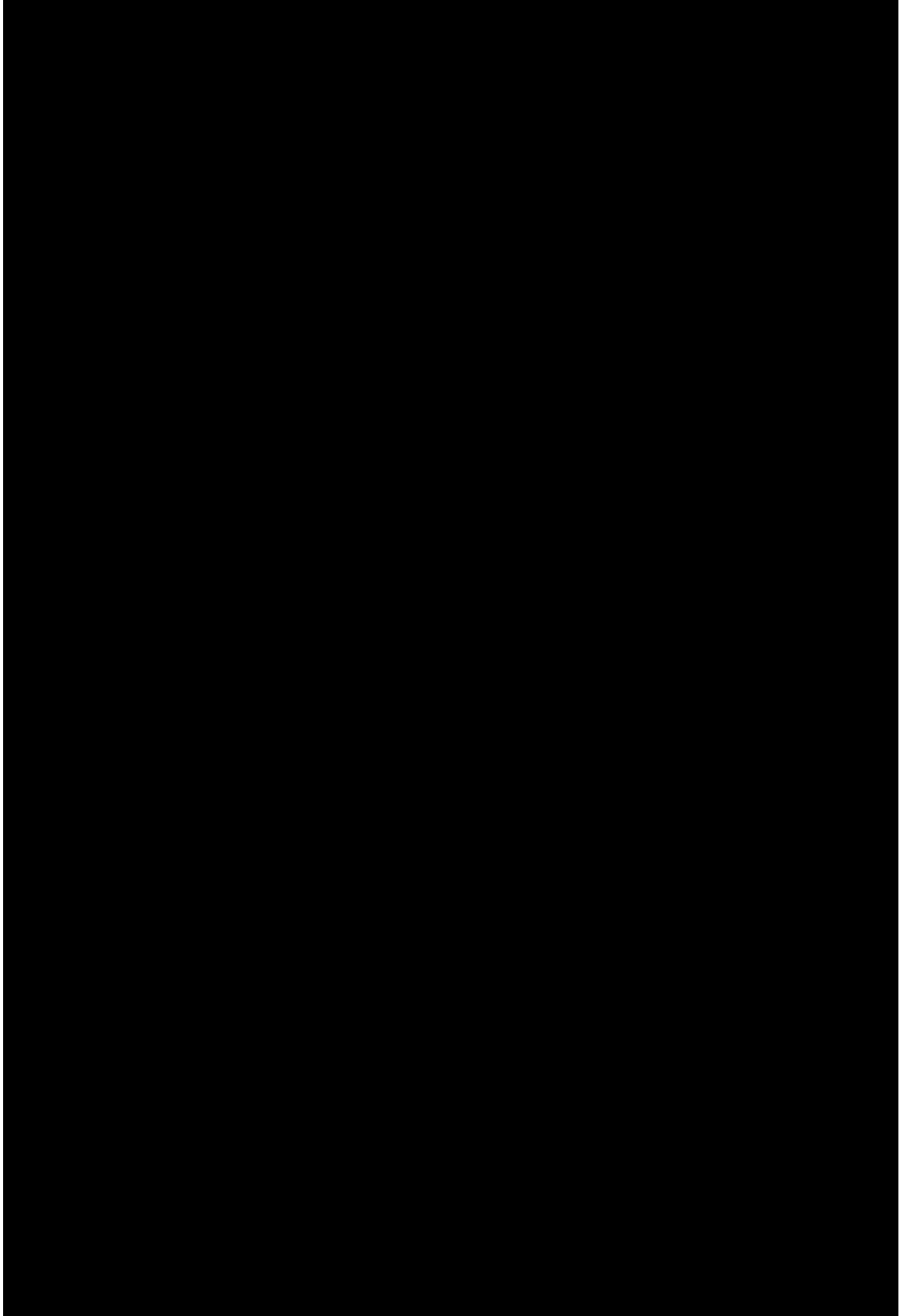


Figure 3.38: Tacita Dean, installation view of *FILM* in the Tate Modern, London. 2011-12. 35mm, color & b&w portrait format anamorphic film with hand tinted sections, silent. Continuous loop. ([Source](#)). *Image not reproduced due to copyright restrictions.*

This is not a neutral fact. The installation context invokes a set of spectatorial responses that are in no way native to the movie theatre; that architectural site of the experimental film tradition. Similarly, I would argue that the most immediate connotation of the installation's vertical format is not, for the average viewer, the celluloid filmstrip; but rather a way of framing the moving image made common by lightweight digital devices and data projectors. The manual character of *FILM*'s celluloid-specific means of production is not annihilated by the work's presentation as an installation, nor is the intimacy of the artist's 'portrait' of the filmstrip undercut by this configuration of the moving image. But it is enunciatively difficult for the quintessentially insider's perspective on celluloid implied by Dean's "imaginary filmstrip" to function as anything other than an imaginative portrait of celluloid. The contemporary museum spectator legitimately encounters *FILM* as an absorptive installation by attending to its 'manual' character and wondrous images with the sensuous attentiveness of digital pensive spectatorship. As such, Dean presents the beholder with a poetic work of art wholly native to an era of digital technicity. Whatever the stakes of artistic intentionality, contemporary audiences are likely to read *FILM* as a 'digital' film.



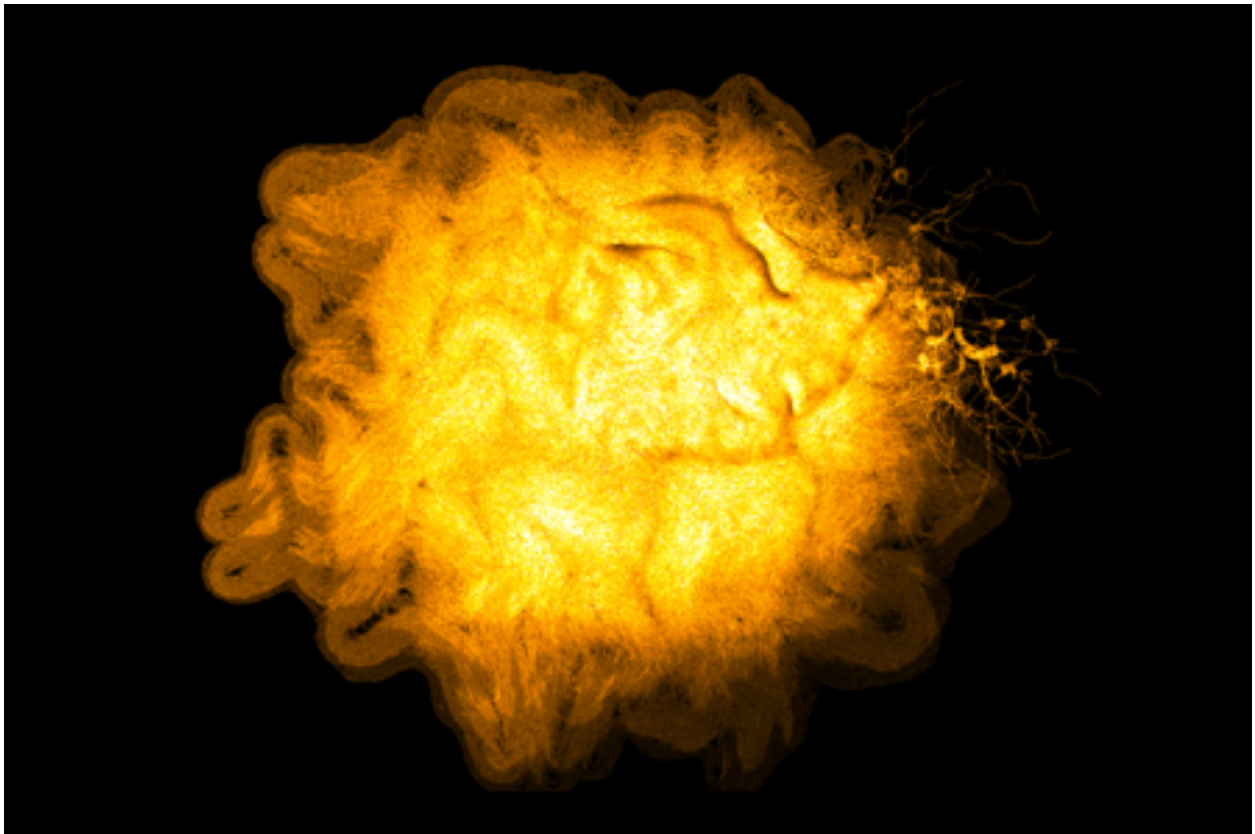


Figure 4.1: Tim Rudge, PJ Steiner, Fernan Federici, and Jim Haseloff, *Three-dimensional confocal stack of a Bacillus subtilis bacteria colony*. c.2012. Microscopic digital photograph. ([Source](#)).



## Chapter Four

### The Aesthetics of *durée*: A Bergsonian Movement-Image

*Plastic creation asks for feeling into the essentiality of nature as well as for feeling into the essentiality of the nature of the medium of expression.*

Hans Hofmann<sup>1</sup>

*If life is a creation, we must represent it by analogy with the creations it is given us to observe, that is to say, with those we ourselves achieve. Now, in artistic creation, for example, it seems that the materials we have to work with, words and images for the poet, forms and colors for the painter, rhythms and harmonies for the musician, range themselves spontaneously under the idea they are to express, drawn, as it were, by the charm of a superior ideality. Is it not a similar movement, is it not also a state of fascination we should attribute to material elements when they are organized into living beings?*

Henri Bergson<sup>2</sup>

In April 1922 Henri Bergson and Albert Einstein met at the Société française de philosophie, Paris, for an orchestrated debate on the subject of time. Speaking first, Bergson launched an argument for philosophical cosmology through a substantive engagement with Einstein's work.<sup>3</sup> The scientist's rejoinder was more terse. Countering the philosopher's claim for the humanistic stake on the spatio-temporal domain, Einstein described temporality as a sphere "independent of individuals" to conclude "there is no philosopher's time; there is only a psychological time different from the time of the

---

<sup>1</sup> Hans Hofmann, "Statement, 1951," New York, May 1, 1951, in Hans Hofmann, "Texts by Hans Hofmann, 1951-1963," in Hans Hofmann, ed. Helmut Friedel and Tina Dickey (New York: Hudson Hills Press, for the Städtische Galerie, Munich, 1998), 170, 71.

<sup>2</sup> Bergson, "The Life and Work of Ravaisson (1904)," 203-4.

<sup>3</sup> Bergson's argument was based on the ideas of his *Duration and Simultaneity* (1924), published two years after the debate.

physicist.”<sup>4</sup> Framed by this strong repudiation of the viability of disciplinarily pluralism on matters of time and space, Einstein’s argument was widely credited to have won the debate.

This *locus classicus* of the early twentieth century offers up a usefully defined image of a moment of epistemological re-ordering, crystallizing what the philosopher of science Bruno Latour has characterized as “the classical way for scientists to deal with philosophy, politics, and art.”<sup>5</sup> At stake in the staging of a debate between Bergson and Einstein was not only the controversy of Relativity versus *durée*, but a more fundamental, politically consequential question of the relative status of disciplinary knowledge. The meeting was, in the worlds of the historian of science Jimena Canales, the outward expression of a genuine confusion over “who could speak for nature and about which of these two disciplines would have the last word.”<sup>6</sup> The collective judgement on Bergson’s ‘defeat’ by Einstein’s quantitative claim on time is an indicator of a then-prevalent lack of belief in philosophy’s capacity to keep pace with the discoveries of contemporary science. Five years later, Bergson was awarded the Nobel Prize for Literature by a Committee who described his magnum opus, *Creative Evolution* (1907), as a “poem, if one looks at it that way”—a contemporary lyric, whose philosophical power is drawn in part from the effect of its “strong aesthetic impression.”<sup>7</sup> This portrayal of the alignment between Bergson’s

---

<sup>4</sup> Quoted in Bruno Latour, "Some Experiments in Art and Politics," *e-flux* 23, no. 3 (March 2011).

<sup>5</sup> Ibid.

<sup>6</sup> Jimena Canales, "Einstein, Bergson, and the Experiment That Failed: Intellectual Cooperation at the League of Nations," *Modern Language Notes* 120(2005): 1169. See also Jimena Canales, *The Physicist and the Philosopher: Einstein, Bergson, and the Debate That Changed Our Understanding of Time* (Princeton: Princeton University Press, 2015).

<sup>7</sup> Per Hallström, "Award Ceremony Speech," in *Nobel Lectures, Literature 1901-1967*, ed. Horst Frenz (Amsterdam: Elsevier Publishing Company, 1969 ).

metaphysics and the forms of aesthetic knowledge, while just, participates in the rhetorical strategy discernible in Einstein's attempt to couple the philosophy of temporality with subjectivity and culture. In this move, the scientist attempts to reinforce an idea of a hierarchal relation between art and science in a manner intended to curtail the implications of humanistic discourses for the task of the hard sciences.

My argument in this chapter will propose that the binaristic character of this encounter between an early twentieth-century philosopher and scientist—each in their day a prominent public intellectual—can be radically revised in light of contemporary media aesthetics. The full instantiation of a digital media *dispositif* in which, as I have tried to show, the technical image is endowed with the capacity for new kinds of temporal signification has undermined key premises subtending both sides of the Einstein/Bergson argument. In contrast with Einstein's unvarnished negation of the experiential character of time, for example, Bergson's critique of the scientific method was predicated on the allegation that "the essence of science [is] to handle signs, which it substitutes for the objects themselves."<sup>8</sup> Where Einstein simply refused the legitimacy of a philosophy (and presumably, an art) devoted to the exploration of temporality, Bergson accused the scientific observer (both ancient and modern) of "proceed[ing] according to the cinematographical method" of substituting analogies of the real for things in themselves.<sup>9</sup> The contours of Bergson's argument against Einstein reiterates *Creative Evolution*'s most fundamental critique of the "standpoint of science," whose quantitative logic it characterizes in the following way:

---

<sup>8</sup> Bergson, *Creative Evolution*, 357.

<sup>9</sup> *Ibid.*

The living body has been separated and closed off by nature herself. It is composed of unlike parts that complete each other. It performs diverse functions that involve each other. It is an *individual*, and of no other object, not even a crystal, can this be said, for a crystal has neither difference of parts nor diversity of functions. ...

The biologist who proceeds as a geometrician is too ready to take advantage here of our inability to give a precise and general definition of individuality. A perfect definition applies only to a *completed* reality; now, vital properties are never entirely realized, though always on the way to become so; they are not so much *states* as *tendencies*. ...

The essential thing is the *continuous progress* indefinitely pursued, an indivisible progress, on which each visible organism rides the short duration given it to live. ... The more duration marks the living being with its imprint, the more obviously the organism differs from a mere mechanism, over which duration glides without penetrating. [...]

Now I recognize that positive science can and should proceed as if organization was like making a machine. Only so will it have any hold on organized bodies. For its object is not to show us the essence of things, but to furnish us with the best means of acting on them. Physics and chemistry and well advanced sciences, and living matter lends itself to our action only so far as we can treat it by the processes of our physics and chemistry. Organization can therefore only be studied scientifically if the organized body has first been likened to a machine. The cells will be the pieces of the machine, the organism their assemblage, and the elementary labors which have organized the parts will be regarded as the real elements of the labor which has organized the whole. This is the standpoint of science. Quite different, in our opinion, is that of philosophy.<sup>10</sup>

Here the scientist who operates under the presumption that life can “only be studied scientifically if the organized body has first been likened to a machine”—“the cells will be the pieces of the machine, the organism their assemblage”—is posited as exemplary of the standpoint of science. *Creative Evolution* deems this biologist who “proceeds as a geometrician” to be blind (both empirically and epistemologically) to a more fundamental reality: that “evolution implies a real persistence of the past in the present, a duration which is, as it were, a hyphen, a connecting link”; so that “each cell, considered separately, evolves in a specific way.”<sup>11</sup> It is the scientist’s methodological reliance on a mechanistic heuristic—troped

---

<sup>10</sup> *Creative Evolution*, 15, 16, 32, 42; 103-04.

<sup>11</sup> *Creative Evolution*, 20, 27.

throughout *Creative Evolution* in the figure of the cinematographic illusion—that orients her gaze away from an apprehension of the profound *creativity* of life’s constant evolution. By contrast, the standpoint of philosophy flows out of this recognition. This philosophical perspective is located by an understanding—or more properly, the intuition—that “if everything is in time, everything changes inwardly”; so that “to know a living being or *natural system* is to get at the very interval of duration.”<sup>12</sup> The distinction between these disciplinary standpoints concerns their varying attitudes to the question of utility and the nature of reality. The object of science “is not to show us the essence of things, but to furnish us with the best means of acting on them” Bergson asserts, while the task of philosophy is to negotiate ontological issues without the mediation of utilitarian reductions or pragmatic heuristics.

“We do not *think* real time” *Creative Evolution* acknowledges, “but we *live* it, because life transcends intellect.”<sup>13</sup> The philosophical stance is distinguished from that of science in the philosopher’s attempt to grapple with this contradiction by recognizing, for example, that if “the free act is incommensurable with the idea, and its ‘rationality’ must be defined by this very incommensurability... such is the character of our own evolution; and such also, without doubt, that of the evolution of life.”<sup>14</sup> Bergson in *Creative Evolution* arrives at this complex conclusion about the nature of the real and of our relationship to it: “the flux of time is reality itself,” yet “it is true that of this flowing reality we are limited to taking instantaneous views. *But, just because*

---

<sup>12</sup> *Creative Evolution*, 52, 27. “Real duration is that duration which gnaws on things, and leaves on them the mark of its tooth.” *Creative Evolution*, 52.

<sup>13</sup> *Creative Evolution*, 53.

<sup>14</sup> *Ibid.*

*of this, scientific knowledge must appeal to another kind of knowledge to complete it.*"<sup>15</sup>

Elsewhere, and rather more emphatically, he claims that:

On the flux itself of duration science neither would nor could lay hold, bound as it was to the cinematographical method. [A] second kind of knowledge would have set the cinematographical method aside. It would have called upon the mind to renounce its most cherished habits. It is within becoming that it would have transported us by an effort of sympathy. We should no longer be asking where a moving body will be, what shape a system will take, through what state a change will pass at a given moment: the moments of time, which are only arrests of our attention, would no longer exist; it is the flow of time, it is the very flux of the real that we should be trying to follow.

The first kind of knowledge has the advantage of enabling us to foresee the future and of making us in some measure masters of events; in return, it retains of the moving reality only eventual immobilities, that is to say, views taken of it by our mind. It symbolizes the real and transposes it into the human rather than expressed it. The other knowledge, if it is possible, is practically useless, it will not extend our empire over nature, it will even go against certain natural aspirations of the intellect; *but, if it succeeds, it is reality itself that it will hold in a firm and final embrace.* Not only may we thus complete the intellect and its knowledge of matter by accustoming it to install itself within the moving, but by developing also another faculty, complementary to the intellect, *we may open a perspective on the other half of the real.*<sup>16</sup>

"A 'return to Bergson,'" Deleuze has written, "does not only mean a renewed admiration for a great philosopher but a renewal or an extension of his project today, in relation to the transformations of life and society, in parallel with the transformations of science."<sup>17</sup> I will argue in this chapter—and conclusively, for this dissertation—that the inscriptive capacities of contemporary visual media have reoriented the life sciences toward a Bergsonian recognition

---

<sup>15</sup> Creative Evolution, 374. Extended emphasis mine.

<sup>16</sup> Creative Evolution, 372. Extended emphases and the first paragraph break are mine. Two years after his confrontation with Einstein, Bergson wrote: "I consider that a science founded on experience as the moderns understand it, can attain the essence of the real. Metaphysics, then, is not the superior of positive science; it does not come, after science, to consider the same object in order to obtain a higher knowledge of it. ... It is my belief that they are, or that they can become, equally precise and certain. They both bear upon reality itself. [So] let us allot to them different objects: to science let us leave matter, and to metaphysics, mind: as mind and matter touch one another, metaphysics and science, all along their common surface, will be able to test one another, until contact becomes fecundation. ... That is to say that science and metaphysics will differ in object and method, but will commune in experience." "Introduction II: Stating of the Problems (1922)," 25, 30.

<sup>17</sup> Deleuze, Bergsonism, 115.

that “it is the flow of time, it is the very flux of the real that we should be trying to follow.” It will be the task of this chapter to demonstrate that Bergson’s characterization of ‘the standpoint of science’ no longer holds entirely true in contemporary biology; in part because the representational possibilities of digital images have re-calibrated the viability of *Creative Evolution*’s most grounding philosophical premise—the claim that:

real time, regarded as a flux, or, in other words, as the very mobility of being, escapes the hold of scientific knowledge.<sup>18</sup>

Cell biologists now possess easy access to cinematic heuristics capable of enlarging movement and flow with such phenomenological fullness that the resulting images seem able to convey the creativity of cellular life. By thus rendering the empirical representation of Bergsonian *durée* a concrete technological—and so a methodological—possibility, these figurations are increasingly seen to illuminate the dynamic implications of *Creative Evolution*’s governing principle that “*wherever anything lives, there is, open somewhere, a register in which time is being inscribed.*”<sup>19</sup> These descriptive possibilities have effected a paradigm shift upon the life sciences that parallels a sea-change in twentieth-century physics that the philosopher Maurice Merleau-Ponty saw as the final outcome of Bergson’s effort to trigger a disciplinary “*overcoming from the inside.*”<sup>20</sup> What is at stake in this phenomena of scientific transformation from within (and through knowledge-effects attached to media spectatorship) is not, in Miriam Hansen’s words,

---

<sup>18</sup> Bergson, *Creative Evolution*, 366.

<sup>19</sup> *Creative Evolution*, 20. The emphasis is Bergson’s.

<sup>20</sup> In Merleau-Ponty’s judgement “Bergson strives to conceive relativity philosophically. He finds in the doctrine of physics an absolutely valid element... [and] intends to propose a development of it faithful to its principle, but not confused with the physicists’ use of this principle. He wants to put physics in question, in the name of the very principles of physics, to bring about what we could call an “*overcoming from the inside.*” ... If physicists reproach Bergson for certain errors, it is because they do not understand that he is situated on another plane than they are. ... Bergson may have deformed relativist physics, but physics became Bergsonian.” Merleau-Ponty, *Nature: Course Notes from the Collège De France*, 108, 09, 10.

“just a question of competing readings of a particular historical development; it is a question of how one defines—and confines—the concept of cinema as an institution.”<sup>21</sup> I will try to show that thinking about Bergson within the framework of digitality opens up epistemological and aesthetic resonances wholly unavailable to analyses of his project routed exclusively through an examination of analog media. At the same time, the very remediation of analog media by digitality that has ignited a new scientific reliance on kinetic heuristics has redefined the scope we can award to the concept of ‘cinema’: by enlarging its amplitude of address to include ‘the standpoint of science,’ and by making the idea of cinema itself newly potentially Bergsonian.

## I. Movement as Ground

*He watched the single cell of the fertilized egg transform itself into a multicellular organism that grew by cleavage and division, saw the cellular ball nestle up against the lamellae of the mucous membrane, saw the blastula fold in on itself to form a basin or cavity, which then assumed the task of receiving and digesting nourishment. This was the gastrula, the protozoon, the primal form of all animal life, the primal form of flesh borne beauty. ... Anything like a mechanical explanation for these achievements of protoplasm was completely out of the question.*<sup>22</sup>

In the notes to a seminar on the topic of ‘nature,’ Merleau-Ponty observes that if “Nature is an all-encompassing something we cannot think starting from concepts, let alone deductions, we must rather think it starting from experience, and in particular, experience in its most regulated form—that is, science.”<sup>23</sup> This approach to the problem of disciplinary interconnection is underwritten, on the one hand, by the philosopher’s awareness that it is difficult to know “what

---

<sup>21</sup> Hansen, *Babel & Babylon*, 88.

<sup>22</sup> Thomas Mann, *The Magic Mountain*, trans. John E. Woods (New York: Vintage, 1995, c1927), 274-5, 77.

<sup>23</sup> Merleau-Ponty, *Nature: Course Notes from the Collège De France*, 87.



one can say [about science], in a serious way, when one lacks technical competence.”<sup>24</sup> Yet for Merleau-Ponty what is at stake in a humanist’s involvement with the contemporaneity of scientific endeavor is not, fundamentally, science itself. Rather, the philosopher who approaches Nature with a cognizance of its subtending status as “an all-encompassing something”—that is, a phenomenological *a priori* only accessible *in* and *through* experience—turns to science as a methodological recourse; attempting to deploy the scientist’s commitment to experiential concreteness into a lateral articulation of Nature at “*the moment when scientific being links up with prescientific being.*”<sup>25</sup> This description of the humanist’s role as an agent of articulation echoes a position sketched by Bergson in *Matter and Memory* (1896).

“We start from what we take to be experience, we attempt various possible arrangements from the fragments which apparently compose it” he observes of the profound challenge to the philosophical method imposed by Nature’s anteriority to human experience.<sup>26</sup> But where Merleau-Ponty orients philosophical inquiry to an uncovering of Nature at the hinge between ‘scientific’ and ‘prescientific’ being, Bergson directs the humanist gaze in another direction—toward an alternate “last recourse that might be taken”:

It would be to seek experience at its source, or rather above that decisive *turn* where, taking a basis in the direction of our utility, it becomes properly *human* experience.<sup>27</sup>

---

<sup>24</sup> Nature: Course Notes from the Collège De France, 89.

<sup>25</sup> “The philosopher can intervene, not at the level of facts, but rather at the moment at which scientific being links up with prescientific being.” Nature: Course Notes from the Collège De France, 89-90. My emphasis.

<sup>26</sup> But “when at last we feel bound to acknowledge the fragility of every edifice we have built, we end by giving up all effort to build.” Henri Bergson, *Matter and Memory* (1896; Trans.1911), trans. Nancy Margaret Paul and M. E. Dowson (New York: Zone Books, 1988), 184.

<sup>27</sup> Ibid.

The resonance of this statement concerns, on the one hand, its explicit declaration of the utopian horizon of Bergson's philosophical endeavor: "to seek experience at its source." Merleau-Ponty summarizes the merits of "the profound thought of Bergson" in the following way: "Bergson is one of those who seeks to find in the experience of the human what is at the limit of this experience, be it the natural thing or life, in opposition to every type of human operation, or every type of teleology."<sup>28</sup> Yet the power of this sentiment—a desire to seek an encounter with experience "above that decisive *turn*" where it takes "a basis in the direction of our utility"—also wells from the succinctness with which the philosopher offers up a pragmatic description.

If Nature is an *a priori* that precedes enframing within the spectrum of human utility, "that decisive *turn*" at which experience *per se* "becomes properly *human* experience" is also the pivot at which the epistemological and ontological challenge of Nature must be confronted. This "*turn*"—which for Merleau-Ponty is the moment in which 'prescientific' being is discursively re-framed as scientific being—is simultaneously an instance of visibility and of the establishment of an ongoing, structural invisibility. The conversion of experience *per se* into "properly *human* experience" is a process of miniaturization that re-contextualizes the phenomenological *a priori* within the restricted terms of a human phenomenology. In describing this telescoping as a "decisive" event, Bergson acknowledges its necessity as a utilitarian effect. Yet all that is lost in the twist from 'experience' to '*human* experience' is far from inconsequential, since it concerns the human subject's capacity to comprehend the existence of materialities inaccessible to our normative sensory and epistemological frameworks. The decisive work of "that decisive *turn*" is

---

<sup>28</sup> Merleau-Ponty, *Nature*: Course Notes from the Collège De France, 58.

thus profoundly reductive: a rendering of the reality of the phenomenological *a priori* into a functionally virtual invisibility whose very existence we remain largely unaware of.

But to recover the facticity of the phenomenal virtual, if neither easy or straightforward, is not wholly impossible. Merleau-Ponty's description of the necessary variation between disciplinary approaches to the phenomenological *a priori* provides a useful framework through which I will attempt to articulate the significance of technology at the moment of "that decisive *turn*." "From the earliest times until Plato the word *technē* is linked with the word *epistēmē*" Martin Heidegger has written of the link between technology and knowledge, so that "both words are names for knowing in the widest sense."<sup>29</sup> On the one hand, art, science, and the humanities are conjoined by a reliance on technology for material heuristics by which to bridge the gap between human perception and what Bergson calls "experience at its source." Yet the disciplines must also remain separated by an aspect of time: by the non-isomorphic fact of their distinctive stances on the tenses of a technological contemporaneity.

Artists and humanists, for example, tend to draw real meaning from an interval of separation from the moment of technical emergence; by deploying experiential distance as a tool by which to deconstruct the function of a dominant media, or to excavate a perspective that can contextualize its effects within a wider social map. By comparison, the scientist enters the scene of engagement with technology in a different tense, and on a fundamentally other ambit. "In the physical sciences investigation takes place by means of experiment, always according to the kind of field of investigation and according to the type of explanation aimed at" Heidegger observes

---

<sup>29</sup> Martin Heidegger, "The Origin of the Work of Art," in *Basic Writings : From Being and Time (1927) to the Task of Thinking (1964)*, ed. David Farrell Krell (San Francisco, Calif.: Harper, 1935-6/1993), 13.

of the scientific actor's presentist mode; which tends to foreground the functional status of technology itself as a tool.<sup>30</sup> The history of photography can provide a structural example of what is at issue in these subtle distinctions.

"Photography was born in a period which liked to think of itself as the age of absolute knowledge" the art historian Didi-Huberman has written of the nineteenth-century emergence of a fundamentally new media that "undermined all the existing techniques of description, recording and representation" by offering "something approaching an absolute knowledge of the visible world." For this reason, he continues, photography's "scientific applications did not wait upon the perfection of its methods: they were immediately recognized and by well before 1870 photography was playing its role in every field of knowledge."<sup>31</sup> In stark contrast with the skepticism figured in Baudelaire's satire of the photograph as "industry's imbecile revenge upon art," then, nineteenth-century scientists embraced the camera with a ferocity that pushed the new medium to the absolute extent of its existing capacities.<sup>32</sup> "The use of photography was to be stretched to the limit of its possibilities—perhaps, in a sense, beyond them" Didi-Huberman summarizes of the instantaneous scientific deployment that fueled the development and incremental refinement of a photo-cinematic media ecology that led directly to the nineteenth-century development of a moving image.

---

<sup>30</sup> "The Age of the World Picture (1938)," 121.

<sup>31</sup> "The scientists of the period nursed a deep—dogged, even frantic—hope that through photography they would be able to make visible all that escaped them, all that lay beyond the capacities of natural vision: all that was either too close or too far away, all that lay hidden in the deep recesses of the body, all that was transparent, all that was invisible—even the human soul. It was as if *to see what is invisible* to some extent because the new 'ideal' of scientific photography at the turn of the nineteenth century." Georges Didi-Huberman, "Photography—Scientific and Pseudo-Scientific," in *A History of Photography: Social and Cultural Perspectives*, ed. Jean-Claude Lemagny and André Rouillé (Cambridge, U.K., & New York: Cambridge University Press, 1987), 71.

<sup>32</sup> Baudelaire, *Oeuvres Completes*, II, 617 (French) Q by DDH in *Hysteria*, p60

It is in this sense that a specifically scientific grasp of the potentials of a new technical frame can set off a developmental tandem that will lead art, science, and philosophy, in the words of Walter Benjamin, “even deeper into this new technology.”<sup>33</sup> And in the sphere of the life sciences the digital image situated within the ‘setting’ of a fully instantiated digital *dispositif* has enabled a contemporary re-enactment of precisely this structure of dialectical development. Key here is a historical fact: the near-simultaneous successful completion of the Human Genome Project by multiple research groups at the turn of the twentieth-century. The cumulation of this decades-long effort to map the structure of human DNA has recalibrated the life sciences around a more richly detailed conception of the genetic structure common to both human and extra-human life.<sup>34</sup> A more specific outcome has been the development of a new set of visualization techniques that, taken together, render a previously un-filmable internal world of cellular motility newly screenable and experienceable; and so differently thinkable.

“At the beginning of the twenty-first century, at the end of the sequencing of the human genome,” the historian of science Hannah Landecker writes, “we have a new crop of biologists calling themselves vitalists”; because “both cell biologists and computer programmers have built machines and media to force a theory of cellularity to become visible—on screen and in time.”<sup>35</sup> A digital cinema of cellular animation undergirds this epistemic shift, motored by an enlargement

---

<sup>33</sup> Walter Benjamin, “Little History of Photography (1931),” in Walter Benjamin: Selected Writings 2, Part 2, 1931-1934, ed. Michael W. Jennings, Howard Eiland, and Gary Smith (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 1999), 510.

<sup>34</sup> Office of Biological and Environmental Research U.S. Department of Energy Office of Science, Human Genome Program, “Human Genome Project Information,” [http://www.ornl.gov/sci/techresources/Human\\_Genome/home.shtml](http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml).

<sup>35</sup> Hannah Landecker, “Live Cell Imaging! Live Theory Imaging! The Microscopic World Viewed, and Other Experiments in Science Film Theory,” in *Science/Film: A Symposium* (Northwestern University: Organized by Scott Curtis, 8 April 2011); Hannah Landecker and Christopher Kelty, “A Theory of Animation: Cells, L-Systems, and Film,” *Grey Room* 17(Fall 2004): 57.

technique called live cell imaging: a medical picturing process by which brightly colored, non-toxic fluorescent markers are introduced into living cells, to “visualize their expression and movement.”<sup>36</sup> The resulting time-lapse animations are “beautiful, beguiling images of live cells” whose most primal effect Landecker describes as reminding the scientific observer that life is mobile and chromatin is a lively thing, undergoing constant change and movement. In this digital cinema of subtly fluctuating color suffusions an aesthetics of cellular motion reintroduces the affects of spectatorship to the normative processes of laboratory research, and torques the description of biological objects toward a new lexicon of dynamism, plastics, and ferocity.<sup>37</sup> As a result, this once-counterintuitive Bergsonian claim about the body has become newly graspable:

In reality, the body is changing form at every moment; or rather, there is no form, since form is immobility and the reality is movement. What is real is the continual change of form: *form is only a snapshot view of transition*.<sup>38</sup>

In “the ‘film’ made with live cell imaging,” Landecker writes of the concrete processes of this relatively new technique, “a fluorescent probe is inserted into a living cell or body, usually using genetic engineering to insert a DNA sequence encoding a fluorescent protein, so that the body itself produces the visual probe along with its own proteins.”<sup>39</sup> Digital images obtained subsequently by “viewing the specimen through highly specialized microscopes and light

---

<sup>36</sup> Landecker, “Live Cell Imaging! Live Theory Imaging! The Microscopic World Viewed, and Other Experiments in Science Film Theory.”

<sup>37</sup> “Most cell biologists these days are also cinematographers,” the biologists Brian Stramer and Graham Dunn declare, because “making movies of the cells, tissues and embryos that we study under a microscope is a regular occurrence in the laboratory.” They continue: “Like cinematographers working on any cinematic production, we are in charge of the technical aspects of filming. We choose the type of microscope and microscope lens, along with deciding on the lighting of our ‘actors’. . . . This approach is certainly not unique. Movie making is now commonplace in virtually all biological disciplines and is part of any experimentalist’s toolkit.” Brian M. Stramer and Graham A. Dunn, “Cells on Film – the Past and Future of Cinemicroscopy,” *Journal of Cell Science* 128(2015): 9.

<sup>38</sup> Bergson, *Creative Evolution*, 328.

<sup>39</sup> Hannah Landecker, “The Life of Movement: From Microcinematography to Live Cell Imaging,” *Journal of Visual Culture*, Special Issue: Science and Documentary 11, no. 3 (December 2012): 379.

detectors are documents recording the movement of molecules in time through cells or bodies.”<sup>40</sup>

This process, on the one hand undeniably photographic, is far from conventionally ‘indexical.’

For rather than offering a straightforward magnification of a sub-perceptual structure, live cell imaging involves the scientific observer in a multiply-nested process of visual and physiological mediation as the *a priori* to the representational act.

First, the biologist uses genetic engineering to insert a fluorescent dye into the translucent portion of a living cell; so establishing the phenomenal grounds for its partial extrapolation from invisibility. Observed through specialist microscopes, it is these genetic tags that become visualizable as moving fields of color—tinted, slightly transparent plasmatic zones bounded by the transparent walls of an actively replicating entity. High-resolution, high-speed photographs of such individuated cell-structures can be dropped into digital timelines and (in a final mediating step) output into a variety of media formats, create colorist animations or composite illustrations that offer scientists and non-scientists alike a breathtakingly foreshortened portrait of cellular gesture. As a visual heuristic encased in digital video—a manipulable, highly scaleable format characterized by inexpensive ubiquity and ease of playback—live cell imaging enframes the depicted cell in *time* in order to visualize its movement from *within*; and it is on this level that the technique has forged a new relation between cellular theory and cellular life. Live cell imaging offers its viewer a picture that is neither an analogy nor an index, but rather a cinematic heuristic that animates a contemporary theory of life by rendering the living body oddly transparent, and so functionalizing the lyricism of this spectacle:

---

<sup>40</sup> Ibid.

a cellular body made visible by its constituent molecules, molecules lit up like strings of Christmas lights, trailing their fluorescent tags around as they go about their ordinary business.<sup>41</sup>

On the one hand, considered historically, live cell imaging joins a scientific tradition of descriptive enlargement by adding fluorescent microscopy to a lineage of devices of reportage that include micro-photography, micro-chronophotography, and micro-cinematography. Like their historical counterparts in the laboratories of nineteenth- and twentieth-century biologists, these films have a scant public presence, since they “do not function as art, entertainment, advertising or education, and most of the people who make and see these images are research scientists.”<sup>42</sup> In continuity with the preceding twentieth-century tradition of scientific cinema, further, they lend visual concreteness to a biological principal that is both long-standing and widely accepted: cell motility.

Yet there is a radical alterity to this silent, jewel-toned digital cinema of real-time moving cells: a sense of the new and the strange grounded in the very subtlety of its difference from prior forms. Grasped as a colorist vivisection of wet magnification at a digital distance, live cell imaging has become the new grammar of technical research across the entire spectrum of contemporary fields that comprise bioscience. This is a disciplinary industrial complex that encompasses, at the minimum, biochemistry; molecular biology; genetics; cell biology; computational biology; biophysics; and the bio-political domains of reproductive technology, medical research, and medical practice. “A consideration of the use of moving images in

---

<sup>41</sup> Ibid. “To be clear,” Stramer and Dunn clarify, “there is no director in these productions; the cells are responsible for their own performance and we are only there to facilitate their storytelling.” Stramer and Dunn, “Cells on Film – the Past and Future of Cinemicroscopy,” 9.

<sup>42</sup> Landecker, “The Life of Movement: From Microcinematography to Live Cell Imaging,” 379.



bioscience today—which is necessarily an encounter with live cell imaging” Landecker summarizes, “is driven by this basic reason: *after 2000, it becomes difficult to imagine life without it.*”<sup>43</sup> In this coherent turn to a reliance on visual heuristics the contemporary life sciences are reenacting a prioritization of the picturing capacities of technological media that both Kracauer and Heidegger understood to subtend modernity’s visual turn. Now, too, a broad disciplinary reliance on the technical image of *life* is generating an enormous audiovisual archive—an emergent data-cloud of silent, tinted digital films (many freely available on the internet) each of which offers a temporalized portrait of cellular activity that enlarges not only scale, but the full theoretical range of a contemporary conception of life.

What is at stake in this archive is not only media objects, but epistemological practices—the methodologies and concrete research suppositions whose implications subtend and orient the direction of disciplinary inquiry. When live cell imaging visualizes the depicted cell as “a kind of endlessly dynamic molecular sea,” in the terms of Landecker’s description, “even those ‘structures’ elaborated by a century of biochemical analysis are constantly being broken down and re-synthesized.” What is being ‘animated,’ consequently, “is not just genomic knowledge, but a vast body of biochemical knowledge built up over the twentieth century.”<sup>44</sup> The very etymology of the noun ‘chromatin’ (taken from the Greek verb *khrōma*, *khrōmat*, to *color-in*) contains a hint of the interface Landecker implies here between the materiality of visual technologies and the knowledge-effects that ricochet in the aftermath of what is newly visualized. Coined in 1879 by a German biologist to describe the transparent component of

---

<sup>43</sup> Ibid.

<sup>44</sup> “The Life of Movement: From Microcinematography to Live Cell Imaging,” 390.

cellular matter “which can be readily stained when immersed in colouring matter,” Walther Flemming’s choice of the name ‘chromatin’ has provided cell biology with a chromatic lexicon with which to figure its own disciplinary constitution through a process of mutually constitutive articulation between the technical image and its conditions of epistemic visibility.<sup>45</sup>

Put differently, because an ontological question about visibility—the question of the visible in its most fundamental and metaphysical aspect—has grounded the discourses surrounding photographic enlargement from the earliest moments of photography’s public life, live cell imaging should be situated within the history of technical devices whose initial effect has been to foreground problems of *naming*. As an almost-lexical rendering of an invisible (or virtual) materiality somewhat-visible, and thus phenomenal, through the focalizing mediation of tints and bleeds, the digital profile of a ‘cinematic’ genome joins a catalog of wondrous images whose predecessors in the media archive can include the movement-panoramas of Étienne-Jules Marey and Edward Muybridge. Each of these exemplars is an image archive situated between art and science at the very earliest moments of a recalibration of photo-cinematic technologies; and whose reportage ushered a new dimension of the once un-articulable into the sphere of materiality, hermeneutical legibility, and so imaginative comprehensibility.

One of the earliest examples of this discourse is Edgar Allan Poe’s 1840 commentary on the daguerreotype, which mediates the strangeness of the camera’s ability to magnify a dimension of the material world heretofore unperceived *as visualizable*. Mulling over this paradoxes of the on photographic image, Poe arrives at the following judgement:

---

<sup>45</sup> *Chromatin*, n. “Oxford English Dictionary Online,” (Oxford University Press).

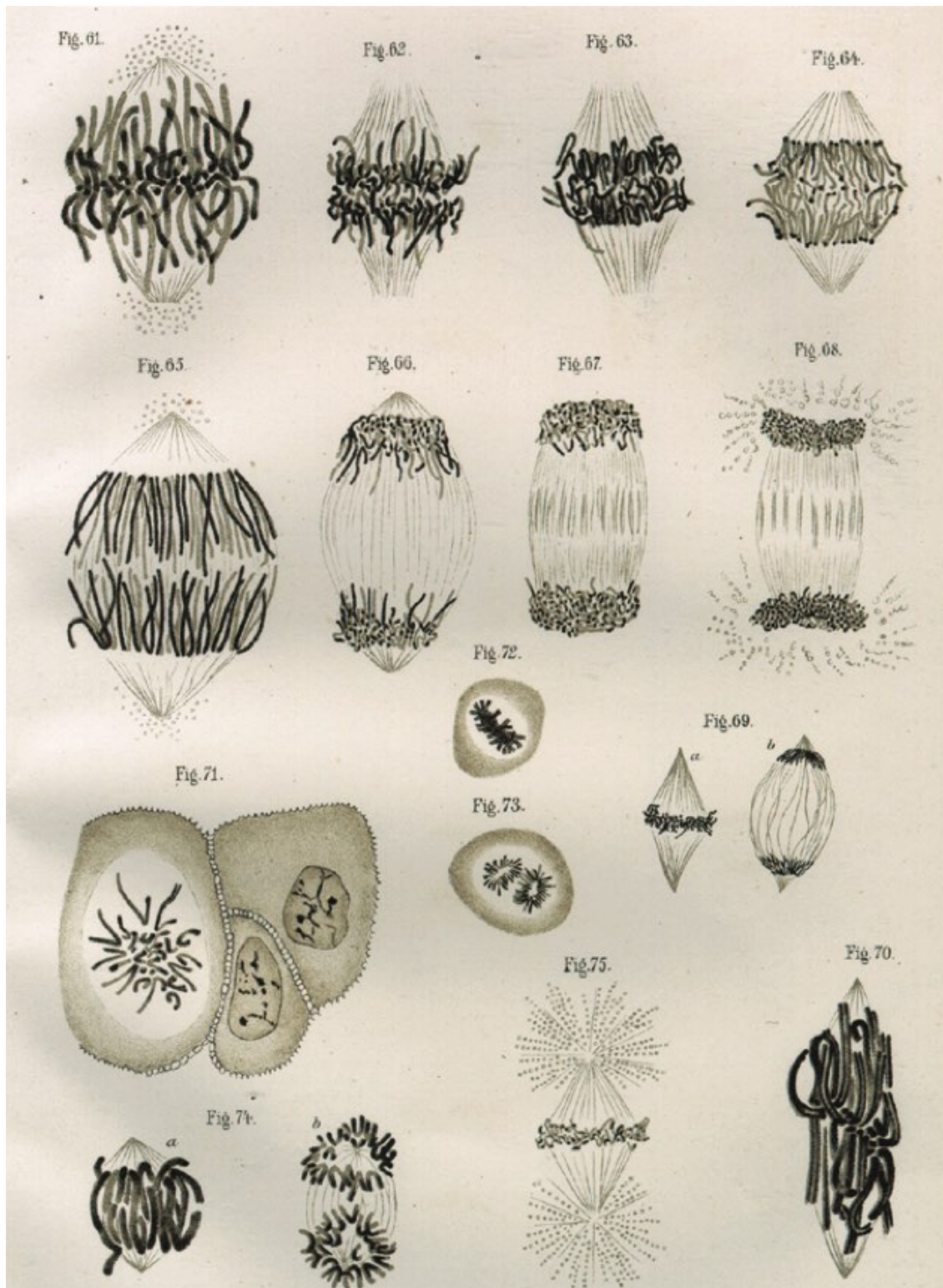


Figure 4.2: Walther Flemming, *Drawings illustrating the major steps of the cell cycle*. c.1880. Originally published in Flemming, W. *Zellsubstanz, Kern und Zelltheilung* (F. C. W. Vogel, Leipzig, 1882). [Source](#).

Flemming pioneered the use of synthetic aniline dyes to visualize the cellular nucleus during cell division. Observing that a red dye was heavily absorbed by the cellular material in the nucleus, he named this complex of DNA and proteins *chromatin*, from the Greek word for color. Four years later, the anatomist Heinrich Waldeyer named the thread-like structures in chromatin (that is, DNA) *chromosomes*.

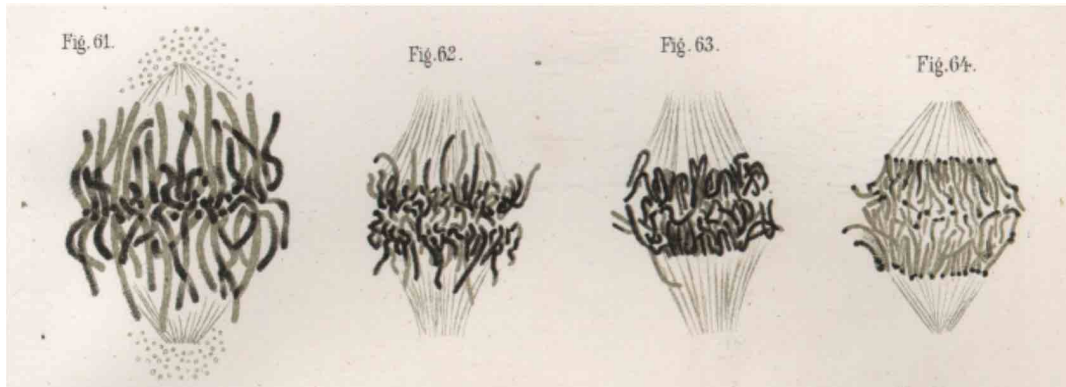


Figure 4.3: *Drawing illustrating chromosome behavior during mitosis. c.1882. Originally published in Flemming, W. Zellsubstanz, Kern und Zelltheilung (F. C. W. Vogel, Leipzig, 1882). Source: Neidhard Paweletz, (2001). "Walther Flemming: pioneer of mitosis research." Nature Reviews Molecular Cell Biology 2: 72-75.*

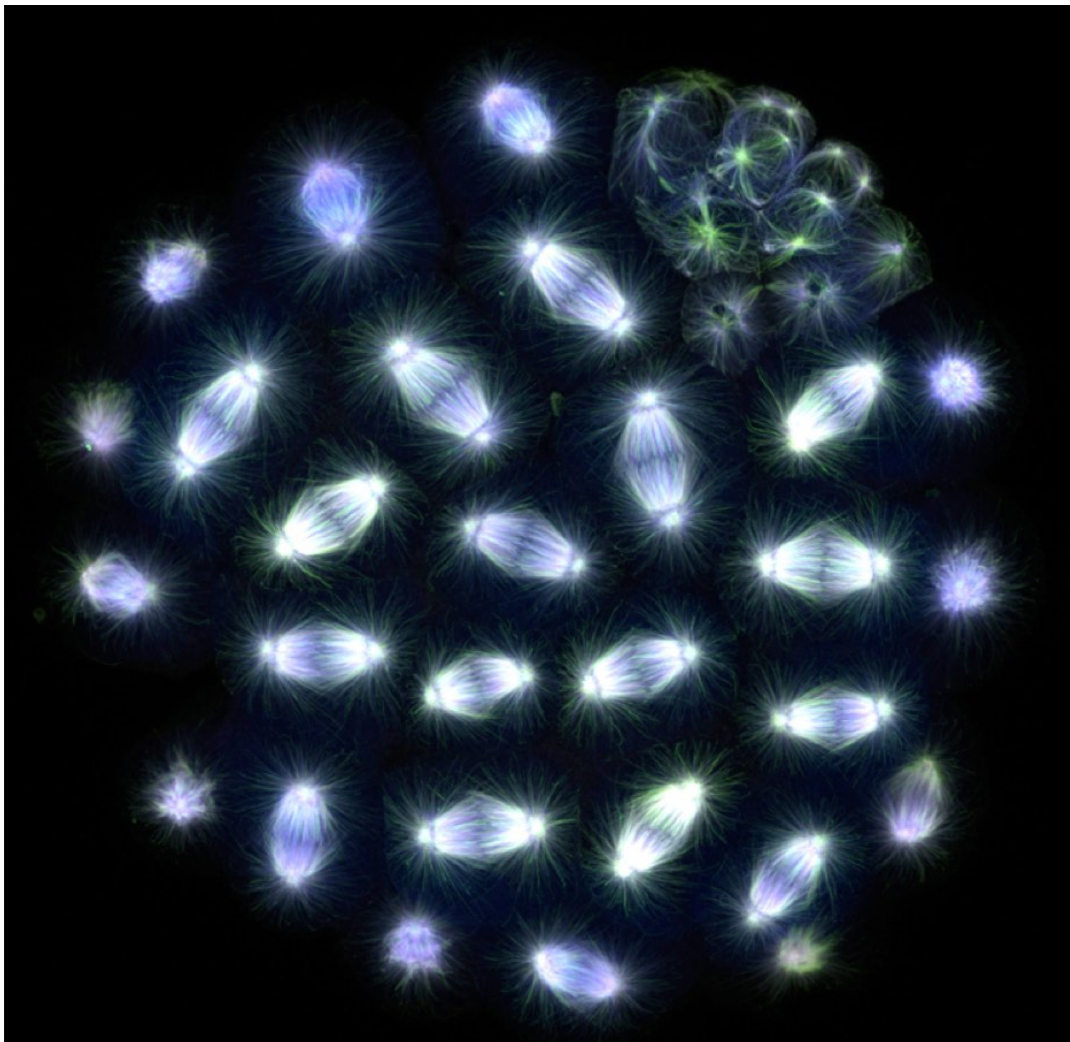


Figure 4.4: George von Dassow, *Early stages of prenatal cell development in the sand dollar (Sea Urchin)*. c. 2011. Microscopic digital photograph. ([Source](#)).



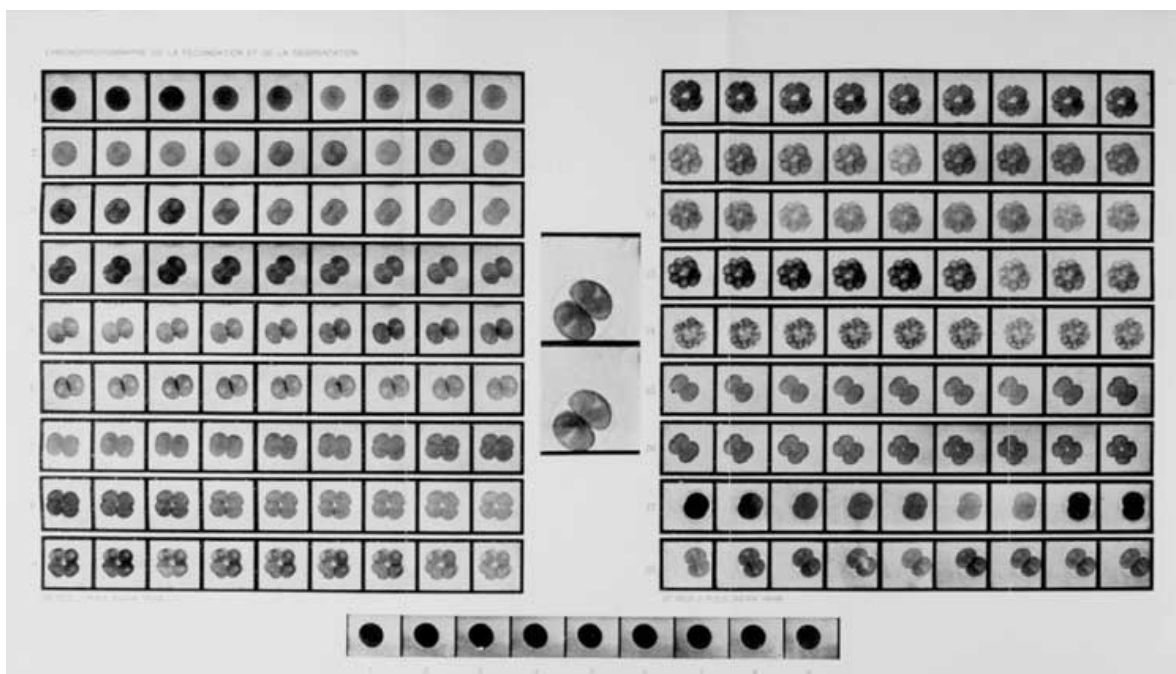


Figure 4.5: Julius Ries, frames from *Fertilization and Development of the Sea Urchin Egg*. Paris, c.1907. Time-lapse micro-cinematographic film. Source: Hannah Landecker, "Microcinematography and the History of Science and Film," *Isis* 97, no. 1 (March 2006): 121-132.

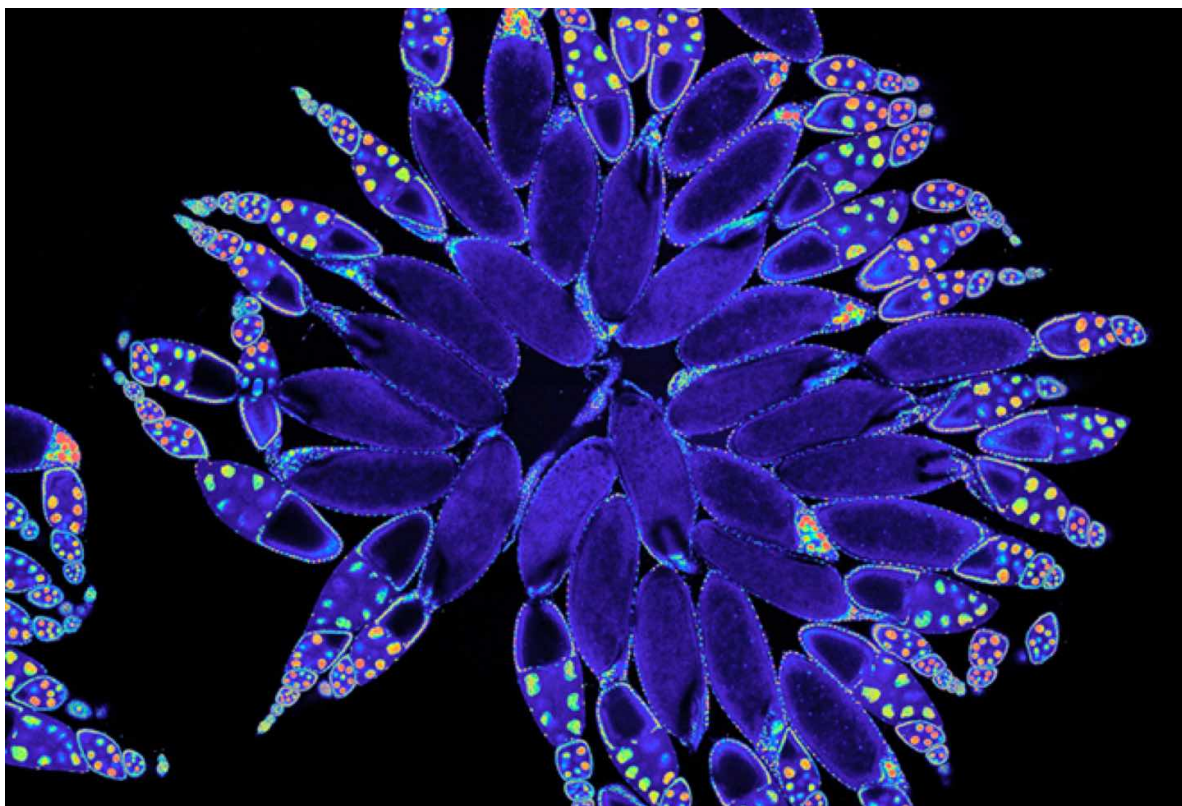


Figure 4.6: Ho Lam Tang and Denise Montell, *Fluorescence confocal micrographs of the ovary of Drosophila (small fly)*. c.2011. Microscopic digital photograph. (Source).

All nuclei (multi-colored) are labeled with H333342 dye; the component images are stitched together using software.

Those were the genes, the bioblasts, the biophores—Hans Castrop rejoiced in the frosty night to make their acquaintance by name.

Figure 4.7: from Thomas Mann, *The Magic Mountain*, trans. John E. Woods (New York: Vintage, 1995, c1927), 278.

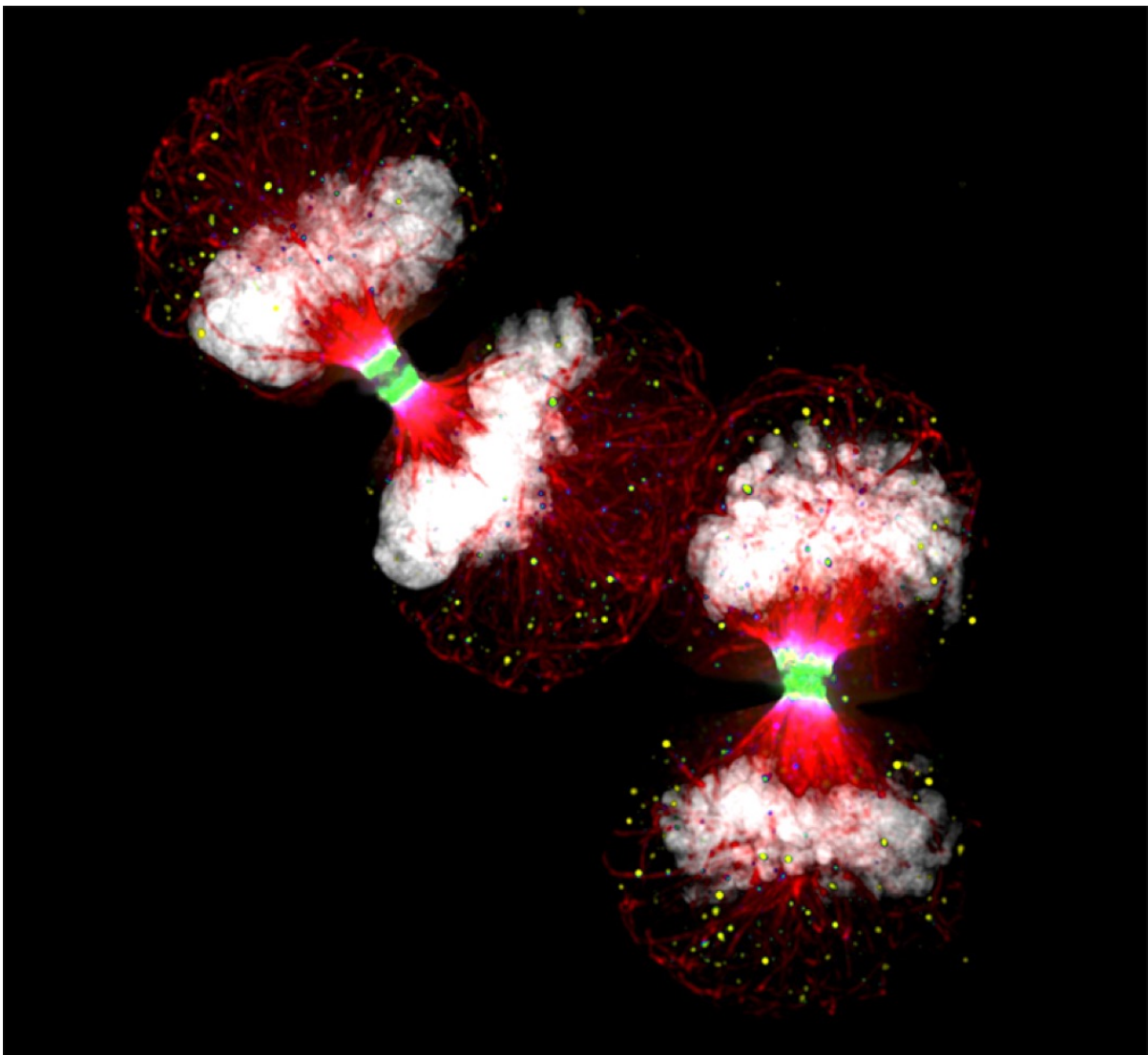


Figure 4.8: Paul D. Andrews, *Two HeLa cervical cancer cells captured in telophase, a final stage of cell development*. c. 2011. Microscopic digital photograph. (Source).

It would surely have been childish to think that the engineering sciences and the laws of mechanics had been applied to organic nature, any more than one could say that they had been derived from it. ...

And yet, for all that, the accomplishments of protoplasm remained quite inexplicable—it seemed that life was prohibited from understanding itself. Not only were most biochemical processes unknown, but it was also their very nature to avoid examination. Almost nothing was understood about the construction and makeup of the unit of life known as the “cell.” [...]

Since they were the bearers of life, they had to be organized. ... despite their incomprehensible smallness, they, too, as living entities had to be built out of something, had to be organized, structured organically. Because to be a living entity was by definition to be built out of smaller, subordinate entities, or better, out of entities organized to serve the higher form of life. [...]

That was not merely a metaphor—any more than it would be a metaphor to call the body of a multicelled creature a “city of cells.” A city, a state, a social community organized around the divisions of labour was not merely comparable to organic life, it repeated it.

Figure 4.9: Excerpt from Thomas Mann, *The Magic Mountain*, trans. John E. Woods (New York: Vintage, 1995, c1927), 276, 78-9.



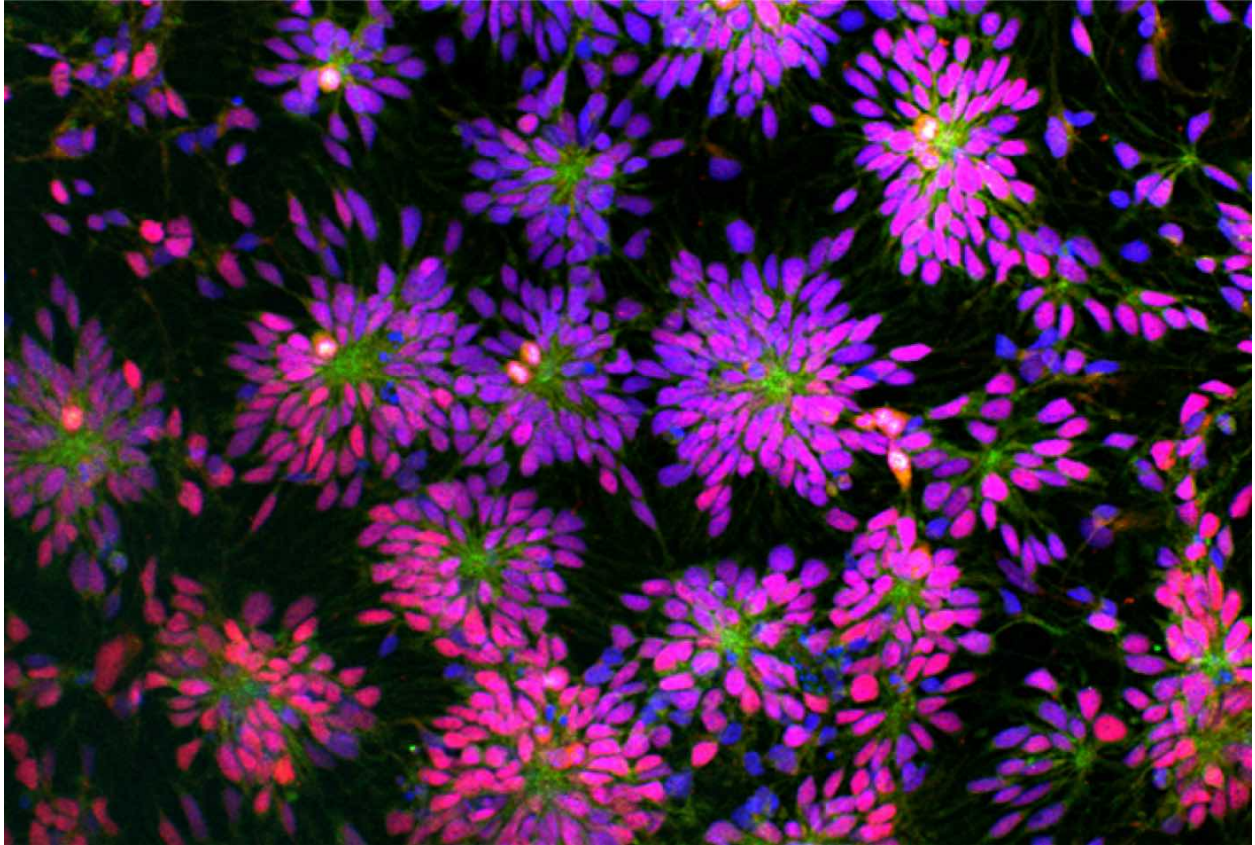


Figure 4.10: Yichen Shi and Rick Livesey, *Human iPSC-derived neural stem cells forming polarized cellular rosettes with mitotic stem cells at the center*. c.2011. Microscopic digital photograph. ([Source](#)).



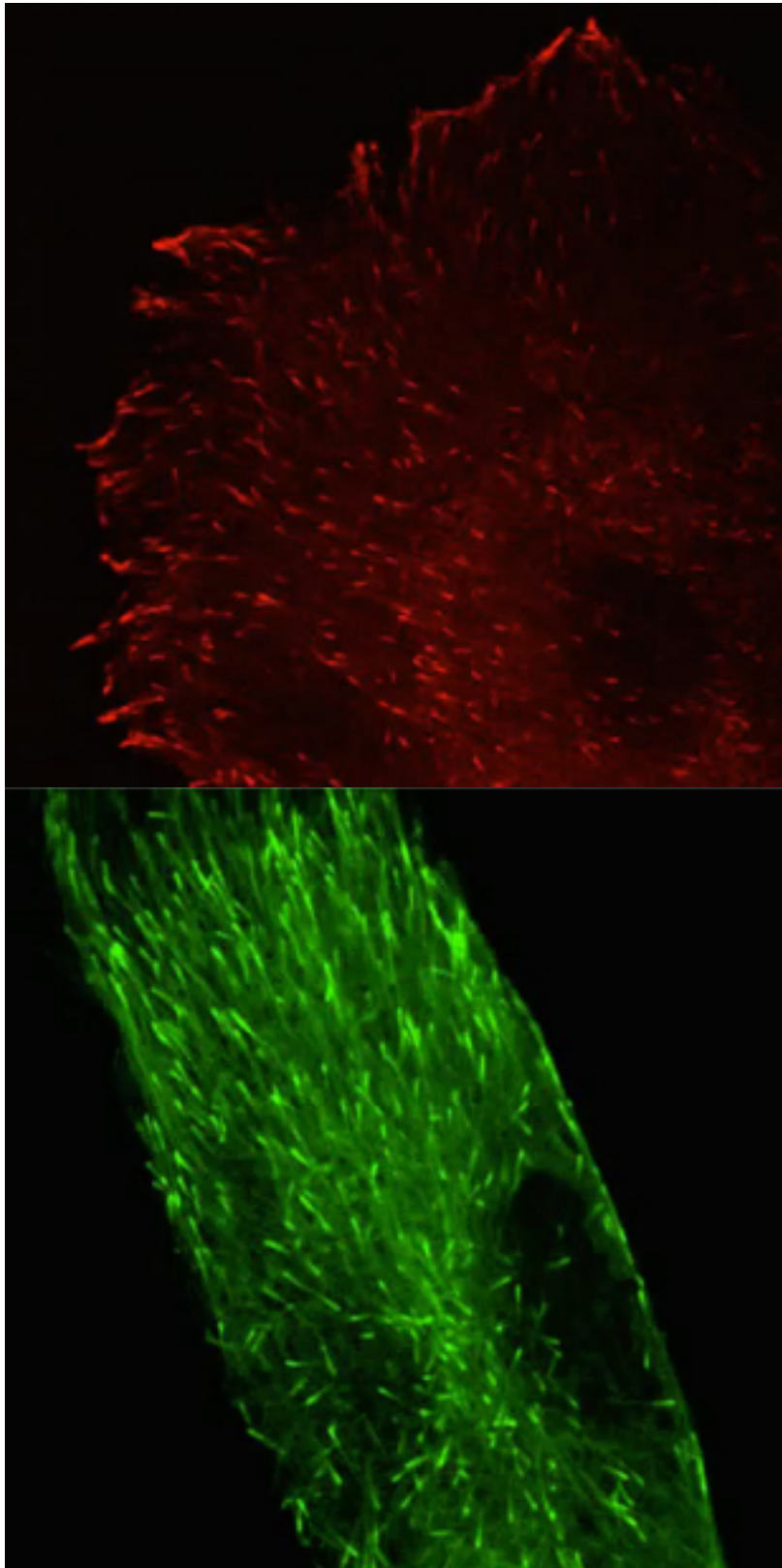


Figure 4.11: Uncredited researcher, frames from *Live cell imaging of Gray Fox lung cells showing (top) monomeric Kusabira-Orange fluorescent label; and (above) YPet Fluorescent Protein fluorescent label.* c.2010. Time-lapse video. (View at Source: [top](#) and [above](#)).

All language must fall short of conveying any just idea of the truth ... the Daguerreotype plate is infinitely (we use the word advisedly) is *infinitely* more accurate in its representation than any painting by human hands. If we examine a work of ordinary art, by means of a most powerful microscope, all traces of resemblance to nature will disappear—but the close scrutiny of the photogenic drawing discloses only a more absolute truth, a more perfect identity of aspect with the thing represented.<sup>46</sup>

Poe turns to a juxtaposition between photography and painting as the rhetorical device by which to provoke the reader to a sense of the new and the strange at work in the new technical image. Specifically, for this observer located in a nineteenth-century photographic environment, the Daguerreotype seems to bring the matter of the world into proximity with vision in the manner of a quite specific device: “a most powerful microscope.” It is this association with the microscope that leads to his strong claim for photography as a visual epistemology grounded by the amplifications of “a more absolute truth, a more perfect identity of aspect with the thing represented.” By comparison, for an observer located in a twentieth-century cinematic climate, what lies on the other side of the blow-up seems less a matter of ‘truth’ than a more ambiguous quality of truth-value; one that veers past truth and into outright ‘magic.’

“Whereas it is a commonplace that, for example, we have some idea what is involved in the act of walking” Walter Benjamin observes in his “Little History of Photography” (1931):

we have no idea at all what happens in the fraction of a second when a person actually takes a step. Photography, with its devices of slow motion and enlargement, reveals the secret. It is through photography that we first discover the existence of this optical unconscious, just as we discover the instinctual unconscious through psychoanalysis. Details of structure, cellular tissue, with which technology and medicine are normally concerned—all this is, in its origins, more native to the camera than the atmospheric landscape or the soulful portrait. Yet at the same time, photography reveals in this material physiognomic aspects, image worlds, which dwell in the smallest things—meaningful yet covert enough to find a hiding place in waking dreams, but which,

---

<sup>46</sup> Edgar Allan Poe, “The Daguerreotype (1840),” in *Classic Essays on Photography*, ed. Alan Trachtenberg (New Haven, Conn.: Leete’s Island Books, 1980), 38.

enlarged and capable of formulation, make the difference between technology and magic visible as a thoroughly historical variable.<sup>47</sup>

For Kracauer, the reclamation of a strong belief in the materiality of the world is also powerfully grounded by the movie camera's native propensity to *show* that world, as it is actually visible: "the hunting ground of the motion picture camera is in principal unlimited; it is the external world expanding in all directions."<sup>48</sup> But Benjamin takes the potential for narration through description in another direction by turning the phenomenal gaze toward an internal horizon. The interior frontier presented by "physiognomic aspects" of "image worlds, which dwell in the smallest things" is characterized as a zone of liminal visibility that "*make[s] the difference between technology and magic visible as a thoroughly historical variable*" only when a technical grammar of close-ups and blow-ups has acted upon these materialities to render their almost-ineffable contours visible: when "enlarged and capable of formulation" they are ushered into a phenomenal catalogue of the legible, the describable, and so the hermeneutically comprehensible. With the same nuance of Poe's impulse to linguistic or literary specification, Benjamin circles the challenge to lexicons presented by the radically other "formulation[s]" of photographic magnification. But what is visualized through "devices of slow motion and enlargement" is, for the modernist beholder, not fields of facts, but whispers of affect; if photography "reveals the secret," this secret is that of the new and the strange.

Benjamin's careful, descriptive evaluation of the concrete devices by which the camera illuminates "what happens in the fraction of a second when a person actually takes a step" follows directly upon a discussion of nineteenth-century portrait photography, and it is worth

---

<sup>47</sup> Benjamin, "Little History of Photography," 510-11.

<sup>48</sup> Kracauer, *Theory of Film*, 41.

pausing the flow of his argument to note a typological discordance. The exemplars of portraiture, gesture, and cell, while connected by Benjamin's association and contained in the same paragraph, are not an obvious combination. Scientific subjects "with which technology and medicine are normally concerned" are "more native to the camera" than romantic atmospheres or lyrical apostrophes, he observes, because the scientific gaze searches the image for descriptive precision in a manner that dovetails precisely with the camera's native predilection for spatial detail. It is for this reason that, between the mechanics of the device and the lingering erotics of an unruly desire triggered by a photographic portrait for "the woman who was alive there, who even now is still real" Benjamin posits this surprising mesh: *cellular detail*.<sup>49</sup>

"Reading this, of course, we are struck by the strangeness of the analogy" Rosalind Krauss writes in a book titled *The Optical Unconscious*; because what could Benjamin possibly mean?—"What can we speak of in the visual field that will be an analogue of the 'unconscious' itself, a structure that presupposes first a sentient being within which it operates, and second a structure that only makes sense insofar as it is in conflict with that being's consciousness?"<sup>50</sup> But Benjamin has not been arguing *analogically* in the moments leading to this singularly important initial formulation of the concept of the optical unconscious. Indeed, it is clear that in discussing Hill and Adamson's portraits this writer holds the images before him in the form of book reproductions. Benjamin's arguments in "Little History of Photography" are built upon 'images' perceived both literally and phenomenally as real, and with a descriptive specificity that is the

---

<sup>49</sup> Benjamin, "Little History of Photography," 510.

<sup>50</sup> "Can the optical field—the world of visual phenomena: clouds, sea, sky, forest—*have* an unconscious? ... My own use of *optical unconscious*, as it has been invoked in the pages of this book, is thus at an angle to Benjamin's." Rosalind E. Krauss, *The Optical Unconscious* (Cambridge, Mass.: MIT Press, 1993), 178-9.

indicator of a haptic interpellation by the image. We should consequently be able to assume, based on the evidence of the text, that Benjamin's prioritization of the visually precise also carries forward into scientific references; however initially startling to the ear of a critic.

Yet Krauss' puzzlement in the face of the actual figurations by which Benjamin describes the optical unconscious in "Little History of Photography" is not unjustified. Posed against Surrealism, her question is a subtle and eloquent summary of the essentially uncomprehending shrug which which cultural criticism in the twentieth-century has met glimpses of the literally biological. In cutting together portraiture, gesture, and cell, Benjamin issues a major challenge to forms of tacit knowledge that conjugate the disciplines in the intellectual *dispositif* of the twentieth- and even early twenty-first- centuries. The implications of his discursive montage test the image of knowledge that regulates our sense of an appropriate order of things, by bringing together modes of visualization have seemed quite distinct: photography, cinema, and video.

The twentieth-century discourse of enlargement may not have done justice to cellular tissue, or awarded this mesh of living detail the full measure of respect due to its status as an ontological matrix; but Benjamin, with a kind of Bergsonian intuition, follows the line of a counter-logic internal to the technical image to arrive at an intellectual montage whose implications Hannah Landecker poses in this way: "*what is cellular tissue doing in this passage?*"<sup>51</sup> Here the historian of science's softly explosive question sounds a usefully pragmatic note, because her query is disciplinarily equipped to take up the challenge of Benjamin's description in the manner it was intended: as an uncomplicated reference to science film.

---

<sup>51</sup> Hannah Landecker, "Cellular Features: Microcinematography and Film Theory," *Critical Inquiry* 31, no. 4 (Summer 2005): 929.

From the perspective of the historian of science, it is the cultural critic's ear for allegory and metaphor that generates a tendency to project discursive imprecision upon precise scientific allusions; thus rendering "what Benjamin himself spoke of in the visual field—cellular tissue"—into an "abstraction, as if it did not refer to anything in particular."<sup>52</sup> Krauss performs the almost classical version of this metalepsis when she hails the very word 'unconscious' as a psychoanalytic analogy, so assuming the operation of a level of metaphor nowhere actually evidenced in the source text. This misreading necessitates her eventual acknowledgement—more than halfway through the book, and in the sole discussion of its purported source text—that "my own use of *optical unconscious*, as it has been invoked in the pages of this book, is thus at an angle to Benjamin's."<sup>53</sup> In this admission Krauss cedes the bare possibility of a direct, materialist connection between cellular tissue and the arts of Surrealism. More insidiously, she pilfers a powerful metaphor at a high cost: the total remaking Benjamin's conception of the optical unconscious as a functional heuristic intended to designate a phenomenal sphere of commensurate incommensurability.

Benjamin's original sense of the optical unconscious must be wrested back from this burial in metalepsis and made actual once again, as an uncomplicated reference to the body in science film. Krauss might imply generality where there is none, but the history of biological counter can counter with evidence that Benjamin had cells and tissues on his mind in 1932.<sup>54</sup> Understanding

---

<sup>52</sup> "Cellular Features: Microcinematography and Film Theory," *Critical Inquiry* 31, no. 4 (Summer 2005): 929-30.

<sup>53</sup> Krauss, *The Optical Unconscious*, 179-80. My emphasis.

<sup>54</sup> "Cellular and microscopic metaphors and references appear in texts by Balázs, Eisenstein, Epstein, and Benjamin, as well as various lesser-known critics and writers on film. The recontextualization of these seemingly abstract scientific metaphors in the contemporary scene of their production leads to a better understanding of both early scientific film, of which critics were acute observers, and early film theory." Landecker, "Cellular Features: Microcinematography and Film Theory," 929.

the optical unconscious as a concept formulated, in part, by a cognized reference to scientific imaging—“details of structure, cellular tissue, with which technology and medicine are normally concerned”—allows Benjamin to join a small catalog of Classical film theorists whose attention to genres of technical cinema can provide the contemporary scientific turn to animated heuristics with a tradition of assessment. Reading Benjamin’s reference to cells as a *description* and not an *analogy* allows the neglected history of science film to assume its deserved epistemic visibility as that archive parallel to aesthetic modernism in which the technical image of things almost-visible contributed new chapters to the catalog of the manifestly visible; by rendering these ‘things’ perceivable, for the first time, *as visualizable*.

It is worth returning in this context to Krauss’ initial question about the optical unconsciousness to ask if the *cell* might be an entity we can speak of in the visual field—“the world of visual phenomena: clouds, sea, sky, forest”—that can make “the difference between technology and magic visible as a thoroughly historical variable.” In the hint of semantic instability that subtends the critic’s postulate, we have a reformulation of the same problematic of naming that undergirds Poe’s commentary on the unstable visual epistemologies inaugurated by the daguerreotype. And it is against this framework of visualization and visibility extended into the history of ideas—of the philosophy of technology syncopated against a history of practice—that the formal aesthetics of live cell imaging should be broached.

Landecker writes:

Live cell imaging hangs the molecule in a living but empty (unstained) background, and the image is of the cell as a skein of movement—a network not of molecules which stand in place as nodes or strings connecting nodes, but a network of very specific possible relations with actual entities moving in and out of various states or conformations of

being. Over and over again, processes which were thought to be programmed, set in the genetic code and thus orchestrated or prearranged—particularly those unfolding in organismal development—are shown by live cell imaging to arise out of a messier, looser set of molecular relations and interactions: “it now appears that cells are not locked into a rigid choreography but behave more like football players with a set of rules and options at every play”. Observers following gene expression and cells are surprised to see that cells are not predestined or programmed to become one thing or another, but move in and out of fields of molecular signals generated internally and externally. At stake is more than the map of development; it is the molecular foundation of life. This new foundation is a much expanded version of the late nineties “postvital” body, one that lives in time and space, one whose study requires integration, not dissection, an attitude of “molecular vitalism.”<sup>55</sup>

What is a network? As a trope of technological contemporaneity this figure performs both metaphorical and functional work, conceptualizing structures as diverse as banking systems, globalization, and the forms of community understood to arise in the wake of social medias and the instantiation of a digital commons. It is the ubiquity of ‘the network’ as a trope of ‘connectedness’ that underlies Landecker’s too-instinctive reach for the term as she navigates, and attempts to semantically locate, the intensity of a specialist’s comprehending reaction to an order of visualization capable of depicting this lightening-quick interaction: a set of “very specific possible relations with actual entities moving in and out of various states or conformations of being.”<sup>56</sup> But what is actually described in this moment of breathtakingly filmic action is not a network, but a process of formation—an agential movement, laced with contingency, in which “over and over again, processes which were thought to be programmed, set in the genetic code and thus orchestrated or prearranged ... are shown by live cell imaging to arise out of a messier, looser set of molecular relations and interactions.”<sup>57</sup> Live cell imaging

---

<sup>55</sup> "The Life of Movement: From Microcinematography to Live Cell Imaging," 393.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid.



does not illustrate a movement between demarcated points, or illuminate a pre-formulated trajectory that can be conceptualized in advance of the temporal act. Rather, this technology twists the digital platform's native capacity to interweave still and moving photography into the bricolage of an enlargement technique subtle enough to reframe the depicted cell as “*a skein of movement.*”

As a result, what is operative in this digitality is a re-conjugation of orders of visibility at play in the topography of the screen, and initially through an intensified interaction of stillness and movement. In this heuristic's aesthetic of surfacing and transparent layers, the ‘empty’ is no longer the signifier of ‘nothing,’ but only of the unstained. Live cell imaging depicts a becoming in which what is visible maintains a constitutive relation to an unarticulated but living backdrop. This active ‘background’ of cellularity wraps around the demarcated imageable component of a genetically modified cell to describe a technology of envelopes—not spatialized emptiness, but an imagistic space infused with the living temporality of potential. “Nothing is more secret, nothing is more lyrical, nothing is more explosive, nothing is more modern than the the silence of his blacks and the lightness of his whites” Henri Langlois wrote of the *gestalt* effect of Marey’s composite photographs; and precisely this sense of a radicalized relation between ‘figure’ and ‘ground’ is at play in the thick virtuality that subtends these pulsing, glowing films.<sup>58</sup> Live cell imaging rearranges received hierarchal relations of full and empty space, detail and subject, foreground and background, into all-over temporal compositions whose pictorial schema materializes the representational implications of Picasso’s dictum that “one should be able to

---

<sup>58</sup> Cited in Laurent Mannoni and Musée d'Orsay, "Mouvements De L'air: Étienne-Jules Marey (1830-1904), Photographer of Fluids," Musée d'Orsay.

show the paintings that are underneath the paintings.”<sup>59</sup> It is as an order of technical cinema that enlarges the interval *between* formulated states, then, that this technology constructs a mode of phenomenal access to transition.

In this, the case of live cell imaging is an exemplary illustration of the paradigm shift that can be triggered when, in Kracauer’s words, a media format “finds the object appropriate to its technology.”<sup>60</sup> As a functional heuristic that opens an existent materiality to new regimes of vision and visual analysis, its enlargements act as an agent of audiovisual intensification in a manner precisely congruent with Benjamin’s conception of the optical unconscious as a sub-perceptual province only accessible by means of a *technically* amplified sensorium. “Film has enriched our field of perception” by “isolat[ing] and mak[ing] analyzable things which had previously floated unnoticed on the broad stream of perception” his Work of Art essay observes; in this contributing to a “deepening of apperception throughout the entire spectrum of optical—and now auditory—impressions.”<sup>61</sup> Both 1936 and 1939 versions of this foundational text of media aesthetics extend the commentary on photographic visualization inaugurated by “Little History of Photography” into a series of broad claims about cinema’s social potential; to arrive at a formulation congruent with the declamatory mood of Kracauer’s montage of ‘strange constructs.’<sup>62</sup>

---

<sup>59</sup> Cited in Bazin, “A Bergsonian Film,” 213.

<sup>60</sup> Kracauer, “Photography,” 53.

<sup>61</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1939),” 266.

<sup>62</sup> “The capacity to stir up the elements of nature is one of the possibilities of film. This possibility is realized whenever film combines parts and segments to create strange constructs... reminiscent of *dreams* in which the fragments of daily life become jumbled. This game shows that the valid organization of things remains unknown—an organization which would designate the position that the remains of the grandmother and the diva stored in the general inventory will some day have to occupy.” Kracauer, “Photography,” 62-3.

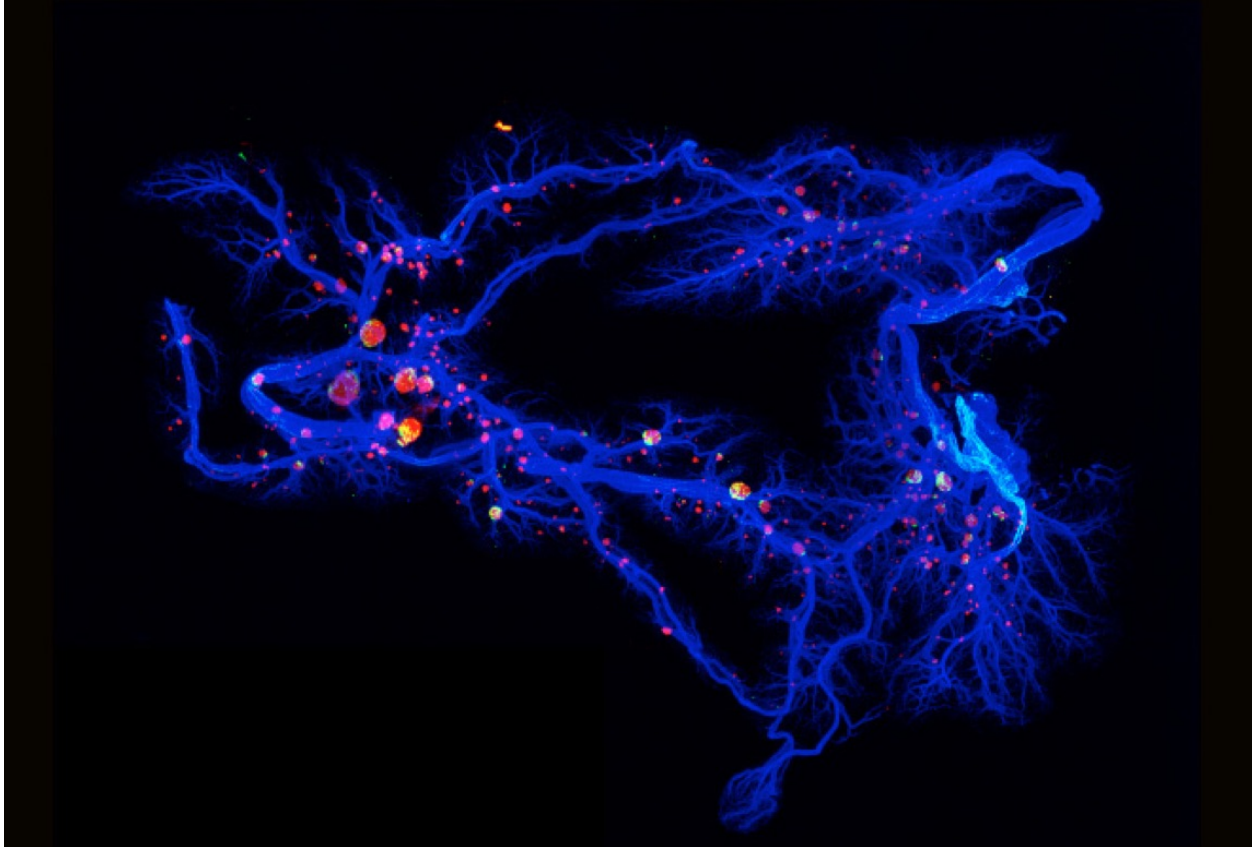


Figure 4.12: Jürgen Mayer, *Complete gastric lobe of a mouse pancreas with blood vessels labeled blue, insulin-producing  $\beta$  cells red, and glucagon-producing  $\alpha$  cells green*. c.2013. Lightsheet fluorescence microscopy photograph. ([Source](#)).

The pancreatic tissue was chemically treated to make the sample optically transparent.

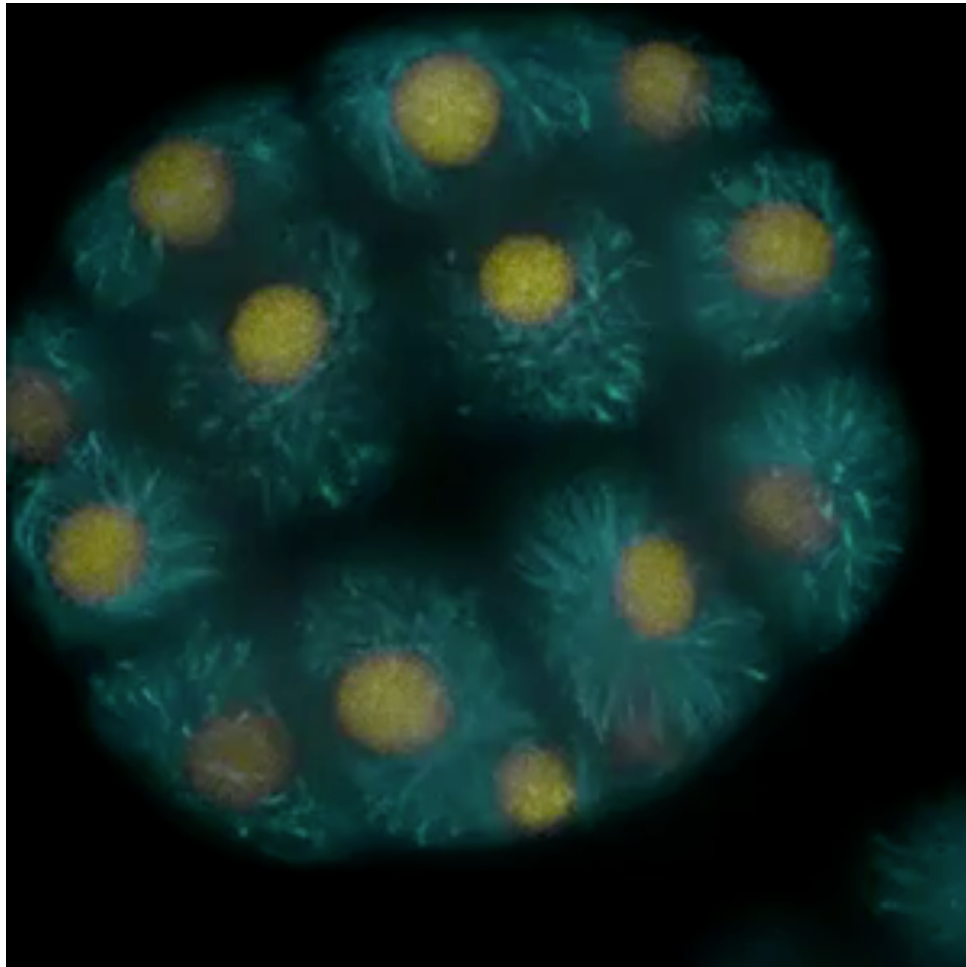


Figure 4.13: George von Dassow, frame from *Development of a sea urchin embryo*. c.2011. Time-lapse video. ([View at Source](#)).

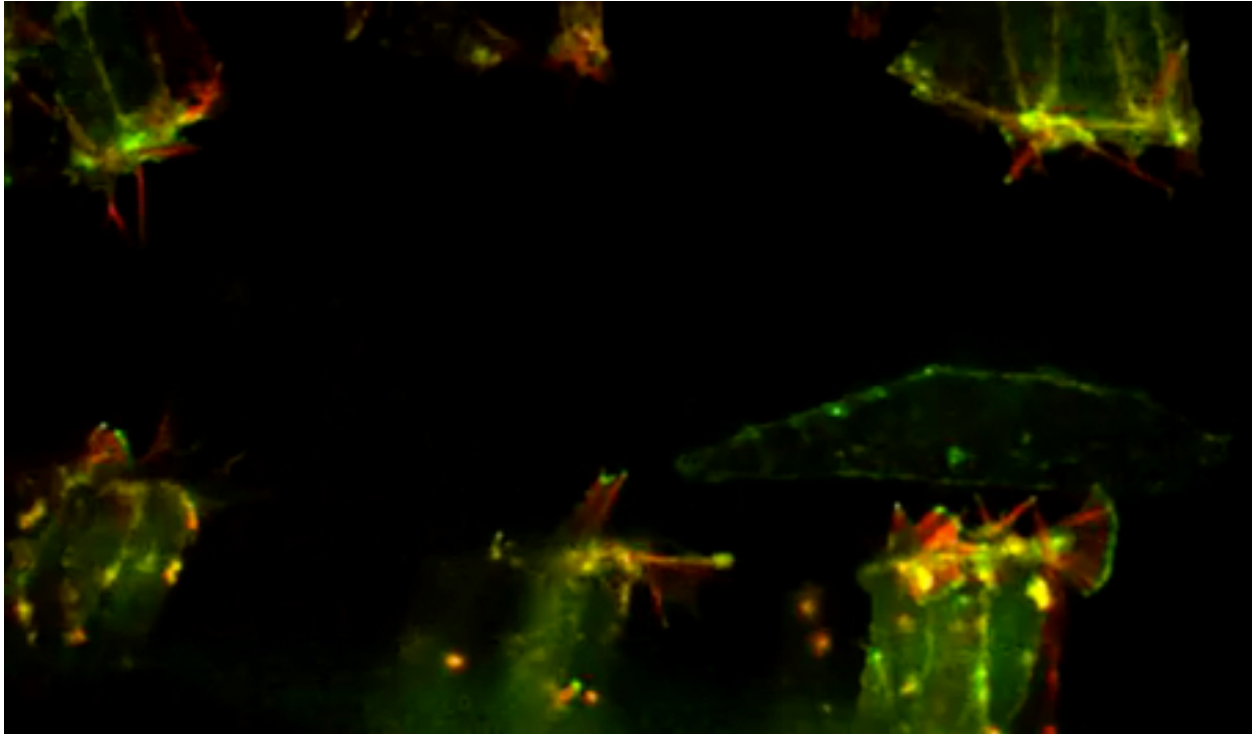


Figure 4.14: Stephanie Nowotarski, Mark Peifer, frame from *Development of a fruit fly embryo*. c.2011. Time-lapse video. ([View at Source](#)).

“Our bars and our city streets, our offices and furnished rooms, our railroad stations and our factories seemed to close relentlessly around us” Benjamin intones—but “then came film and exploded this prison-world with the dynamite of the split second, so that now we can set off calmly on journeys of adventure among its far-flung debris.” Here the dynamite of montage acts as a bombshell of imaginative propulsion, launching the film spectator into an imagistic whorl of “far-flung debris” and new perceptual landscapes of distributed movement. It is *this* energetic interpellation that Benjamin means to describe when, over and over, he insists upon the magic of enlargement as a spectatorial fact dialectically syncopated with the reality of the image’s essentially technological character:

With the close-up, space expands; with slow motion, movement is extended. And just as enlargement not merely clarified what we see indistinctly “in any case,” but brings to light entirely new structures of matter, slow motion not only reveals familiar aspects of movements, but discloses quite unknown aspects within them—aspects “which do not appear as the retarding of natural movements but have a curious gliding, floating character of their own.”<sup>63</sup>

Here cinematic enlargement is not merely the illustration of a layer of detail “we see indistinctly ‘*in any case*’”; but constitutes a radical, even ontological reformulation of the limits of the visible field. As a pictorial device that pivots on the descriptive dimensions of a kinetic showing, it is an attenuated stretching that brings into view “entirely new structures of matter.” The temporality of enlargement magnifies “unknown aspects” of the apparently familiar, to frame domains of the sub-perceptual now revealed to possess “a curious gliding, floating character of their own.” Mediation itself is reformulated in this conception of a mode of phenomenal uncovering that wrests fundamentally new pockets of perception from the material

---

<sup>63</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1939),” 265. It is in the 1939 version that Benjamin explicitly connects enlargement to science.

world. For the technical image becomes magical when comes to illuminate a very subtle movement: the transition *between* demarcated acts, or “what happens in the fraction of a second when a person actually takes a step.” The functional power of affect is always at play in this description—“with the close-up, space expands; with slow motion, movement is extended”—because for Benjamin the device of enlargement does not aim to fix transition so much as to render it habitable, in the incommensurabilities of an un-inscribed brief time:

In contrast to what obtains on the stage, filmed action lends itself more readily to analysis because it can be isolated more easily. This circumstance derives its prime importance from the fact that it tends to foster the interpenetration of art and science. Actually, if we think of a filmed action as neatly delineated within a particular situation—like a flexed muscle in a body—it is difficult to say which is more fascinating, its artistic value or its value for science. *Demonstrating that the artistic uses of photography are identical to its scientific uses—these two dimensions having usually been separated until now—will be one of the revolutionary functions of film.*<sup>64</sup>

The concrete devices of enlargement and replay ground this reverberant claim for the cinema’s potential to catalyze a re-imbrication of the artistic and scientific agenda. It is the special prerogative of filmic representation to install its viewer into the *duration* of a depicted event—like “a flexed muscle in a body” or the motion-sequences of Marey and Edison—Benjamin writes, because only a temporal media can extrapolate that spectrum of sub-perceptual action folded into the arena of natural movements, yet possessing “a curious gliding, floating character of their own.” At the core of the strong claim that “*the artistic uses of photography are identical to its scientific uses*” lies a light-fingered appreciation of the spectatorial impact of cinema’s capacity to conjoin the affecting powers of spatial and temporal attenuation. The proper subjects

---

<sup>64</sup> Ibid. The extended emphasis in Benjamin’s. Scientific experiments with and through film, writes Landecker, “did not just offer new images of natural objects, such as cells or particles; they were also a means of allowing people other than scientists to participate visually in the sights of scientific work and the mode of experimental looking.” Hannah Landecker, “Microcinematography and the History of Science and Film,” *Isis* 97, no. 1 (March 2006): 123.

of filmic enlargement come into focus for Benjamin as an order of ephemeral movements clustered at the very limits of the perceptual field. This is at once a domain of the unseen ordinary and a swarming, fluttering movement of the centripetal *mise-en-scène*—an atmospheric motion at once evanescent and specific, clouding yet precise; but outside “the *normal* spectrum of sense expressions,” so requiring delineation through an intricate interaction of observational precision with the lyricism of an imagistic *poïesis*:

If a stone is thrown into the still water, its circles will be equidistant from its centre. But if the river flows, the circles will almost form oval patterns and every circle will start with its centre from the place where it was created following the water flow. [...] Abysses are places of immediate depth. Tempests are storms of water. Air bubbles on the surface of waters and the movement of water from below are caused by sources of waters but the one comes from underneath up and the other only has transversal motion, that falls from some cave. To submerge means the things that go under the waters. Waters intersection is when one river crosses the other. Water jumping because of an obstacle, circulation, revolution, turning, turning over, submerging, rising, declination, elevation...<sup>65</sup>

The photographic word-pictures of Leonardo’s *Book of Water* (1497-99) can be conceived as a key moment in an aesthetic genealogy carried forward and remediated by the visualizations of live cell imaging: a long history of cognized attempts to visualize persistent transition; into which the interaction of art and science claimed by Benjamin as a *cinematic* prerogative should also be placed. In Leonardo’s text, the virtuality of liquid movement is apprehended as a material phenomenon to be glimpsed rather than fixed: in the ‘medium’ of perception, or the artist-scientist’s intuitive grasp of the liminal clouding of a centrifugal, gestural motility. The raking gaze of scientific description intertwines devices of analytic reportage with the strategies of linguistic fiction necessary to register distributed movement as neither subjectivity nor

---

<sup>65</sup> Leonardo da Vinci, "The Motions of Air and Water: Ms. I. Ff. 87 R; 72 R (1497-99)," in Leonardo: Waters and Lands, ed. Carlo Starnazzi (Firenze: Gran'tour, 2002), 58-60.



expression, but the robust expressivity of *durée*—“water jumping because of an obstacle, circulation, revolution, turning, turning over, submerging, rising, declination.”

The same recognition of externality surfaces three centuries later in the analytic gaze turned by Marey toward the movements of airs and vapor, animal locomotion, human strolling, and bird flight:

Of all kinds of locomotion, as existing among vertebrates, that of birds has remained the longest unexplained. ... If a white bird, brightly illuminated by the sun, is photographed in series as it crosses in front of a dark background, its various attitudes will be clearly seen. In these photographs the bending of the wings due to the resistance of the air is usually quite evident, and it expresses in a striking manner the force with which the wing is moved; if one tries to reproduce the same degree of bending by mere manual force one is quite astonished at the amount necessary.<sup>66</sup>

After Marey, Hannah Landecker writes, “there is a distinct development of cinema as a scientific tool.”<sup>67</sup> The history of science film in the twentieth-century is one of filmed actions composed explicitly for projection—“a highly foreshortened moving image of the developmental course,” produced by scientists for scientific spectators, and intended to act as “a necessary corrective to the de-animating effects of microscopic technique.”<sup>68</sup> In turning to the enlarging devices of superimposition and time-lapse photography, early scientific filmmakers aimed at a latency implied by the gestural splay of Marey’s composite photographs, which seemed to visualize a family of subtle movements at once immanent to the body, yet lifting off it, to pervade the distributed field. The haunting profile of this vacillating, incantatory motion seemed

---

<sup>66</sup> Étienne-Jules Marey, *Movement*, trans. Eric Pritchard (New York: D. Appleton and Company, 1895), 226-7, 32. Marey writes of his method: “When a camera faces a dark background, no impression is made on the sensitized plate, because no light reaches it; but if a very luminous object is placed between the background and the lens, light will be reflected and an image imprinted on the plate.” *Movement*, trans. Eric Pritchard (New York: D. Appleton and Company, 1895), 20.

<sup>67</sup> Landecker, “Microcinematography and the History of Science and Film,” 126.

<sup>68</sup> *Ibid.*

to encode the veritable impression of *life*, carrying a “realism and vitality” that, in the language of a biologist before a microcinematographic film:

can scarcely be imagined by anyone who has not seen them thrown on the screen. An interesting film is one which displays the blood actually circulating in the body. The colored corpuscles of the blood, from which it derives its red tint, have, of course, no independent motion of their own, and are simply carried along by the stream in which they are suspended. But the colorless cells or leucocytes have such independent motion, and in another film we are shown a white cell gradually altering its shape, throwing out a long filament into which the rest of the corpuscle slowly flows, until the whole cell has altered its position and moved from one place to another. ... it appears alive and moving, with its coils all clear and sharp, a perfectly distinct picture. ...

By reproducing at a slower pace the changes which do occur... a study of the film will enable us to follow the sequence and analyze the motion with a greater detail and a greater accuracy than any number of examinations of the natural phenomena can possibly supply. ... There are thousands of people in the country who are intimately acquainted with the cellular constituents of the blood, and their various shapes and functions, thousands who have seen the ordinary bacterial preparations or are familiar with the heart-beat and its action on the pulse, but of these thousands not one-tenth have actually seen the amoeboid movements of a leucocyte or a spirillum wriggling its way between the corpuscles or the heart itself beating before their eyes. Yet these are things which it concerns them to understand, and no amount of imagination can supply the clearness and comprehension which actual seeing can give.<sup>69</sup>

This intensely declamatory reaction to the “*realism and vitality*” of the filmic spectacle of swarming life returns us to the struggle for commensurate language at stake in Poe’s univocal declaration of the daguerreotype as “*infinitely* more accurate in its representation than any painting by human hands.” Like Landecker before live cell imaging, this anonymous biologist before early cinematography is transfixed by the pictorial rendering of a phenomena so historically inaccessible to perception—“the blood actually circulating in the body” or “the amoeboid movements of a leucocyte”—that “not one-tenth” of the specialists intimately familiar with its established outcomes “*have actually seen*” it. “Whether in the microscopic or the

---

<sup>69</sup> Anonymous, “Microkinematography,” *Nature*, no. 88 (14 December 1911): 213-4, 15. The biologist before cinema repeats Leonardo’s language of liquidity.

macroscopic realm” Landecker writes of the impulses that propelled scientific cinema, “film presented the haunting possibility of capturing over time phenomena which had escaped static means of representation such as histology, photography, or drawing.”<sup>70</sup> The biologist in the thrall of cinematic animism consequently repeats Poe’s impassioned plea for enlargement as a portal to an endlessly heightened visibility: “a study of the film will enable us to follow the sequence and analyze the motion *with a greater detail and a greater accuracy* than any number of examinations of the natural phenomena.” At the same time, the tussle for adequate vocabulary palpable in his attempt to convey the spectatorial force of the image “thrown on the screen” circles the same quality of affect at play in Benjamin’s designation of ‘the optical unconscious’ a domain of sensation “outside only the *normal* spectrum of sense expressions.”<sup>71</sup>

At stake in the “clearness and comprehension” provoked by the cinematic rendering of transition is a re-imbrication of the same conceptual tension that has always grounded the effort to visualize persistent transition. The filmic rendition of “a spirillum wriggling its way between the corpuscles or the heart itself beating before their eyes” presents the spectator with the entirely absorptive vision of a representation that “appears alive and moving, with its coils all clear and sharp, *a perfectly distinct picture*.” At the same time, the complicated indexical status of this

---

<sup>70</sup> “Histology depends on fixing and staining tissues and cells to make them visible under the microscope. Except with the use of a few vital stains, this mode of examining living things usually requires killing the organism—stopping and fixing it at a certain moment in its life processes—in order to see it.” These observable effects of biological ‘life,’ or animation, “would be inaccessible without recording the operation and watching the living cells’ reactions accelerated by time lapse.” Landecker, “Microcinematography and the History of Science and Film,” 122.

<sup>71</sup> Benjamin, “The Work of Art in the Age of Its Technological Reproducibility (1936),” 118. One can juxtapose the tone of this invocation with Bazin’s review of Jean Painlevé’s biological films: “When Muybridge and Marey made the first scientific research films, they not only invented the technology of cinema but also created its purest aesthetic. For this is the miracle of science film, its inexhaustible paradox. At the far extreme of inquisitive, utilitarian research, in the most absolute proscription of aesthetic intentions, cinematic beauty develops as an additional, supernatural gift.” André Bazin, “Science Film: Accidental Beauty (1947),” in *Science Is Fiction: The Films of Jean Painlevé*, ed. Andy Masaki Bellows, Marina McDougall, and Brigitte Berg (Cambridge, Mass.: MIT Press, 2000), 146-7.

unambiguous movement-image confronts the specialist with an incommensurability: the reality of a reality-effect disproportionate with the visual. The technical depiction of “things which it concerns [scientists] to understand”—“details of structure, cellular tissue, with which technology and medicine are normally concerned”—circles a movement surfacing *in* the image, and whose interpellative force “no amount of imagination can supply.” Yet the affective force of this re-presencing effect of movement effects a sudden shift of scene—relocating the beholder to a newly materialized domain of the virtual, in which the truth-claims of deep indexical reportage intersect obliquely with the uncertain ontological status of a ‘picture’ that purports to inscribe an order of sensation incommensurate with visibility.

In this, the scientific viewer impelled to wordlessness *and* description before the impossible image of transition offers a kind of ideal commentary on the particular challenge to visibility posed by the experiential haptics of movement. “Motion imparts corporality to objects and gives them an autonomy their still representations could not have” Christian Metz has written in an important essay that attempts to articulate the cardinal features of a cinematic effect grounded in the perceptual reality that “*freed from its setting, the object is ‘substantiated.’ Movement brings us volume, and volume suggests life.*”<sup>72</sup> In the nineteenth- and twentieth-centuries, and once again in our time, a movement surfacing *in* the image provokes a reaction of wonder that triggers a paradoxical proliferation of language—“actually circulating,” “suspended,” “independent motion,” “slowly flows.” Cinematic animism offers the life scientist direct experiential access to an immanent effect whose fugitive, corporal volume has been sought—aesthetically and scientifically—since at least Leonardo. If the poetics of a living image seem to be at play in each

---

<sup>72</sup> Metz, “On the Impression of Reality in the Cinema,” 7. My emphasis.

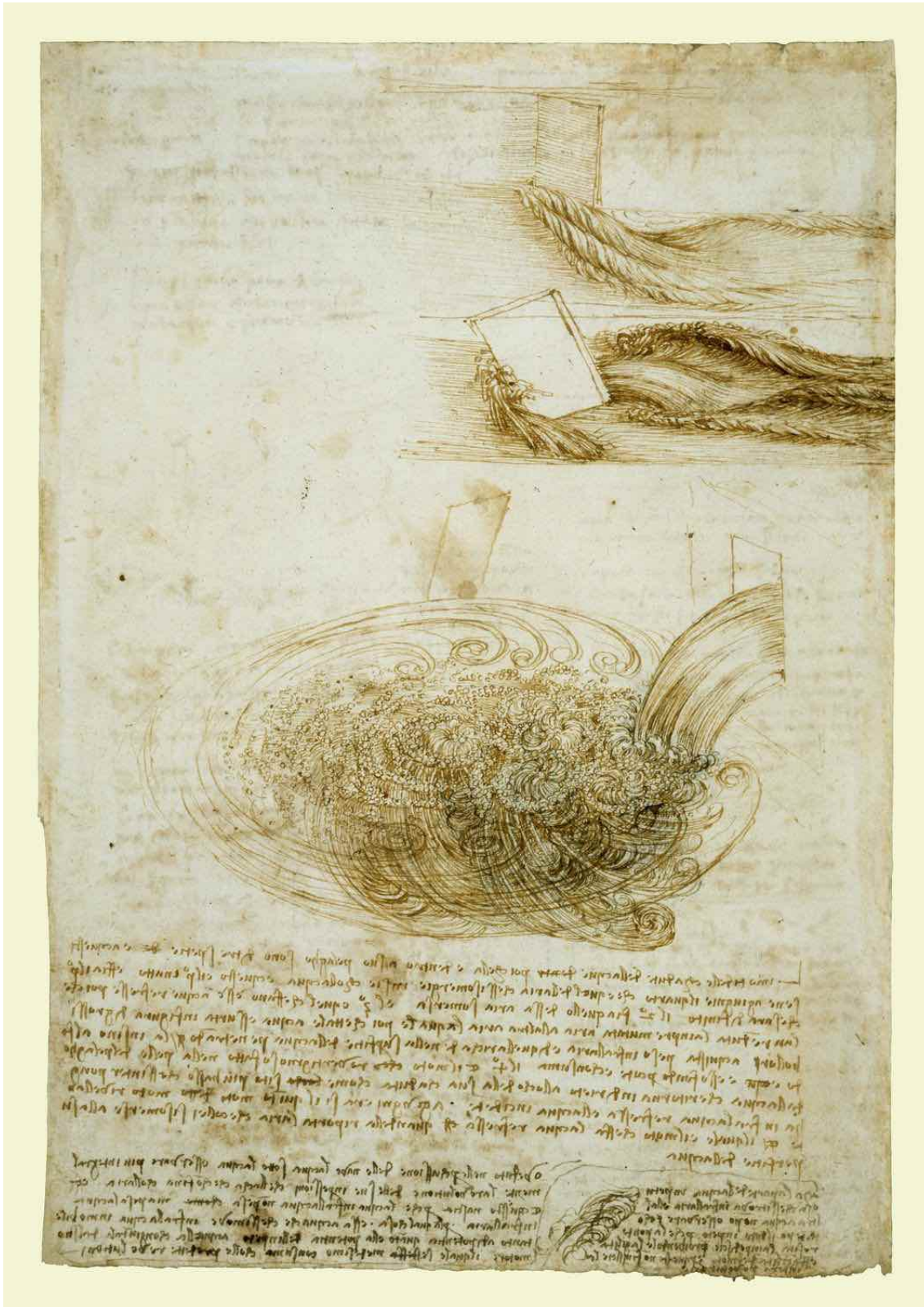


Figure 4.15: Léonardo da Vinci, *Studies of flowing water; with notes*. c.1510-13. Pen and ink over red chalk. 29.6 x 20.7 cm (sheet of paper). Collection of Royal Collection Trust, London.

Figure 4.11: Étienne-Jules Marey, *Triangular prism presenting one of its bases to the air stream, fourth and last version of the smoke machine equipped with 57 channels*. 1901. Modern print after the negative plate with gelatino-bromure on glass. Collection of the Cinémathèque française, Paris.



Figure 4.16: Étienne-Jules Marey, *Triangular prism presenting one of its bases to the air stream, fourth and last version of the smoke machine equipped with 57 channels*. 1901. Modern print after the negative plate with gelatino-bromure on glass. Collection of the Cinémathèque française. Paris.





Figure 4.17: Jean Comandon, frame from *Living syphilis bacteria moving among the red blood cells of a frog*. 1909. Time-lapse ultramicroscope film. Collection of the Albert Kahn Museum, Paris.

## MICROBES CAUGHT IN ACTION.

Moving Pictures of Them a Great Aid  
In Medical Research.,

Special Cable to THE NEW YORK TIMES.

PARIS, Oct. 30.—Moving pictures of the smallest micro-organisms discernable through the most perfect of magnifying instruments have been made by Jean Comandon, a young French scientist. His work was duly reported to the Academy of Sciences at its last session, causing more open wonderment than is usually expressed by that body of cool-blooded savants.

The bacilli first represented were one-thousandth of a millimeter in length. They are known as tripanozomes, and inhabit the blood of mice who have been inoculated with the sleeping sickness. Thirty-two cinemat-

graphs per second were taken by Comandon of these almost infinitely little creatures and images were projected upon the screen on a scale of 20,000 diameters. One drop of the blood of a mouse placed between two plates of glass sufficed to furnish endless variations of animate motion. A flea pictured on the same proportion would look as big as a six-story house. But other bacilli were also represented in the same manner, including several types found in the blood of human beings.

Prof. Dastre, member of the Academy of Sciences, said:

"The consequences of Comandon's discovery are incalculable. All the activities of microbes, including the Brownian movements, which are so little understood, can now be studied with a precision hitherto inconceivable. Physiological questions of the greatest importance, impossible of elucidation in the past, can probably be solved by this new method."

Figure 4.18: Uncredited reporter, "Microbes Caught In Action: Moving Pictures of Them a Great Aid In Medical Research." Source: *The New York Times*, Sunday 31 October 1909.

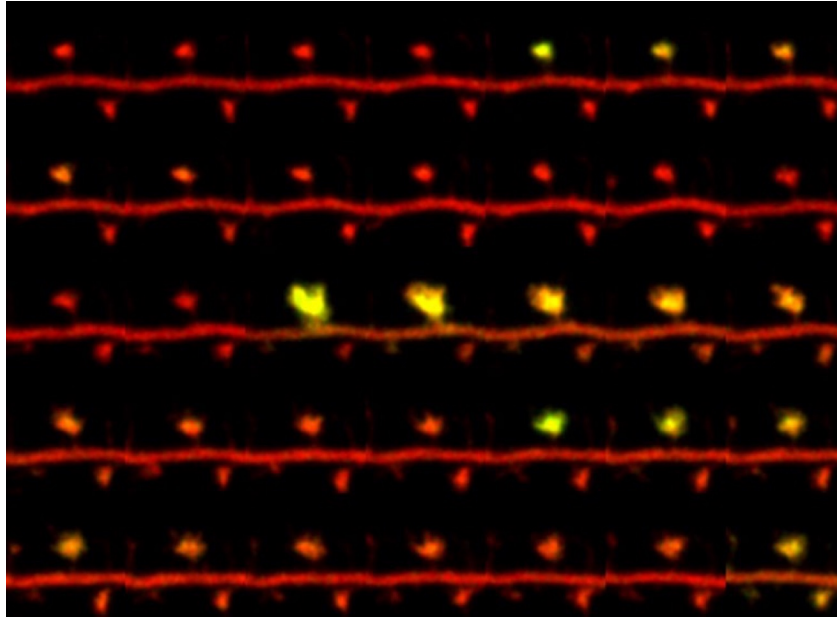


Figure 4.19: Miquel Bosch, *Montage of time-lapse images of the dendritic spine from a living mouse neuron showing the chronology of the birth of a memory at a molecular level.* c.2012. Microscopic digital photograph. ([Source](#)).

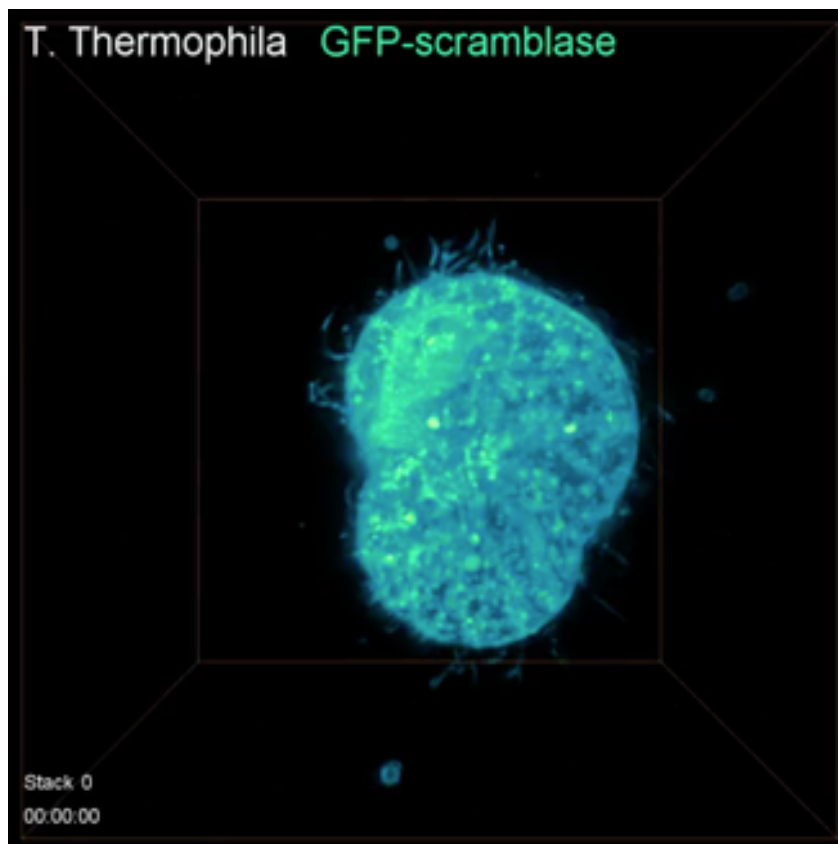


Figure 4.20: Betzig Lab, HHMI/Janelia Research Campus, Janetopoulos Lab, University of the Life Sciences, Romero Lab, University of Minnesota, frame from *Rapid movements of a single cell protozoan T. thermophila expressing GFP-scramblase.* c.2014. Lightsheet fluorescence microscopy video. ([View at Source](#)).



of these accounts (whether undergirded by technologies of description, photography, celluloid, or digital video), this is because the aesthetics of cinematic enlargement engage an affective valence intimately tied to the effect of thick substantiation Metz calls the ‘impression of life.’ And it is this dimension of affective realism that is everywhere visible in the aftereffects of live cell imaging, whose enlargements have inaugurated a discursive turn toward the observation of an unfixable distributed movement.

Yet the early twentieth-century biologist’s orientation toward an acknowledgment of movement as the ground of biological life contrasts notably with the consensus of a later era in the life sciences. The historian of science Evelyn Fox Keller describes the 1950s as a key decade in the history of modern genetics: a period in which biologists understood themselves to be “dealing with *the* basis of life.”<sup>73</sup> As a result, she notes, life scientists framed their effort to resolve a mystery first articulated by the nineteenth-century biologist August Weismann —“how is a single germ cell capable of reproducing the entire body with all its details?”— through a discourse of ‘gene action’ that depicted the gene as the primordial agent and first actor of life.<sup>74</sup>

Fox Keller’s summative history of a bioscientific discourse she names ‘genetic determinism’ draws a direct line of connection between the twentieth-century maturation of the young discipline of genetics and another major moment of disciplinary ontology: the rise of information

---

<sup>73</sup> Evelyn Fox Keller, “Rethinking the Meaning of Genetic Determinism (February 18, 1993),” in *The Tanner Lectures on Human Values* ed. Grethe B. Peterson (Salt Lake City: University of Utah Press, 1996), 115.

<sup>74</sup> “The concept of the gene invoked here is Janus-faced: it is part physicist’s atom and part Platonic soul; at one and the same time, fundamental building block and animating force. Only the “action” of genes can initiate the complex manifold of processes constituting a living organism.. —“first the gene, then the remaining protoplasm... or rather, with the gene comes life.” “Rethinking the Meaning of Genetic Determinism (February 18, 1993),” in *The Tanner Lectures on Human Values* ed. Grethe B. Peterson (Salt Lake City: University of Utah Press, 1996), 115, 18, 19.

systems as the meta-disciplinary backbone of the oncoming information age. The congruence of these disciplinary arcs is a synchronicity of history that engendered a crucial inflection, because mid twentieth-century geneticists imported the language of computational engineering into their discipline's most paradigmatic conceptual frameworks. Specifically, when the biologists James Watson and Francis Crick definitively identified DNA as the genetic material in 1953 they wrote that "in a long [DNA] molecule, many different permutations are possible, and it therefore seems likely that the precise sequence of the bases is *the code which carries the genetical information*."<sup>75</sup> This phrasing had the effect of making the onward task of genetics seem to almost write itself, Fox-Keller observes, because "all one needed to know was the code, and soon that was forthcoming as well."<sup>76</sup> To this extent she concludes that:

The introduction of the "information" metaphor into the repertoire of biological discourse was a stroke of genius. ... Just a few years earlier the mathematician Claude Shannon had promised a precise quantitative measure of the complexity of linear codes. He called this measure "information"... and by the early fifties "information theory" had become a very hot subject in the world of communication systems. ... And the fact that DNA seemed to function as a linear code made the use of this notion of information for genetics appear natural.

But as early as 1952 it was recognized that the technical definition of information simply could not serve for biological information. ... The notion of "genetical information" that Watson and Crick invoked was thus not literal, but metaphoric. But it was an extremely powerful metaphor. ... it authorized the expectation, anticipated in the notion of "gene action," that biological information does not increase in the course of development: it is already fully contained in the genome. By this move, and even more, by the subsequent collapse of "information" with "program" and "instruction," the concept of gene action was vastly fortified. ... If all development is merely an unfolding of preexisting instructions encoded in the nucleotide sequences of DNA—if our genes

---

<sup>75</sup> Cited in Evelyn Fox Keller, "Rethinking the Meaning of Genetic Determinism (February 18, 1993)," in *The Tanner Lectures on Human Values*, ed. Grethe B. Peterson (Salt Lake City: University of Utah Press, 1996), 120. My emphasis.

<sup>76</sup> "Rethinking the Meaning of Genetic Determinism (February 18, 1993)," in *The Tanner Lectures on Human Values*, ed. Grethe B. Peterson (Salt Lake City: University of Utah Press, 1996), 123.

make us what we are—then it makes perfect sense to set the identification of these sequences as the primary, and indeed ultimate, goal of biology.<sup>77</sup>

The bio-political story Fox-Keller narrates here is not precisely one of cognized technological determinism. Life scientists recognized early that the descriptive force of the information metaphor was “not literal, but metaphoric”; and that the full ontological complexity of life was not truly to be delimited within the arena of ‘the code.’ Yet what is valuable in this account is its clear demonstration of the impact of poetic resonance in the moment of encounter between the scientific observer and a new technology. In the context of a social *mise-en-scène* pre-disposed to grasp the concept of ‘programmability’ as holding the potential for total control over vast, super-complex structures, the metaphor of DNA-as-information captured the mood of a *zeitgeist* and took on a profound life of its own. The aftereffect of its subtending implication—that “biological information does not increase in the course of development: it is already fully ‘contained in the genome’”—offers an object lesson for both science and media studies in the present, since it is in part the limpidity of a language of new media that is at work in legitimizing a collective turn away from a potential catalog of more recalcitrant questions—in Fox Keller’s words, “In what sense was [the language of information] the answer? What in fact do “information,” “program,” “instruction,” or even the verb “makes,” actually mean?”<sup>78</sup> A distinct *temporal* determinism can be traced in the language games by which twentieth-century genetics ignored the non-isomorphic space between disciplines to fold one term into another, so arriving at a “collapse of ‘information’ with ‘program’ and ‘instruction’.” From the point of view of media studies, the ongoing significance of this neo-Darwinian moment in the history of modern

---

<sup>77</sup> "Rethinking the Meaning of Genetic Determinism (February 18, 1993)," 124-5, 26.

<sup>78</sup> Keller, "Rethinking the Meaning of Genetic Determinism (February 18, 1993)," 124.

genetics is not specialist but vernacular; concerning the life of a scientific theory in its dissemination by a social imagination into lived situations beyond the laboratory.

Yet it was precisely geneticists' technocratic impulse to 'code' the human genome that led to the development of an array of heuristics that have oriented the twenty-first-century life sciences toward a Bergsonian agenda. Live cell imaging is very literally a post-genomic technology imaginable only after the discoveries of comprehensive genome sequencing; and its visualizations have triggered a present-tense paradigm shift dubbed 'the post-genomic turn.'

"With the millions of observations of live cells lit up by their constituent molecules has come a broadening of what is being sought and proved and observed in these films" Landecker writes of the sea-change in contemporary biology triggered by the scientific realization that "when visualized through fluorescence and over time," molecular structures are revealed "to be as much events as structures."<sup>79</sup> By making it possible for an observer to quite literally see that "cells are not predestined" for particular, pre-programmed actions—"it now appears that cells are not locked into a rigid choreography but behave more like football players with a set of rules and options at every play"—live cell imaging has allowed the bioscientist to experience and witness the genome as a much more plastic entity than previously depicted.

As a consequence, the gene has been unseated from its former status as master molecule and ultimate determinant of life. In place of the 'command and control' model of genetic action inherited from 1950s info-speak, the contemporary life sciences are increasingly organized by the recognition that "it is not so much that the structures begin to move, but [that] *movements* ...

---

<sup>79</sup> Landecker, "The Life of Movement: From Microcinematography to Live Cell Imaging," 392.

*begin to constitute structure.*”<sup>80</sup> “Scientific change is affective as much as it is cognitive, instrumental, experimental, and institutional” the historian of science Mike Fortun observes of the factors driving this transition to a *post*-genomic landscape in which “agency and action are distributed rather than centralized in the gene, where codes become variably interpreted signals, and where an apparently immaterial ‘information’ is always instantiated in material processes of ‘transduction.’”<sup>81</sup> These affective impacts are also registered by Landecker in the profoundly hopeful claim for a new “*molecular vitalism*” as the consequence of what Fox-Keller calls “the funny thing that happened on the way to the holy grail”—the fact that:

that extraordinary progress has become less and less describable within the discourse that enabled it. The dogmatic focus on gene action called forth a dazzling armamentarium of new techniques for analyzing the behavior of distinct gene segments; and the information yielded by those techniques is now radically subverting the doctrine of the gene as sole (or even primary) agent.<sup>82</sup>

Thus the truly magical twist of the post-genomic turn is that the technocratic impulse to code the human genome gives way to a condition of receptivity. Approached in the Heideggerian, epistemological sense of *techne*—as a technology of knowing—live cell imaging materializes

---

<sup>80</sup> "The Life of Movement: From Microcinematography to Live Cell Imaging," 394.

<sup>81</sup> Mike Fortun, "What Toll Pursuit: Affective Assemblages in Genomics and Postgenomics," in *Postgenomics: Perspectives on Biology after the Genome*, ed. Sarah S. Richardson and Hallam Stevens (Durham and London: Duke University Press, 2015), 35. In an informal version of this argument Fortun notes: "I want to invoke a sense of excitement and astonishment at what is happening in genomics. There's a necessity for these positive affects. ... a productive astonishment and admiration for the impossible work of geneticists, something like Maurice Blanchot called *les pas au-dela*, the step beyond." "Care, Creation, and the Impossible Sciences of Genexenvironments," in *Knowledge / Value: Experimental Biologies and Translational Research* (University of Chicago: Organized by Kaushik Sunder Rajan, 6 November 2011).

<sup>82</sup> Landecker writes that “borrowing from a set of scientists who ‘lightheartedly’ apply the term to their own work, this may be understood as the emergence of a molecular vitalism, in which the emergent and functional qualities of molecules in interaction in time and space begin to depose DNA as a master molecule whose structure dictated everything that unfolded from it.” Hannah Landecker, "The Life of Movement: From Microcinematography to Live Cell Imaging," *Journal of Visual Culture* (Forthcoming). Keller, "Rethinking the Meaning of Genetic Determinism (February 18, 1993)," 126. Republished in *Refiguring Life: Metaphors of Twentieth-Century Biology* (New York: Columbia University Press, 1995), 22. My emphasis.

something truly new and strange: the emergent contour of a transition legible only in relation to the concrete time of perception and the durational unfurling of a located act.

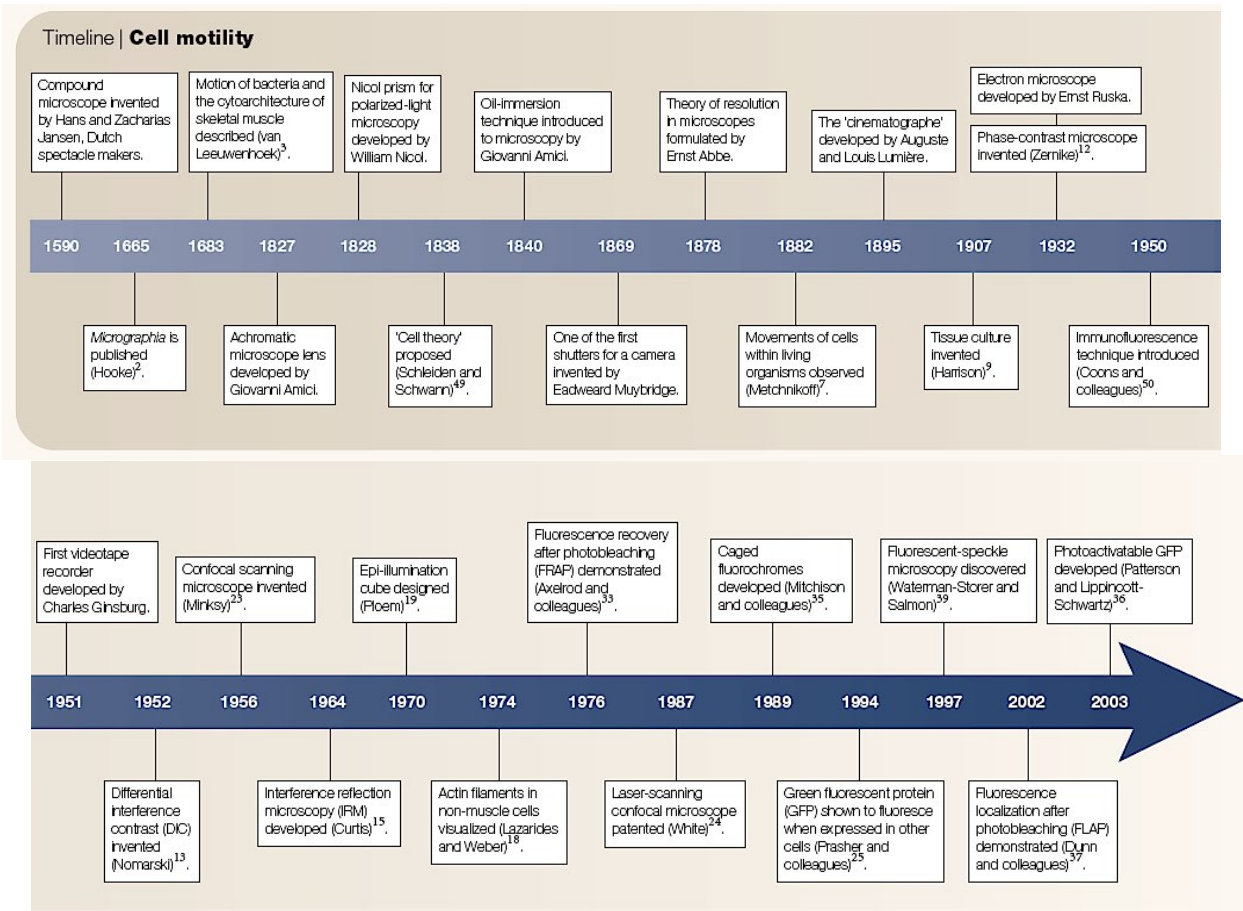


Figure 4.21: Timeline comparing the history of technological discovery with developments in cell biology.  
Source: Graham A. Dunn and Gareth E. Jones, "Cell Motility under the Microscope: Vorsprung Durch Technik," *Nature Reviews Molecular Cell Biology* 5 (August 2004): 667-762.

Far from turning a hermeneutic beam upon a stable or located architecture, this technology visualizes the act of formation itself as the final object of analysis. The filmic profile of a digitally animated genome does not present the scientific spectator with blocks of "solid color, set side by side like the beads of a necklace," but with a symphony of transparent foldings in the

chromatic tonality of “a flux of fleeting shades merging into each other.”<sup>83</sup> “Film here is not the mere moving photography of an a priori, external reality,” in the words of André Bazin, but is “legitimately and intimately organized in aesthetic symbiosis with the events pictured”; because “animation here is not the mere logical transformation of space: *it is the temporal transformation of that space as well.*”<sup>84</sup> Most fundamentally, live cell imaging presents a case study in which the formal elegance of a representational technique capable of “hang[ing] the molecule in a living but empty (unstained) background” cannot be reduced into a teleological movement between demarcated points.<sup>85</sup> Rather, this heuristic depicts genomic action as a mobile trajectory unfolding upon other movements—as a movement layered on other movements, pinned against a non-syncoated, mobile backdrop. ‘The network’ is an inadequate figure for the politics of aesthetics at work in live cell imaging, because this technology is contributing a new foundation to the contemporary life sciences by leaving behind the language of programmability and temporal determinism through a scientifically coherent representation of life as movement, or what Bergson might call *movement as ground*.

It is this sense—and paradoxically—that live cell imaging offers a serious, disciplinarily pitched challenge to Bergson’s paradigmatic judgement that “real time, regarded as a flux ... as the very mobility of being, escapes the hold of scientific knowledge.”<sup>86</sup> The contemporary bioscientist confronted with the digital visualization of a previously unseeable image of cellular motion once again encounters the Benjaminian realization that “it is *another nature* which speaks

---

<sup>83</sup> Bergson, *Creative Evolution*, 6.

<sup>84</sup> Bazin, “A Bergsonian Film,” 216, 15.

<sup>85</sup> Landecker, “The Life of Movement: From Microcinematography to Live Cell Imaging,” 393.

<sup>86</sup> Bergson, *Creative Evolution*, 361.

to the camera rather than to the eye: ‘other’ above all in the sense that a space informed by human consciousness gives way to a space informed by the unconsciousness.”<sup>87</sup> Grasped as a heuristic that renders, without fixing, the evanescent phenomenology of a subtle helixing twist between the visible and the virtual, live cell imaging can be comprehended as an image of the biological optical unconscious that offers the technical observer a discursively coherent representation of “experience at its source.”<sup>88</sup>

The Bergson of *Creative Evolution* speculates that:

if biology could ever get as close to its object as mathematics does to its own, it would become, to the physics and chemistry of organized bodies, what the mathematics of the moderns as proved to be in relation to ancient geometry. ... [It would be reshaped] by relation to that inner vital movement (which is transformation and not translation)... Such a science would be a *mechanics of transformation*... [one that could recognize] perhaps the integration of the physio-chemical elements of properly vital action might determine that action only in part—a part would be left to indetermination.

But such an integration can be no more than dreamed of; we do not pretend that dream will even be realized. We are only trying, by carrying a certain comparison as far as possible, to show up to what point our theory goes along with pure mechanism, and where they part company.<sup>89</sup>

Merleau-Ponty has observed that “if *Durée et simultanéité* had not been understood by the physicists during its publication, physics afterward moved closer to Bergson and was even inspired by some of his themes”; so that Bergson can be accused of having “deformed relativist physics, *but physics became Bergsonian*.”<sup>90</sup> Live cell imaging has triggered a correlative turn in the twenty-first-century life sciences by establishing the material conditions of possibility for a visualization of the agential potential of the *invisible* and *unstained*. The most “significant

---

<sup>87</sup> Benjamin, “Little History of Photography,” 510. My emphasis.

<sup>88</sup> Bergson, *Matter and Memory*, 184.

<sup>89</sup> *Creative Evolution*, 37-8. The emphasis is Bergson’s; paragraph break mine.

<sup>90</sup> Merleau-Ponty, *Nature: Course Notes from the Collège De France*, 108, 09. My emphasis



change in the broader genetic-genomic-postgenomic history is the increasing capacity of different experimental systems to generate two different but entwining affects, surprise and interest,” Fortun writes; so characterizing the landscape of contemporary bioscience with the affects of revelation: “surprising, interesting, unprecedented objects...and surprised, interested scientific subjects.”<sup>91</sup> Contextualized against this outcome of the scientific recognition of *movement as ground*, the historical line that stretches from Leonardo to Marey, the anonymous biologist, and the contemporary geneticist can be said to articulate one dimension of the conceptual hinge that seemed to Benjamin to make “the difference between technology and magic visible as a thoroughly historical variable”; because the post-genomic biologist’s struggle for words before the impossible image of transition connects us in usefully forward-moving ways to the question of incommensurability at the heart of Bergson’s critique of ‘the cinematographic illusion.’<sup>92</sup>

## II. A Bergsonian Movement-Image

“A philosopher worthy of the name has never said more than a single thing” Bergson wrote in 1911, “and even then it is something he has tried to say, rather than actually said.”<sup>93</sup> At the heart of Bergson’s metaphysics lies the insistence on duration, experienced as movement, as the phenomenal *a priori*: it is *this* one idea that locates the critique implied by his reiterative

---

<sup>91</sup> “These affective assemblages will be difficult to assay, as we have limited methods and idioms for articulating these kinds of affective events. I also hope to develop, then, new idioms for the varied public spheres in which contemporary science is debated, evaluated, funded, and valued as a social resource, to better engage the kind of science that genomics has become—or perhaps continues to become—in postgenomics.” Fortun, “What Toll Pursuit: Affective Assemblages in Genomics and Postgenomics,” 35.

<sup>92</sup> Benjamin, “Little History of Photography,” 510-11.

<sup>93</sup> Bergson, “Philosophical Intuition (1911),” 91.

insistence that “on the flux itself of duration science neither would nor could lay hold, bound as it was to the cinematographical method.”<sup>94</sup> I have tried to argue, however, that live cell imaging has endowed the twenty-first-century life sciences with a Bergsonian vocation precisely by instituting a new and intensified connection between ‘the standpoint of science’ and the aesthetics of cinema.

A relatively under-discussed text offers a useful framework by which to articulate the implications of this claim. In 1914 interview granted to mark the occasion of his election to the Académie française—his only interaction with the press to have survived, despite an almost populist public profile in his own lifetime—Bergson notes that “the cinematograph interests me as much as any new invention” because “the philosopher must account for events in external life.”

Michel Georges-Michel’s report of Bergson’s commentary proceeds in the following way:

Nothing should leave a philosopher indifferent. Several years ago, I went to the cinema. I saw it at its origins. Obviously, this invention, a complement to instant photography, can suggest new ideas to a philosopher. It could be an aid to the synthesis of memory, or even of thought. ... This hypothesis was confirmed by this observation: cinema put painters on the right path. You know what a revolution in painting the invention of serial photography [*photographie instantanée*] brought about. After this discovery, artists realized that, often enough, their representations, of the attitudes of a racing horse, for example, were not exact. They corrected them. And then this happened: inspired by the startling attitudes captured in snapshots, artists created nothing but frozen images, without life. Certainly, this was an advance for mathematical accuracy, but a loss for the impression of reality. The cinematograph taught the painter that photography was wrong. By reproducing movement on the basis of personal impressions, the artist had recomposed, fused into one, several successive attitudes, giving the illusion of life and therefore of movement. They found these attitudes again on the screen.

---

<sup>94</sup> Creative Evolution, 372.

Thus, in a few admirable pages, Mr. Rodin explains how he gave life to a sculpture by fusing together different phases of a movement into the different parts of the figure he was modeling.

My colleague at the Collège de France, Mr. François-Frank, was able to show his students the phases of cell division thanks to serial photography aided by the cinematograph. ...

But the cinematograph will provide, above all, an invaluable document to our successors if films do not deteriorate. We must have utterly false ideas about “the ancients in movement.” What a joy it would be for us to see, if not Cleopatra, then Napoleon passing on the screen. It is already a joy to be able to witness contemporary events while sitting in a chair, without the crush of the crowd, without danger. I know that images spool out on screen faster than in real life. This has to do with the very principle of cinematography. But our imagination can easily slow them down.

To conclude, the cinematograph, if it amuses the crowds, also seriously helps and will help the scholar, the artist, the historian, and even the philosopher.<sup>95</sup>

What is suggestive about this interview concerns, on the one hand, the openness with which Bergson greets the pleasures of projected film in “the joy to be able to witness contemporary events while sitting in a chair,” or in an imagined encounter with “the ancients in movement.” But of more subtle significance to the task of re-conjugating *Creative Evolution*’s judgement on ‘the cinematographic illusion’ through the prism of live cell imaging is the precision with which the philosopher identifies three domains of disciplinary knowledge likely to gain from the visualizations of this new technology.

The artist, life scientist, and historian are each concerned with a literal or conceptual problem of *reanimation*, Bergson reasons, so that each is potentially assisted by the inscriptive capacity of a durational media capable of reproducing “the illusion of life and therefore of movement.”<sup>96</sup> It is

---

<sup>95</sup> Louis-Georges Schwartz, “Henri Bergson Talks to Us About Cinema,” by Michel Georges-Michel from *Le Journal*, February 20, 1914, *Cinema Journal* 50, no. 3 (Spring 2011): 81-2. I have restored some punctuation from the original French interview, see: Michel Georges-Michel, “Henri Bergson Nous Parle De Cinéma,” *Le Journal* February 20, 1914.

<sup>96</sup> Schwartz, “Henri Bergson Talks to Us About Cinema,” 82.

in this context that he acknowledges film's constructive potential in reorienting the painterly gaze toward *superimposition* as the formal device for an aesthetic invocation of presence. Similarly, he valorizes the cell biologist's turn to a time-lapse animation of "the phases of cell division" for a pedagogic demonstration of cellular vitality. More speculatively, Bergson allows that the camera permits the historian to compose an archive of experience by recording contemporary events in a manner that will offer "an invaluable document to our successors if films do not deteriorate." This concise and practical summary thus circles a constellation of disciplinary possibilities whose aggregate implications veer unambiguously into the philosophical; so prompting the conclusion that "the cinematograph, if it amuses the crowds, also seriously helps and will help the scholar, the artist, the historian, and even the philosopher." Seven years after *Creative Evolution*, then, Bergson draws upon a concrete observation of the work of artists and scientists to offer his journalistic interlocutor an uncomplicated endorsement of the spectatorial knowledge-effects which arise from the cinematic representation of movement.

In fact the interview's assertion that "the cinematograph taught the painter that photography was wrong" paraphrases a recently published commentary by the sculptor Auguste Rodin. In the *L'art* (1911), a volume recording pedagogical directives and conversations with his protégé Paul Gsell, this artist underscores the centrality of "the illusion of life" to the aesthetics of figurative sculpture by noting that "art does not exist without life" and the artist "cannot move us unless he first knows how to make his figures come to life."<sup>97</sup> Key to the difficult task of "animating

---

<sup>97</sup> Auguste Rodin and Paul Gsell, *Art: Conversations with Paul Gsell*, trans. Jacques De Caso and Patricia B. Sanders (Berkeley: University of California Press, c1984), 27.

bronze,” Rodin emphasizes, is the artist’s recognition that “*movement is the transition from one attitude to another*.”<sup>98</sup> Understood in this Bergsonian sense, as persistent transition, movement is not aesthetically communicable through the fixing of gestures and flow. Rather, the task of an artist confronted with the problem of representing motion is bound up with the challenge of producing an adequate aesthetic description of movement’s time-based, essentially experiential character.

Turning to a passage in the *Inferno* for an exemplification of this idea, Rodin describes Dante’s representation of “the struggle of two natures, which progressively invade and supplant each other” as aesthetically effective in its visualization of metamorphosis as an active, dynamic process of transition: “a serpent is glued to the body of a damned man and is converted to a man, while the man is changed into a reptile.”<sup>99</sup> For Rodin “the whole secret of gestures interpreted by art” involves an *imaginative* conveyance of action, it is in the context of this aesthetic philosophy that he turns to photography for a more immediate and contemporary exemplar.<sup>100</sup>

“Take my *St John*” he observes to Gsell:

He is represented with two feet on the ground, but a high-speed photograph of a model moving in the same way would probably show the back foot already raised and moving forward. Or, on the other hand, the forward foot would not yet be on the ground if the back leg in the photograph occupied the same position as my statue.

For just this reason this photographed model would present the bizarre appearance of a man suddenly struck with paralysis and petrified in his pose... And this confirms what I have just stated about movement in art. In high-speed photographs, although figures are caught in full action, they seem suddenly frozen in mid-air. This is because every part of

---

<sup>98</sup> Art: Conversations with Paul Gsell, trans. Jacques De Caso and Patricia B. Sanders (Berkeley: University of California Press, c1984), 28-9.

<sup>99</sup> Art: Conversations with Paul Gsell, 29.

<sup>100</sup> Ibid.

their body is reproduced exactly at the same twentieth or fortieth of a second, and there is not, as in art, the gradual unfolding of a movement.<sup>101</sup>

Here Rodin posits “a high-speed photograph of a model moving” as an aesthetically inadequate image of movement in the extent the camera’s depiction of the body “exactly” as it appears at a particular instant in time has the paradoxical effect of generating an image of stasis: “in high-speed photographs, although figures are caught in full action, they seem suddenly frozen in mid-air.” By comparison, the Rodinian image of movement depicts the experiential flux of transition by reproducing in art, as in experience, “the gradual unfolding of a movement.” In a close visual examination of *Saint John the Baptist* (modeled 1878-1880; cast 1925), another figurative sculpture, Gsell points to Rodin’s conjoining of the representation of at least two micro-movements: a shifting center of gravity from the figure’s left side to its right, and an actively advancing right foot. This stringing together of a series of discrete actions within a single composite form narrativizes the component gestures in a manner whose cumulative effect is to ‘animate bronze.’

“The sculptor’s science,” Gsell summarizes, consists “in imposing all these observations on the spectator in [an] order [whose] succession gives the impression of movement.”<sup>102</sup> In direct contrast to the exactitude of a snapshot photograph that presents “the bizarre appearance of a man suddenly struck with paralysis and petrified in his pose,” Rodin’s art is to “make visible the passage of one pose into the other” by “indicating how imperceptibly the first glides into the second”; and so that “one still detects a part of what was while one discovers in part what will

---

<sup>101</sup> Art: Conversations with Paul Gsell, 31.

<sup>102</sup> Art: Conversations with Paul Gsell, 30-1.

be.”<sup>103</sup> Within the logic of this aesthetic theory the emotional conveyance of liveness does not arise from the bare fact of motion, but rather from the artist’s special prerogative to describe the temporality of transition by involving the spectator in the duration of “the gradual unfolding of a movement” through a virtuosity melding of precision and illusion. This is because for Rodin, and in his own words:

*It is the artist who tells the truth and photography that lies.* For in reality, time does not stand still. And if the artist succeeds in producing the impression of a gesture that is executed in several instances, his work is certainly much less conventional than the scientific image where time is abruptly suspended.<sup>104</sup>

At the root of this oppositional framing of the affordances of the plastic and the photographic image is Rodin’s understanding of movement as persistent transition. To grasp that “in reality, time does not stand still” is to comprehend that movement will always remain incommensurate to a representational mode predicated on the fixing of transition. “There is no instant immediately before another instant; there could not be, any more than there could be one mathematical point touching another” *Creative Evolution* observes in this vein, because “the instant ‘immediately before’ is, in reality, that which is connected with the present instant by the interval *dt*.”<sup>105</sup> Simply put, the Rodinian movement-image is predicated on a Bergsonian conception of movement, and as such it aims to figure, rather than to capture, what is representationally incommensurate about the duration of transition.

It is in the context of this paradoxical fact that Rodin judges the plastic artist to possess a greater latitude to communicate *durée*’s complex phenomenal reality than the “conventional...

---

<sup>103</sup> Art: Conversations with Paul Gsell, 29.

<sup>104</sup> Art: Conversations with Paul Gsell, 32.

<sup>105</sup> Bergson, *Creative Evolution*, 25-6.

scientific image where time is abruptly suspended.” The poet or sculptor who draws on aesthetic compression to generate “the *impression* of a gesture that is executed in several instances” addresses the spirit rather than the letter of the law by acknowledging “real time” as that “*flowing time*” which persists in the irreducible interval between demarcated instants.<sup>106</sup> Put differently, Rodin sees the artist as more capable than the scientist of centering the representational illusion of movement on an open activation of aesthetic illusion. The judgement that “it is the artist who tells the truth and photography that lies” is predicated on Rodin’s postulate of a structural incompatibility between the phenomenal truth of duration as an inherently experiential time, and the ‘conventionality’ of an early twentieth-century scientific paradigm emblemized in the immobile image of photographic exactitude. Rodin’s critique of “the scientific image where time is abruptly suspended” is thus also consistent with Bergson’s argument that ‘the standpoint of science’ is bound “to the cinematographical method.”<sup>107</sup> Both the artist and the philosopher associate the photographic representation of movement with the mechanistic logic of a quantifying resistance to the phenomenological priority of *durée*. But where *Creative Evolution* identifies this scientific impulse with cinematic illusion of movement, Rodin directs his critique at a far more intuitive and appropriate target: the instantaneous photography of Marey and Muybridge.

I want to suggest that Rodin’s comparative assessment of the capacity of technical and plastic images to act as aesthetically adequate movement-images inflects and modulates the argument of Bergson’s 1914 interview in significant ways. Specifically, it is worth noting that the Bergson of

---

<sup>106</sup> *Creative Evolution*, 26. My emphasis.

<sup>107</sup> *Creative Evolution*, 372.





Figure 4.22: Auguste Rodin, *Saint John the Baptist*. Modeled 1878-1880; cast 1925. Bronze. 200.7 × 55.2 × 97.8 cm. Collection of the Rodin Museum, Philadelphia.



Figure 4.23: Étienne-Jules Marey with George Demeny, *Untitled (Sprinter)*. 1890-1900. Silver gelatin print. 15.4 x 37.2 cm. Collection of the Museum of Modern Art, New York.

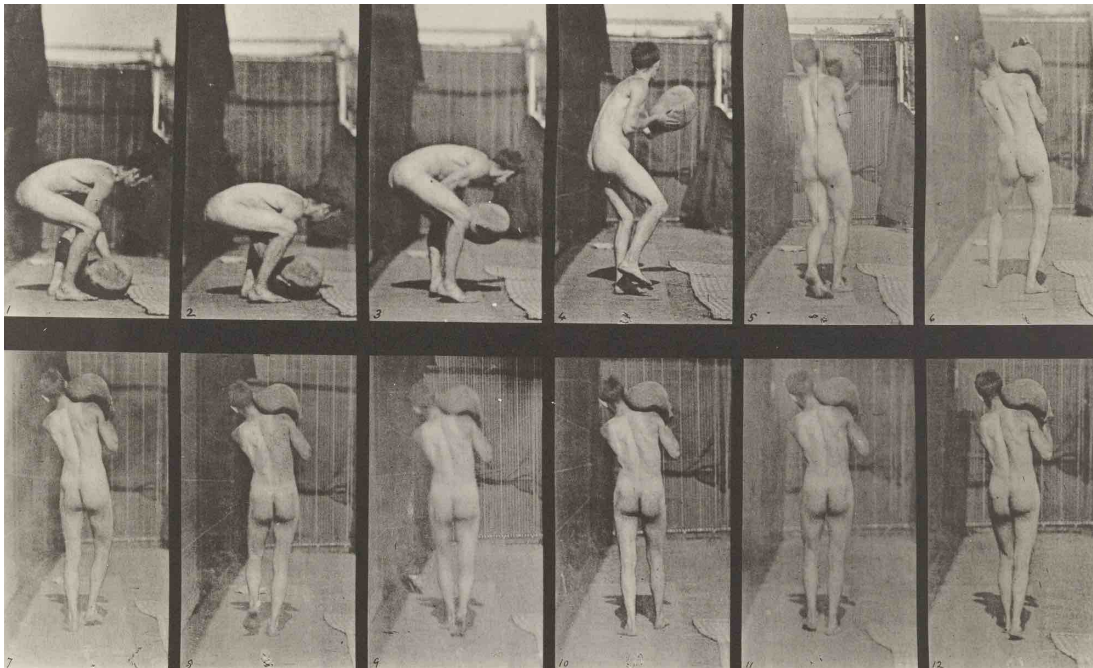


Figure 4.24: Eadweard J. Muybridge, *Man Lifting 75-lb. Stone on Shoulder*: Plate 397 from *Animal Locomotion*. 1887. Collotype print. 21.7 x 35.3 cm. Collection of the Museum of Modern Art, New York.

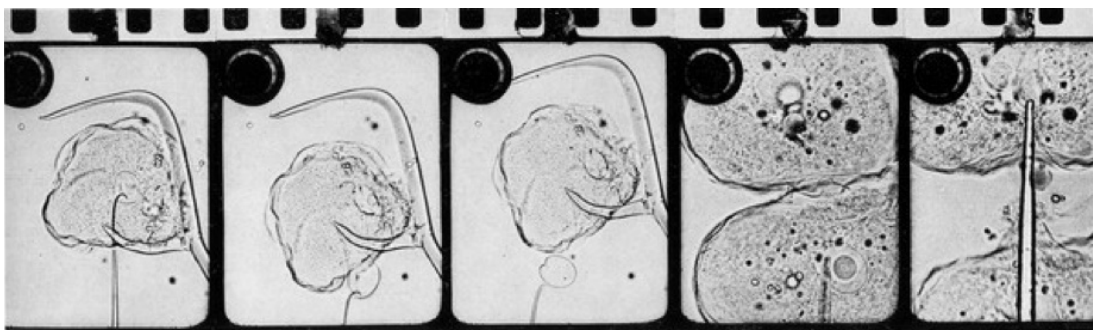


Figure 4.25: Jean Comandon and Pierre de Fonbrune, frames from *Substitution du noyau chez une amibe: Amoeba Sphaeronucleus*. c.1938. b&w, silent. 13min. Microscopic film. Source: Hannah Landecker, "Microcinematography and the History of Science and Film," *Isis*, 97, no. 1 (March 2006): 121-132.



Figure 4.26: Auguste Rodin, *The Age of Bronze*. Modeled 1875-1877; cast 1925. Bronze. 170.2 x 60 x 60 cm. Collection of the Rodin Museum, Philadelphia.

*Creative Evolution* pairs the cinematic impression of movement with the misapprehensions of the scientific method without reservation: to grasp “flow of time” as “the very flux of the real,” this canonical text tells us, requires that we “set the cinematographical method aside.”<sup>108</sup> By contrast, the Bergson of 1914 draws on the implications of Rodin’s argument to arrive at the conclusion that “*the cinematograph taught the painter that photography was wrong.*” This phrasing distinguishes between the illusion of movement in photographic, cinematic, and plastic images with a clarity that redirects the target of *Creative Evolution*’s vociferous critique in a Rodinian direction: away from the cinematic representation of movement, and toward instantaneous photography.

In fact, Bergson’s interview describes “the invention of serial photography” as the initiating note of a two-part aesthetic revolution. The first was oriented toward the “mathematical accuracy” of scientific exactitude, he suggests, because “inspired by the startling attitudes captured in snapshots, artists created nothing but frozen images, without life.” This reading reiterates Rodin’s oppositional framing of the plastic and the photographic image by characterizing the image of nature proffered by photography—particularly Marey’s scientific photography—as effecting “a *loss* for the impression of reality.” But Bergson actually extends the frame of reference established by Rodin’s commentary when he describes the appearance of cinematic projection as a second major aesthetic event.

“*Cinema put painters on the right path*” the Bergson of the 1914 interview declares, because the cinema’s kinetic image of nature liberated the plastic artist from the strictures of a

---

<sup>108</sup> Ibid.

photographic or ‘scientific’ stasis. Here the cinematic illusion of movement is conceived as the trigger for a kind of unfreezing whose value was to reorient the artist toward the lived experience of transition. The post-cinematic artist “reproduc[ed] movement on the basis of personal impressions”; and by this means “recomposed, fused into one, several successive attitudes” to generate “the illusion of life and therefore of movement.” Yet this reading subjects Rodin’s analysis to a significant twist, since it describes the Rodinian movement-image as inspired by the *cinematic* illusion of movement: the artist “found these attitudes again on the screen.”

In claiming that “the cinematograph taught the painter that photography was wrong,” that is to say, Bergson credits the *cinema* with inaugurating a renewed aesthetics of transition. This positing of an intimate connection between the cinematic and the plastic movement-image is an argument nowhere actually present in Rodin’s text. Instead, the Bergson of 1914 effectively transforms Rodin’s aesthetic theory into a kind of hermeneutic key by which to re-conceptualize his own thinking about the import of cinema. It is in this context that his interview segues from a reference to the “few admirable pages” in which “Mr. Rodin explains how he gave life to a sculpture by fusing together different phases of a movement into the different parts of the figure he was modeling”; to an unambiguous endorsement of the biologist Foudrès Charles-Emile François-Frank’s ability “to show his students the phases of cell division thanks to serial photography aided by the cinematograph.” Where the Bergson of 1904 paired ‘the cinematographical illustration’ with scientific mechanism and photographic stasis, the Bergson of 1914 draws on the implications of Rodin’s aesthetic theory to categorize the technical, *cinematic* illusion of movement with the *aesthetic* illusionism of the plastic arts. The innovation implied by this reorganization of categories allows for a further creative rearrangement: a re-conjugation of

the relation between representation and the incommensurability of *durée* posited by the Bergson of *Creative Evolution*, and his consequent refusal of the cinematic representation of movement.

“The flux of time is reality itself, and the things which we study are the things which flow,” Bergson insists in *Creative Evolution*, and “it is true that of this flowing reality we are limited to taking instantaneous views. But, just because of this, *scientific knowledge must appeal to another kind of knowledge to complete it.*”<sup>109</sup> Here the critique of ‘the cinematographic illusion’ comes into focus in a new way: as a defense of that ‘other kind of knowledge’ deemed necessary to supplement the blind-spots of the scientific method. But the Bergson of 1914 who endorses François-Frank’s visualizations of cellular motility acknowledges the aesthetics of a cinematic movement-image to constitute precisely this kind of additive knowledge-effect. A scientific film that depicts “the phases of cell division thanks to serial photography aided by the cinematograph” can circle, without fixing, what is representationally incommensurate about the duration of biological transition; because the cinematic illusion of movement involves its observer in an aesthetic experience of time manifestly closer to Rodin’s “gradual unfolding of a movement” than to the representation of motion in scientific photography.

Where *Creative Evolution* postulates an unbridgeable gap between representation and *durée*, Bergson’s 1914 interview acknowledges a distinction between “the cinematographical method” and cinematic aesthetics.<sup>110</sup> A technically subtended aesthetics of movement ‘completes’ François-Frank’s biological film by imbibing its photo-scientific exactitude with an affective sense of animate life. In turning to a contemporary scientific cinema for an exemplar of the work

---

<sup>109</sup> *Creative Evolution*, 374. My emphasis.

<sup>110</sup> *Creative Evolution*, 372.

of a cinematic movement-image, then, Bergson reconfigures *Creative Evolution*'s judgement on both science and cinema around an expanded appreciation of the work of aesthetics. Simply put, Rodin's aesthetic theory provided Bergson with a conceptual framework by which to recognize the capacity of cinematic representation to breach the *photographic* distortions of 'the cinematographic illusion.'

In this, Bergson's interview can be said to sketch the prototype of a radically deconstructive concept: that of a cinematic image of movement that is also a Bergsonian movement-image. Metaphysics "is strictly itself only when it goes beyond the concept" he emphasizes in "An Introduction to Metaphysics"—or at least when it "frees itself of the inflexible and ready-made concepts and creates others very different from those we usually handle, I mean *flexible, mobile, almost fluid representations, always ready to mould themselves on the fleeting forms of intuition*."<sup>111</sup> Grasped in these terms, as a philosophical figure, the Bergsonian movement-image—whether pitched pictorially or textually—is an 'image' of movement that demonstrates the experiential reality of its subject through a performative, dynamic actualization. Like the Rodinian movement-image, it is a "flexible, mobile, almost fluid" representation that moves the spectator past the distortions of 'the cinematographic illusion' by rendering the representational incommensurability of movement *intuitively* comprehensible. The cinematic Bergsonian movement-image hinted at by the Bergson of 1914 can thus be usefully characterized in Rodinian terms as an image of movement capable of an aesthetic signification of *durée*'s incommensurability to representation.

---

<sup>111</sup> "An Introduction to Metaphysics (1903; Trans. 1913)," 141. My emphasis.



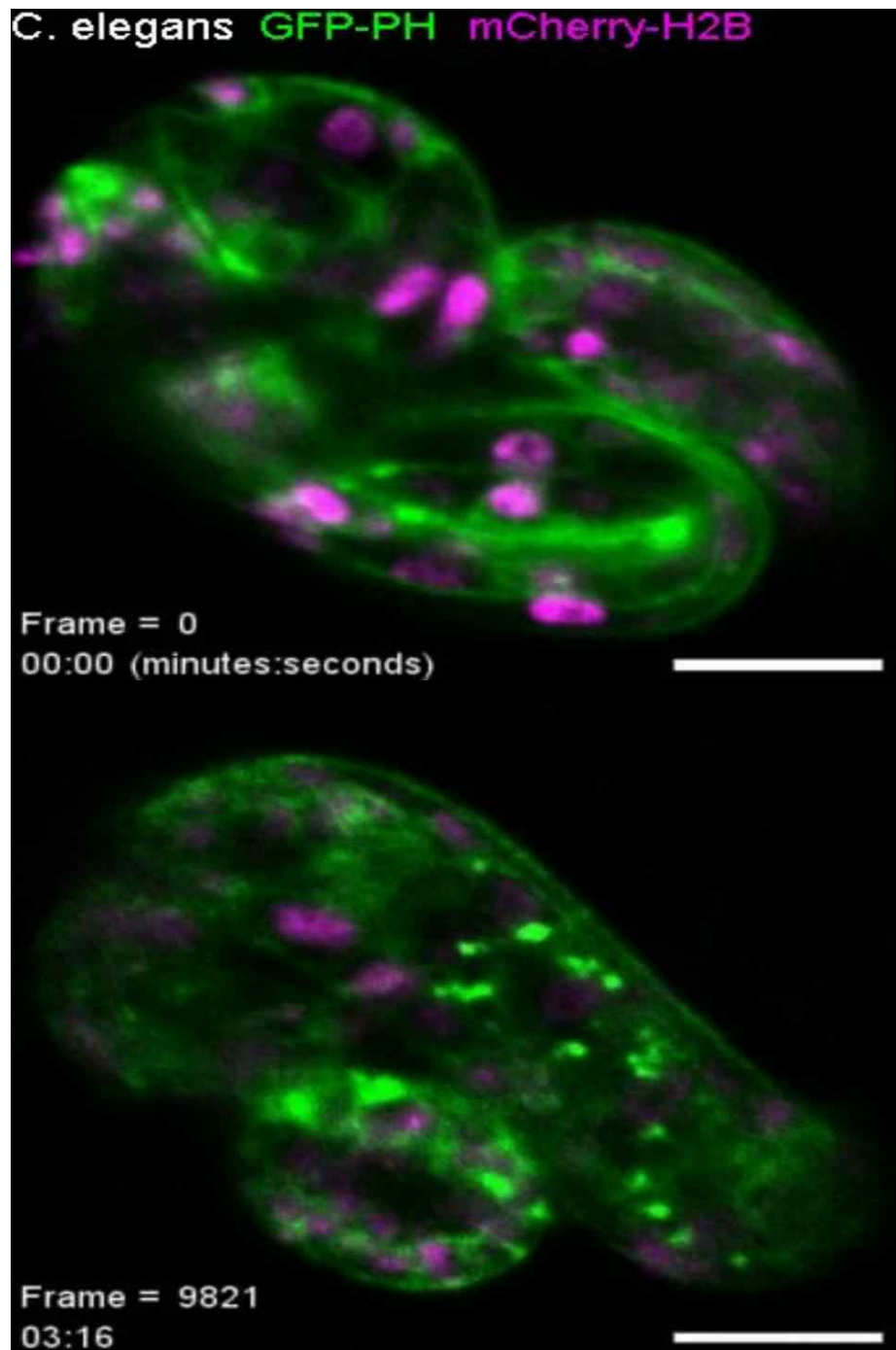


Figure 4.27: Betzig Lab, frames from *Rapid muscle contractions in a roundworm embryo in the three-fold stage*, with labeled GFP-PH domains (green) and mCherry-histones (magenta), as recorded in a single 2D optical section at 50 frames/sec. c.2014. Lightsheet fluorescence microscopy video. ([View at Source](#)).



What was life? No one knew. No one could pinpoint when it had emerged from nature and struck fire. ... People endeavored to close that abyss with theories—it swallowed them whole, and was still not an inch less broad or deep. In the search for some link scientists...went about inventing transitional and intermediate stages, assuming the existence of organisms lower than any known form, but which themselves were the result of even more primal attempts by nature to create life—attempts that no one would ever see, that were submicroscopic in size, and whose hypothesized formation presupposed a precious synthesis of protein.

What was life, really? It was warmth, the warmth produced by instability attempting to preserve form, a fever of matter that accompanies the ceaseless dissolution and renewal of protein molecules, themselves transient in their complex and intricate construction. It was the existence of what, in actuality, has no inherent ability to exist, but only balances with sweet, painful precariousness on one point of existence in the midst of this feverish, interwoven process of decay and repair. It was not matter, it was not spirit. It was something in between the two, a phenomenon borne by matter, like a rainbow above a waterfall, like a flame.

Figure 4.28: Excerpt from Thomas Mann, *The Magic Mountain*, trans. John E. Woods (New York: Vintage, 1995, c1927), 271-2.

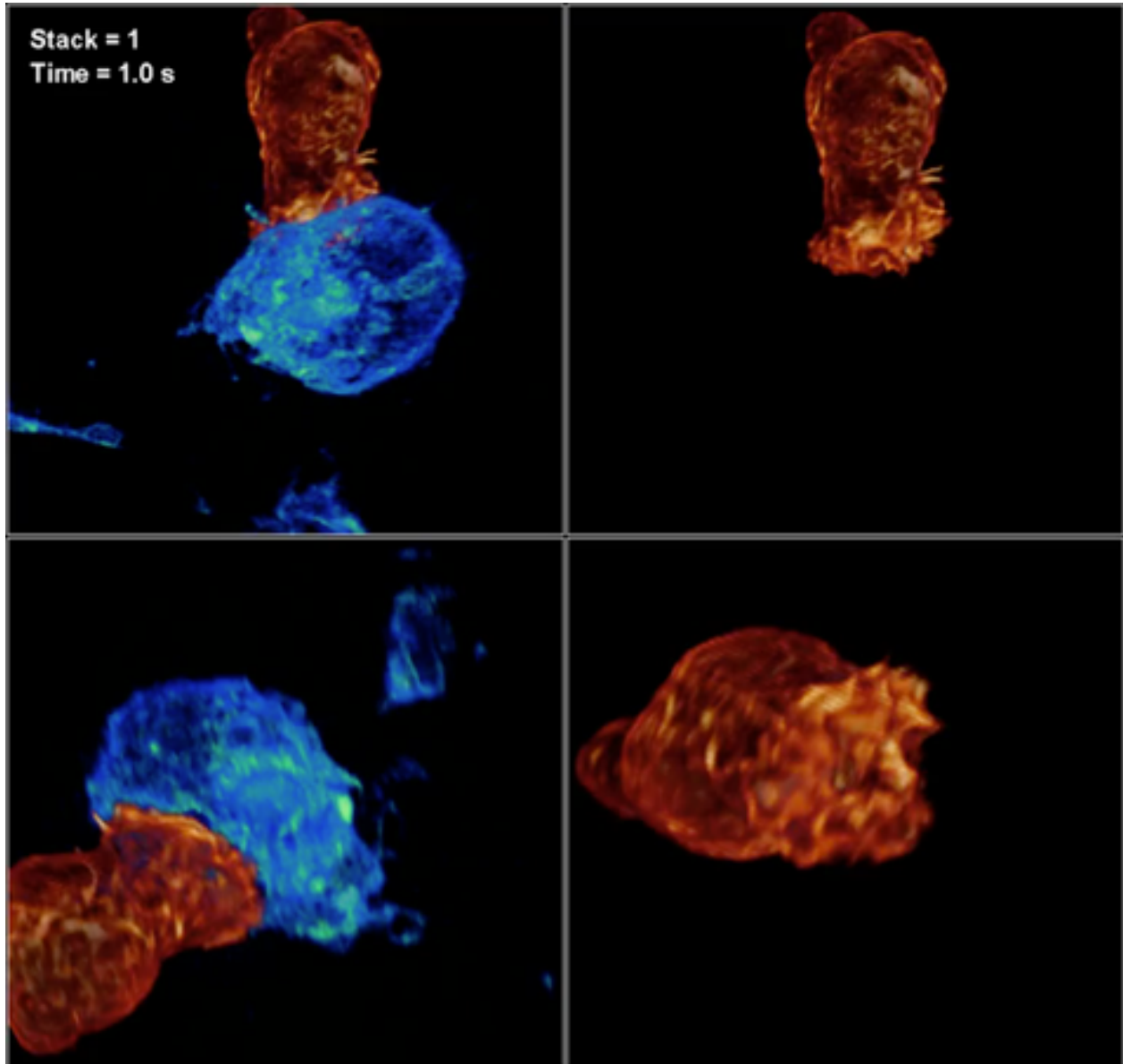


Figure 4.29: Betzig Lab, HHMI/Janelia Research Campus, Lippincott-Schwartz Lab, National Institutes of Health, frame from *Interaction of a T-cell (orange) with a target cell expressing a plasma membrane marker (blue) at 1.3 sec intervals*. c.2014. Lightsheet fluorescence microscopy video. ([View at Source](#)).

The target cell has been made invisible in the views on the right

It is on this level that live cell imaging offers us an example of a cinematic movement-image that Bergson can plausibly be argued to have accepted. Bergson treated the lived body as a work of art perpetually in creation, and live cell imaging represents the body in precisely this vein: not pictorially or representationally, but as a process of constant transition. This scientifically adequate image of biological life is also an aesthetically adequate depiction of the sub-perceptual *poïesis* of biological life; a visualization of creative evolution that *demonstrates* becoming by relying on the work of aesthetics to depict the body as a verb.

In the “temporal fluidity” of the ontological movement of “reincarnation and metamorphosis,” the musicologist Vladimir Jankélévitch has written, “the ‘grand variation’ is not a process of modeling a plastic object but much more than of modifying little by little, modification that is modulating, modification without a mode, without even a substance of which the modality would be a ‘mode,’ without a being of which ‘ways of being’ would be the ways.”<sup>112</sup> Live cell imaging depicts movement at this subtending level, before embodiment is conceivable as “properly *human* experience.”<sup>113</sup> To argue that Bergson would have accepted the framing of movement in live cell imaging as an adequate representation of *life* is to recognize that this digital heuristic inscribes duration in a manner that Bergson was trying to describe: in a Rodinain lexicon of gesture, contour, and ‘the gradual unfolding of a movement.’ The *jouissance* of its visualizations are moving, *affectively*, because this cinematic movement-image points intuitively to our utterly embodied involvement with a phenomenal *a priori* in which:

becoming does not permit the object to be divided into sectors, according to its corporeal limits; it is much more the dimension according to which the object undoes itself without

---

<sup>112</sup> Jankélévitch, *Music and the Ineffable*, 93-4.

<sup>113</sup> Bergson, *Matter and Memory*, 184.

end, forms, deforms, transforms, and then re-forms itself. A succession of states of the body, that is, change itself, dissolves the limits fossilized by our mental habit of splitting and dividing.<sup>114</sup>

Turning to Benjamin, we can say that the emotional quality of the scientific reaction to this digital image of life marks the recognition of this excess: of this Bergsonian movement-image's operation in the affective topography of an impossible image whose "*magical value*" is to construct an aesthetic monument commensurate with the incommensurability of its subject.

To read Bergson through the lens of Rodin's aesthetic theory is to understand that the Bergson of 1914 anticipated a representational possibility that has only become viable—materially and methodologically—within the historical scenario of the digital *dispositif*. Simply put, thinking about Bergson within the framework of digital media opens epistemological and aesthetic resonances unavailable to analyses routed through analog media, because Bergson himself needed access to a form of cinematic media closer to the digital. Yet this claim should be accompanied by a recognition that the representational possibilities of digital cinema have created quantitatively new sight-lines into Bergson's philosophical project. As a cinematic movement-image that has delivered the life sciences to an intellectual domain ringed by a Bergsonian intuition, live cell imaging has effected an epistemological re-conjugation that renders Bergson's philosophy of media newly available to a discursive remapped by the fulfillment of his one idea—that duration, experienced as movement, is the phenomenal *a priori*.

---

<sup>114</sup> Jankélévitch, *Music and the Ineffable*, 93.

## Bibliography

Abel, Richard, ed. *Silent Film*. New Brunswick, N.J.: Rutgers University Press, 1996.

Adorno, Theodor W. *Aesthetic Theory*. Translated by Robert Hullot-Kentor. edited by Robert Hullot-Kentor, Gretel Adorno and Rolf Tiedemann London: Continuum, 1999.

Adorno, Theodor W., and Max Horkheimer. *Dialectic of Enlightenment: Philosophical Fragments*. Translated by Edmund Jephcott. edited by Gunzelin Schmid Noerr Stanford, Calif.: Stanford University Press, 1944, 2002.

Allen, Robert C. "Vitascope/Cinématographe: Initial Patterns of American Film Industrial Practice." In *Film before Griffith*, edited by John L. Fell, 144-52. Berkeley & L.A.: University of California Press, 1983.

Altman, Rick, ed. *Silent Film Sound*. New York: Columbia University Press, 2004.

Anonymous. "Microkinematography." *Nature*, no. 88 (14 December 1911): 213-15.

Armstrong, Richard. "The Living Image: French Cinema from the Lumieres to the Banlieux." *Screen Education*, no. 41 (2006): 10-16.

Aubert, Michelle, and Jean-Claude Seguin, eds. *La Production Cinématographique Des Frères Lumière*. Paris: Bibliothèque du film (BIFI), 1996.

Aumont, Jacques. "Lumiere Revisited." *Film History* 8, no. 4 (1996): 416-30.

Bakhtin, M. M. "Forms of Time and of the Chronotope in the Novel: Notes toward a Historical Poetics." Translated by Caryl Emerson and Michael Holquist. In *The Dialogic Imagination: Four Essays*, edited by Michael Holquist, 84-258. Austin: University of Texas Press, 1981.

Barthes, Roland. *Camera Lucida: Reflections on Photography*. Translated by Richard Howard. New York: Hill and Wang, 1981.

———. "The Reality Effect." Translated by Richard Howard. In *The Rustle of Language*, 141-48. New York: Hill and Wang, 1986.

Baudry, Jean-Louis. "Ideological Effects of the Basic Cinematographic Apparatus." In *Narrative, Apparatus, Ideology: A Film Theory Reader*, edited by Philip Rosen, 286-98. New York: Columbia University Press, 1986.

Bazin, André. "A Bergsonian Film: The Picasso Mystery (1956)." Translated by Alain Piette and Bert Cardullo. In *Bazin at Work: Major Essays & Reviews from the Forties & Fifties*, edited by Bert Cardullo, 211-19. New York: Routledge, 1997.

———. "The Myth of Total Cinema." Translated by Hugh Gray. In *What Is Cinema? Vol 1*, edited by Dudley Andrew; Foreword by Jean Renoir, 17-22. Berkeley and Los Angeles: University of California Press, 1967, 2005.

———. "The Ontology of the Photographic Image." Translated by Hugh Gray. In *What Is Cinema? Vol 1*, edited by Dudley Andrew; Foreword by Jean Renoir, 9-16. Berkeley and Los Angeles: University of California Press, 1967, 2005.

———. "Science Film: Accidental Beauty (1947)." Translated by Jeanine Herman. In *Science Is Fiction: The Films of Jean Painlevé*, edited by Andy Masaki Bellows, Marina McDougall and Brigitte Berg, 145-47. Cambridge, Mass.: MIT Press, 2000.

Belloï, Livio. "Lumière and His View: The Cameraman's Eye in Early Cinema." *Historical Journal of Film, Radio & Television* 15, no. Journal Article (1995): 461-74.

Bellour, Raymond. "Between-the-Images (1990)." Translated by Allyn Hardyck. In *Between-the-Images (Entre-Images – Photo, Cinéma, Vidéo)*, edited by Lionel Bovier, 12-21. Zurich & Dijon: JRP|Ringier & Les presses du réel, 1990/2013.

———. *Between-the-Images (Entre-Images – Photo, Cinéma, Vidéo)*. Translated by Allyn Hardyck. edited by Lionel Bovier Zurich & Dijon: JRP|Ringier & Les presses du réel, 1990/2013.

———. "The Film Stilled (1987)." Translated by Allyn Hardyck. In *Between-the-Images (Entre-Images – Photo, Cinéma, Vidéo)*, edited by Lionel Bovier, 128-57. Zurich & Dijon: JRP|Ringier & Les presses du réel, 1990/2013.

———. "The Pensive Spectator (1984)." Translated by Allyn Hardyck. In *Between-the-Images (Entre-Images – Photo, Cinéma, Vidéo)*, edited by Lionel Bovier, 86-97. Zurich & Dijon: JRP|Ringier & Les presses du réel, 1990/2013.

———. "The Power of Words, the Power of Images." *Camera Obscura* 8, no. 3: 24 (September 1990, Special Issue on Unspeakable Images, edited by Elisabeth Lyon and Raymond Bellour): 7-10.

Benjamin, Walter. "Little History of Photography (1931)." Translated by Rodney Livingstone. In *Walter Benjamin: Selected Writings 2, Part 2, 1931-1934*, edited by Michael W. Jennings, Howard Eiland and Gary Smith, 507-30. Cambridge, Massachusetts: Belknap Press of Harvard University Press, 1999.

———. "On Some Motifs in Baudelaire (1939)." In *Walter Benjamin: Selected Writings 4, 1938-1940*, edited by Michael W. Jennings and Howard Eiland, 313-55. Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2006.

———. "Surrealism: The Last Snapshot of the European Intelligentsia (1929)." Translated by Rodney Livingstone. In *Walter Benjamin: Selected Writings 2, Part 1, 1927-1930*, edited by Michael W. Jennings, Howard Eiland and Gary Smith, 207-21. Cambridge, Massachusetts: Belknap Press of Harvard University Press, 1999.

———. "The Work of Art in the Age of Its Technological Reproducibility (1936)." Translated by Edmund Jephcott and Howard Eiland. In *Walter Benjamin: Selected Writings 3, 1935-1938*, edited by Michael W. Jennings and Howard Eiland. Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2002.

———. "The Work of Art in the Age of Its Technological Reproducibility (1939)." In *Walter Benjamin: Selected Writings 4, 1938-1940*, edited by Michael W. Jennings and Howard Eiland. Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2006.

Bergson, Henri. "Banquet Speech." Translated by Armand Bernard read by the French Minister. In *Nobel Lectures, Literature 1901-1967*, edited by Horst Frenz, [http://nobelprize.org/nobel\\_prizes/literature/](http://nobelprize.org/nobel_prizes/literature/). Amsterdam: Elsevier Publishing Company, 1969.

———. *Creative Evolution*. New York: Cosimo Classics, 1907/2005.

———. *Creative Evolution* (1907; Trans. 1911). New York: Cosimo Classics, 2005.

———. "Introduction I: Growth of Truth, Retrograde Movement of the True." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 1-17. New York: Dover, 1988.

———. "Introduction I: Growth of Truth, Retrograde Movement of the True (1922)." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 1-17. New York: Dover, 1988.

———. "Introduction II: Stating of the Problems (1922)." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 18-72. New York: Dover, 1988.

———. "Introduction to Metaphysics." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 133-69. New York: Dover, 1988.

———. "An Introduction to Metaphysics (1903; Trans. 1913)." In *Henri Bergson: Key Writings*, edited by Keith Ansell Pearson and John Mullarkey, 274-82. London and New York: Continuum, 2002.

———. "An Introduction to Metaphysics (1903; Trans. 1913)." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics (1903)*, 133-69. New York: Dover, 1988.

———. *Laughter: An Essay on the Meaning of the Comic*. Translated by Cloudesley Brereton and Fred Rothwell. Authorised Translation. New York: The Macmillan Company, 1911.

———. "Letter to Floris Delattre (24 December 1935)." Translated by Melissa McMahon. In *Henri Bergson: Key Writings*, edited by Keith Ansell Pearson and John Mullarkey, 367-71. London and New York: Continuum, 2002.

———. "The Life and Work of Ravaisson." In *The Creative Mind: An Introduction to Metaphysics*, 187-216. New York: Dover, 1988.

———. "The Life and Work of Ravaisson (1904)." In *The Creative Mind: An Introduction to Metaphysics*, 187-216. New York: Dover, 1988.

———. *Matter and Memory*. Translated by Nancy Margaret Paul and M. E. Dowson. New York: Zone Books, 1896/1988.

———. *Matter and Memory (1896; Trans. 1911)*. Translated by Nancy Margaret Paul and M. E. Dowson. New York: Zone Books, 1988.

———. "The Perception of Change." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 107-32. New York: Dover, 1988.

———. "The Perception of Change (1920)." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 107-32. New York: Dover, 1988.

———. "Philosophical Intuition." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 87-106. New York: Dover, 1988.

———. "Philosophical Intuition (1911)." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 87-106. New York: Dover, 1988.

———. "The Possible and the Real." Translated by Mabelle L. Andison. In *The Creative Mind: An Introduction to Metaphysics*, 73-86. New York: Dover, 1988.

Berlant, Lauren. *The Female Complaint: The Unfinished Business of Sentimentality in American Culture*. Durham: Duke University Press, 2008.

Bland, Kate, and Tacita Dean. "Tacita Dean: Save This Language." 30 minutes. London: BBC RADIO 4, <http://www.bbc.co.uk/programmes/b040llzm>, accessed May 20, 2015, 2014.

Brecht, Bertolt. "A Short Organum for the Theatre." In *Brecht on Theatre: The Development of an Aesthetic*, edited by John Willett. New York, London: Hill and Wang, Methuen, 1947-8/1964.



Breslin, James E. B. "Frank O'Hara, Popular Culture, and American Poetry in the 1950s." In *Made in U.S.A.: An Americanization in Modern Art, the '50s & '60s*, edited by Sidra Stich, 212-19. University Art Museum, University of California, Berkeley: University of California Press, 1987.

Buck-Morss, Susan. "Aesthetics and Anaesthetics: Walter Benjamin's Artwork Essay Reconsidered." *October* 62, no. Autumn (1992): 3-41.

Burch, Noël. *Life to Those Shadows*. Translated by Ben Brewster. Berkeley: University of California Press, 1990.

Byron, Stuart. "A Nursery Rhyme with Reason." *The Real Paper*, January 30, 1974, 23-24.

Cage, John. "Experimental Music (1957)." In *Silence: Lectures and Writings*, 7-12. Middletown, Conn.: Wesleyan University Press, 1961.

Canales, Jimena. "Einstein, Bergson, and the Experiment That Failed: Intellectual Cooperation at the League of Nations." *Modern Language Notes* 120 (2005): 1168-91.

———. *The Physicist and the Philosopher: Einstein, Bergson, and the Debate That Changed Our Understanding of Time*. Princeton: Princeton University Press, 2015.

———. *A Tenth of a Second: A History*. Chicago: University of Chicago Press, 2009.

Channel, Tate. "Tacita Dean: Film (Video Interview)." 15:35:57. London: Tate Modern, <http://www.tate.org.uk/context-comment/video/tacita-dean-film>, accessed May 20, 2015, 11 October 2011.

Chardère, Bernard. *Le Roman Des Lumières*. Paris: Gallimard, 1995.

Coburn, Tyler. "Interview with Anthony Mccall." *Art Review*, January 2011, 78-83.

Costello, Diarmuid. "Automat, Automatic, Automatism: Rosalind Krauss and Stanley Cavell on Photography and the Photographically Dependent Arts." *Critical Inquiry* 38 (Summer 2012): 819-54.

———. "Greenberg's Kant and the Fate of Aesthetics in Contemporary Art Theory." *Journal of Aesthetics and Art Criticism* 65, no. 2 (2007): 217-28.

Costelloe, Karin. "What Bergson Means by 'Interpenetration'." *Proceedings of the Aristotelian Society* 13 (1912-1913): 131-55.

Cronan, Todd. *Against Affective Formalism: Matisse, Bergson, Modernism*. Minneapolis, MN: University of Minnesota Press, 2013.

Daniel, Malcolm. "David Octavius Hill (1802–1870) and Robert Adamson (1821–1848) (1840s)." [http://www.metmuseum.org/toah/hd/hlad/hd\\_hlad.htm](http://www.metmuseum.org/toah/hd/hlad/hd_hlad.htm) (October 2004, accessed May 10, 2015).

Daston, Lorraine, and Peter Galison. *Objectivity*. New York, Cambridge, Mass.: Zone Books, Distributed by the MIT Press, 2007.

Daston, Lorraine, and Katharine Park. *Wonders and the Order of Nature, 1150-1750*. New York: Zone Books, 1998.

Davidson, Arnold. "Structures and Strategies of Discourse: Towards a History of Foucault's Philosophy of Language." In *Foucault and His Interlocutors*, edited by Arnold Ira Davidson, 1-17. Chicago: University of Chicago Press, 1997.

———. "Styles of Reasoning: From the History of Art to the Epistemology of Science." In *The Emergence of Sexuality: Historical Epistemology and the Formation of Concepts*, 125-41. Cambridge, Mass.: Harvard University Press, 2001.

Dean, Tacita. "Film." *Journal of Film Preservation* 86, no. 4 (2012): 9-21.

———. "Save Celluloid, for Art's Sake." *The Guardian* <http://www.theguardian.com/artanddesign/2011/feb/22/tacita-dean-16mm-film> (22 February 2011).

Deleuze, Gilles. *Bergsonism*. Translated by Hugh Tomlinson and Barbara Habberjam. New York: Zone Books, 1988.

———. *Cinema 1: The Movement-Image*. Translated by Hugh Tomlinson and Barbara Habberjam. Minneapolis: University of Minnesota, 1986.

———. *Cinema 2: The Time-Image*. Translated by Hugh Tomlinson and Robert Galeta. Minneapolis: University of Minnesota, 1986.

———. "Desire and Pleasure." Translated by Daniel W. Smith. In *Foucault and His Interlocutors*, edited by Arnold Ira Davidson, 183-92. Chicago: University of Chicago Press, 1997.

———. *Foucault*. Translated by Séan Hand. Minneapolis: University of Minnesota Press, 1988.

———. "What Is a Dispositif?". In *Michel Foucault, Philosopher*, edited by T. J. Armstrong, 159-68. New York: Routledge, 1992.

Deleuze, Gilles, and Didier Eribon. "Life as a Work of Art." In *Negotiations, 1972-1990*, 94-101. New York: Columbia University Press, 1986/1995.

Deleuze, Gilles, and Robert Maggiori. "Breaking Things Open, Breaking Words Open." In *Negotiations, 1972-1990*, 83-93. New York: Columbia University Press, 1986/1995.

Deleuze, Gilles, and Claire Parnet. "A Portrait of Foucault." In *Negotiations, 1972-1990*, edited by Paul Rabinow, 102-18. New York: Columbia University Press, 1986/1995.

Derrida, Jacques. *Archive Fever: A Freudian Impression*. Chicago: University of Chicago Press, 1996.

Derrida, Jacques, Hubertus von Amelunxen, and Michael Wetzel. *Copy, Archive, Signature: A Conversation on Photography*. Translated by Jeff Fort. Stanford, Calif.: Stanford University Press, 2010.

Deutelbaum, Marshall. "Structural Patterning in the Lumière Films." In *Film before Griffith*, edited by John L. Fell, 299-310. Berkeley & L.A.: University of California Press, 1983.

Dickey, Tina. *Color Creates Light: Studies with Hans Hofmann*. Salt Spring Island, B.C.: Trillistar Books, 2011.

Didi-Huberman, Georges. *Confronting Images: Questioning the Ends of a Certain History of Art*. Translated by John Goodman. University Park, Pa.: Pennsylvania State University Press, 2005.

———. "The Eye Opens, the Lamp Goes Out: Remarks on Bergson and Cinematography." In *Instruments in Art and Science: On the Architectonics of Cultural Boundaries in the 17th Century*, edited by Helmar Schramm, Ludger Schwarte and Jan Lazardzig, 421-36. Berlin & New York: Walter de Gruyter, 2008.

———. "Photography—Scientific and Pseudo-Scientific." Translated by Janet Lloyd. In *A History of Photography: Social and Cultural Perspectives*, edited by Jean-Claude Lemagny and André Rouillé, 71-75. Cambridge, U.K., & New York: Cambridge University Press, 1987.

Doublier, Francis. "Reminiscences of an Early Motion-Picture Operator." In *Image on the Art and Evolution of the Film: Photographs and Articles from the Magazine of the International Museum of Photography*, edited by Marshall Deutelbaum. New York and Rochester: Dover and International Museum of Photography, 1979.

Dovey, Jon, and Helen W. Kennedy. *Game Cultures: Computer Games as New Media*. Maidenhead, Berkshire, England; New York, N.Y.: Open University Press, 2006.

Duculescu, Mirela, and Alina Șerban, eds. *The Seductiveness of the Interval: Ștefan Constantinescu, Andrea Faciu, Ciprian Mureșan*, Romanian Pavilion, 53rd International Art Exhibition, La Biennale De Venezia (7th June-22nd November 2009). Stockholm: Romanian Cultural Institute, 2009.

Eisenstein, Sergei. "The Montage of Film Attractions (1924)." Translated by Richard Taylor and William Powell. In *The Eisenstein Reader*, edited by Richard Taylor, 35-52. London: BFI Publishing, 1998.

Eliot, T.S. "The Love Song of J. Alfred Prufrock." In *Collected Poems: 1909-1962*, 3-7. London: Faber and Faber, 1974, 2002.

Ellard, Graham, and Stephen Johnstone, eds. *Anthony Mccall: Notebooks and Conversations*. Surrey and Burlington VT: Lund Humphries in association with Kunstmuseum St Gallen, 2015.

Elsaesser, Thomas. "General Introduction: Early Cinema: From Linear History to Mass Media Archaeology." In *Early Cinema: Space, Frame, Narrative*, edited by Thomas Elsaesser and Adam Barker, 1-7. London: BFI Pub., 1990.

Elsaesser, Thomas, and Adam Barker, eds. *Early Cinema: Space, Frame, Narrative*. London: BFI Pub., 1990.

Fabian, Johannes. *Time and the Other: How Anthropology Makes Its Object*. New York: Columbia University Press, 1983.

Farocki, Harun. "Workers Leaving the Factory." In *Imprint: Writings = Nachdruck: Texte*, 230-47. New York, Berlin: Lukas & Sternberg, Vorwerk 8, 2001.

Featherstone, Mike. "Ubiquitous Media: An Introduction." *Theory, Culture & Society* 26, no. 2-3 (2009): 1-22.

Fell, John L., ed. *Film before Griffith*. Berkeley & L.A.: University of California Press, 1983.

Flaubert, Gustave. *Madame Bovary*. Translated by Francis Steegmuler. New York: Random House, 1991.

———. "On Realism." In *Documents of Modern Literary Realism*, edited by George Joseph Becker, 89-96. Princeton, N.J.: Princeton University Press, 1963.

Fortun, Mike. "What Toll Pursuit: Affective Assemblages in Genomics and Postgenomics." In *Postgenomics: Perspectives on Biology after the Genome*, edited by Sarah S. Richardson and Hallam Stevens, 32-55. Durham and London: Duke University Press, 2015.

Foucault, Michel. *The Archaeology of Knowledge; and, the Discourse on Language*. Translated by A.M. Sheridan Smith. New York: Pantheon Books, c1972.

———. "The Archeology of Knowledge." Translated by John Johnston. In *Foucault Live: (Interviews, 1961-1984)*, edited by Sylvère Lotringer, 57-64. New York, N.Y.: Semiotexte, 1969.

———. "The Birth of a World." Translated by John Johnston. In *Foucault Live: (Interviews, 1961-1984)*, edited by Sylvère Lotringer, 65-67. New York, N.Y.: Semiotexte, 1969.

———. *Discipline and Punish: The Birth of the Prison*. New York: Vintage Books, 1995.

———. "How an 'Experience-Book' Is Born." Translated by R. James Goldstein and James Cascaito. In *Remarks on Marx: Conversations with Duccio Trombadori*, 25-42. New York: Semiotext(e), 1991.

———. *Madness and Civilization: A History of Insanity in the Age of Reason*. Translated by Richard Howard. London: Routledge, 2004. 1967.

———. "The Masked Philosopher (1980)." Translated by Alan Sheridan. In *Ethics: Subjectivity and Truth*, edited by Paul Rabinow, 321-28. New York: New Press: Distributed by W.W. Norton, 1978/1997.

———. "The Masked Philosopher (1980)." In *Ethics: Subjectivity and Truth*, edited by Paul Rabinow, 321-28. New York: New Press: Distributed by W.W. Norton, 1978/1997.

———. *The Order of Things: An Archaeology of the Human Sciences*. New York: Vintage Books, 1994.

———. *The Use of Pleasure: The History of Sexuality, Volume 2*. Translated by Robert Hurley. New York: Penguin Books, 1985.

———. "What Is Enlightenment?." In *Ethics: Subjectivity and Truth*, edited by Paul Rabinow, 303-19. New York: New Press: Distributed by W.W. Norton, 1978/1997.

Foucault, Michel, and Alain Grosrichard et al. "The Confession of the Flesh." In *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, edited by Colin Gordon, 194-228. New York: Pantheon Books, 1977/1980.

Frampton, Hollis. "For a Metahistory of Film: Commonplace Notes and Hypotheses (1971)." In *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, edited by Bruce Jenkins, 131-39. Cambridge, Massachusetts: MIT Press, 2009.

———. "The Invention without a Future (1979)." In *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, edited by Bruce Jenkins, 171-82. Cambridge, Massachusetts: MIT Press, 2009.

Frampton, Hollis, and Bill Simon. "Talking About 'Magellan': An Interview (1980)." In *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, edited by Bruce Jenkins, 232-52. Cambridge, Massachusetts: MIT Press, 2009.

Gaudreault, André. *From Plato to Lumière: Narration and Monstration in Literature and Cinema*. Toronto & Buffalo: University of Toronto Press, 2009.

Georges-Michel, Michel. "Henri Bergson Nous Parle De Cinéma." *Le Journal*, February 20, 1914.

Goble, Mark. "'Our Country's Black and White Past': Film and the Figures of History in Frank O'Hara." *American Literature* 71, no. 1 (March 1999): 57-92.

Godard, Jean-Luc. "Speech Delivered at the Cinémathèque Française on the Occasion of the Louis Lumière Retrospective in January 1966: Thanks to Henri Langlois." In *Godard on Godard: Critical Writings by Jean-Luc Godard*, edited by Jean Narboni and Tom Milne, 234-37. New York, N.Y.: Da Capo Press, 1972.

Godfrey, Mark, and Anthony McCall. "Anthony McCall's 'Line Describing a Cone'." *Tate Papers*, no. 8 (Autumn 2007): <http://www.tate.org.uk/research/tateresearch/tatepapers/07autumn/godfreymccall.htm>.

Gorky, Maxim. "Newspaper Review, Nizhegorodski Listok, 4 July 1896." In *In the Kingdom of Shadows: A Companion to Early Cinema*, edited by Colin Harding and Simon Popple. London & Madison, N.J.: Cygnus Arts & Fairleigh Dickinson University Press, 1996.

Greenberg, Clement. "Hans Hofmann." In *Art and Culture: Critical Essays*, 189-96. Boston: Beacon Press, c1961.

———. "Modernist Painting." In *Clement Greenberg: The Collected Essays and Criticism*, edited by John O'Brian, 85-93. Chicago: University of Chicago Press, 1986-1993.

———. "The Pasted-Paper Revolution (1958); Reprinted as Collage (1959)." In *Clement Greenberg: The Collected Essays and Criticism Volume 4, Modernism with a Vengeance, 1957-1969*, edited by John O'Brian, 61-66. Chicago: University of Chicago Press, 1986-1993.

Grosz, Elizabeth. "Deleuze, Bergson and the Concept of Life." *Revue internationale de philosophie* 3, no. 241 (2007): 287-300.

Gunning, Tom. "An Aesthetic of Astonishment: Early Cinema and the (In)Credulous Spectator." In *Viewing Positions: Ways of Seeing Film*, edited by Linda Williams, 114-33. New Brunswick, New Jersey: Rutgers University Press, 1994.

———. "Attractions: How They Came into the World." In *The Cinema of Attractions Reloaded*, edited by Wanda Strauven, 31-39. Amsterdam: Amsterdam University Press, 2006.

———. "The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde." In *Early Cinema: Space, Frame, Narrative*, edited by Thomas Elsaesser and Adam Barker, 56-62. London: BFI Pub., 1990.

———. *D. W. Griffith and the Origins of American Narrative Film: The Early Years at Biograph*. Urbana & Chicago: University of Illinois Press, 1991.

———. "'Films That Tell Time': The Paradoxes of the Cinema of Ken Jacobs." In *Films That Tell Time: A Ken Jacobs Retrospective*, edited by David Schwartz, 3-11. New York: The American Museum of the Moving Image, 1989.

———. "From the Kaleidoscope to the X-Ray: Urban Spectatorship, Poe, Benjamin, and "Traffic in Souls" (1913)." *Wide Angle* 19 (1997): 25-61.

———. "Loïe Fuller and the Art of Motion: Body, Light, Electricity and the Origins of Cinema." In *Camera Obscura, Camera Lucida: Essays in Honor of Annette Michelson*, edited by Richard Allen and Malcolm Turvey, 75-89. Amsterdam: Amsterdam University Press, 2003.

———. "Moving Away from the Index: Cinema and the Impression of Reality." *differences* 18, no. 1 (2007): 29-52.

———. "New Thresholds of Vision: Instantaneous Photography and the Early Cinema of Lumière." In *Impossible Presence: Surface and Screen in the Photogenic Era*, edited by Terry Smith, 125-56. Chicago, IL: University of Chicago Press, 2001.

———. "'Now You See It, Now You Don't': The Temporality of the Cinema of Attractions." In *The Silent Cinema Reader*, edited by Lee Grieveson and Peter Krämer, 41-50. London; New York: Routledge, 2004.

———. "Pictures of Crowd Splendor: The Mitchell and Kenyon Factory Gate Films." In *The Lost World of Mitchell and Kenyon: Edwardian Britain on Film*, edited by Vanessa Toulmin, Patrick Russell and Simon Popple, 49-58. London: BFI Publications, 2004.

———. "An Unseen Energy Swallows Space: The Space in Early Film and Its Relation to American Avant-Garde Film." In *Film before Griffith*, edited by John L. Fell, 355-66. Berkeley & L.A.: University of California Press, 1983.

———. "What's the Point of an Index? Or, Faking Photographs." In *Still Moving: Between Cinema and Photography*, edited by Karen Redrobe Beckman and Jean Ma, 23-40. Durham: Duke University Press, 2008.

Hallström, Per. "Award Ceremony Speech." In *Nobel Lectures, Literature 1901-1967*, edited by Horst Frenz, [http://nobelprize.org/nobel\\_prizes/literature/](http://nobelprize.org/nobel_prizes/literature/). Amsterdam: Elsevier Publishing Company, 1969.

Hanhardt, John. "The Medium Viewed: The American Avant-Garde Film." In *A History of the American Avant-Garde Cinema: A Film Exhibition Organized by the American Federation of Arts*, edited by Marilyn Singer, 19-47. New York: American Federation of Arts, 1976.

———. "Researches and Investigations into Film: Its Origins and the Avant-Garde (Program Notes Accompanying the Impossible-Chapter One: Southward Fair, a Performance by Ken Jacobs)." Document, Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York: Department of Film and Video, Whitney Museum of American Art, 17 November 1979.

Hanlon, Lindley. *Ken Jacobs: Interview (June 10, June 12, 1979)*. Minneapolis: Film in the Cities and Walker Art Center, 1980.

———. "Kenneth Jacobs, Interviewed by Lindley Hanlon [Jerry Sims Present]." *Film Culture* 67-68-69 (1979): 65-86.

Hansen, Mark B. N. *Bodies in Code: Interfaces with Digital Media*. New York & London: Routledge, 2006.

———. *Embodying Technesis: Technology Beyond Writing*. Ann Arbor: University of Michigan Press, 2000.

———. "Movement and Memory: Intuition as Virtualization in Gps Art." *MLN* 120, no. 5 (2006): 1206-25.

———. *New Philosophy for New Media*. Cambridge, Mass.: MIT Press, 2004.

Hansen, Miriam. *Babel & Babylon: Spectatorship in American Silent Film*. Cambridge, Massachusetts: Harvard University Press, 1991.

———. "Benjamin, Cinema and Experience: The Blue Flower in the Land of Technology." *New German Critique* 40 (Winter 1987): 179-224.

———. "Early Cinema, Late Cinema: Permutations of the Public Sphere." *Screen* 34, no. 3 (1993): 197-210.

———. "The Mass Production of the Senses: Classical Cinema as Vernacular Modernism." *Modernism/Modernity* 6, no. 2 (1999): 59-77.

———. "Of Mice and Ducks: Benjamin and Adorno on Disney." *South Atlantic Quarterly* 92, no. 1 (Winter 1993): 27-61.

Hansen, Miriam Bratu. "Benjamin and Cinema: Not a One-Way Street." *Critical Inquiry* 5, no. 2 (Winter 1999): 306-43.

———. *Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno*. Berkeley: University of California Press, 2012.

———. "Room-for-Play: Benjamin's Gamble with Cinema." *October* 109 (Summer 2004): 3-45.

Hansen, Miriam, Oskar Negt, and Alexander Kluge. "Foreword (1991)." Translated by Peter Labanyi, Jamie Daniel and Assenka Oksiloff. In *Public Sphere and Experience: Toward an Analysis of the Bourgeois and Proletarian Public Sphere*, ix-xli. Minneapolis: University of Minnesota Press, 1993.

Harding, Colin, and Simon Popple, eds. *In the Kingdom of Shadows: A Companion to Early Cinema*. London & Madison, N.J.: Cygnus Arts & Fairleigh Dickinson University Press, 1996.



Heidegger, Martin. "The Age of the World Picture (1938)." In *The Question Concerning Technology, and Other Essays*. Translated and with an Introduction by William Lovitt, 115-54. New York: Harper & Row, 1977.

———. "The Origin of the Work of Art." In *Basic Writings : From Being and Time (1927) to the Task of Thinking (1964)*, edited by David Farrell Krell, 452. San Francisco, Calif.: Harper, 1935-6/1993.

Hofmann, Hans. "Plastic Creation (1932)." In *Hans Hofmann*, edited by James Yohe and Sam Hunter, 41-44. New York and London: Rizzoli and Troika, 2002.

———. "The Resurrection of the Plastic Arts (1954)." In *Hans Hofmann*, edited by James Yohe and Sam Hunter, 49-53. New York and London: Rizzoli and Troika, 2002.

———. "The Resurrection of the Plastic Arts (1954)." In *Hans Hofmann*, edited by James Yohe and Sam Hunter, ?? New York and London: Rizzoli and Troika, 2002.

———. "The Search for the Real in the Visual Arts." In *Search for the Real, and Other Essays*, edited by Sara T. Weeks and Bartlett H. Hayes, 40-48. Cambridge, Mass.: M.I.T. Press, 1967.

———. "The Search for the Real in Visual Arts (1948)." In *Hans Hofmann*, edited by James Yohe and Sam Hunter, 45-48. New York and London: Rizzoli and Troika, 2002.

———. "Text and Lectures by Hans Hofmann." In *Hans Hofmann*, edited by Cynthia Goodman, 163-77. New York and Munich: Whitney Museum of American Art, in association with Prestel-Verlag, c1990.

———. "Texts by Hans Hofmann, 1951-1963." In *Hans Hofmann*, edited by Helmut Friedel and Tina Dickey, 81-99. New York: Hudson Hills Press, for the Städtische Galerie, Munich, 1998.

Holman, Roger, ed. *Cinema 1900/1906: An Analytical Study* by the National Film Archive (London) and the International Federation of Film Archives. Brussels: International Federation of Film Archives, 1978.

Hope, Bradley. "Startups Mine Market-Moving Data from Fields, Parking Lots—Even Shadows." *The Wall Street Journal*, November 20, 2014, <http://online.wsj.com/articles/startups-mine-market-moving-data-from-fields-parking-lotseven-shadows-1416502993>, accessed November 21, 2014.

Husserl, Edmund. *On the Phenomenology of the Consciousness of Internal Time (1893-1917)*. Translated by John Barnett Brough. Collected Works. Vol. 4, Dordrecht, Boston: Kluwer Academic Publishers, 1991.

Iles, Chrissie. "Between the Still and Moving Image." In *Into the Light: The Projected Image in American Art, 1964–1977*; Catalog of an Exhibition Held at the Whitney Museum of American

Art, October 10 2001 - January 6, 2002, edited by Chrissie Iles, 32-69. New York: Whitney Museum of American Art, 2001.

Jacobs, Ken. "Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures." United States: United States Patent, Filed Jan 22, 2002.

———. "Eternalism, a Method for Creating an Appearance of Sustained Three-Dimensional Motion-Direction of Unlimited Duration, Using a Finite Number of Pictures." United States: United States Patent and Trademark Office, Apr 18, 2006.

———. "In Respect of Things." In *Cinema & Painting. Catalog of an Exhibition Held at the Adam Art Gallery, Wellington, March 11-May 11, 2014*, edited by Michelle Menzies, 117-21. Wellington, New Zealand: Adam Art Gallery, Victoria University of Wellington, 2015.

———. "New York Ghetto Fishmarket 1903: Nervous System 3d." 132 minutes. New York: Tzadik DVD Edition, 2006.

———. "On the Nervous System: What, Where, and Wherefore." In Program Notes, Ken Jacobs: Illuminations and Improvisations, March 14-17, 2004, curated by Jytte Jensen and Joshua Siegel. New York: Department of Film and Media, The Museum of Modern Art, 2004.

———. "On the Nervous System: What, Where, and Wherefore: Program Notes, Ken Jacobs: Illuminations and Improvisations." Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York: Department of Film and Media, The Museum of Modern Art, March 14-17, 2004.

———. "Painted Air: The Joys and Sorrows of Evanescent Cinema." *Millennium Film Journal* 43/44 (Summer/Fall 2005): <http://mfj-online.org/journalPages/MFJ43/KenJacobs.htm>.

———. "Press Accompanying "Live Film Concert," at the Whitney Museum Biennial." In Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York. New York: Whitney Museum of American Art, 1995.

———. "Program Notes." In *Films That Tell Time: A Ken Jacobs Retrospective*, edited by David Schwartz, 13-28. New York: The American Museum of the Moving Image, 1989.

———. "Program Notes, Live Film Concert." Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York. Whitney Museum Biennial: Whitney Museum of American Art, 1995.

———. "Three Essays." *Jacket2* (2011): <http://jacket2.org/commentary/three-essays-ken-jacobs>.

———. "'Tom, Tom' and the Physicality of Film." Fax from Ken Jacobs to John Hanhardt, Curator, Film and Video, Whitney Museum of American Art, sent on February 18, 2005: Document, Anthology Film Archives, New York, May 14, 2002.

Jameson, Fredric. *Postmodernism, or, the Cultural Logic of Late Capitalism*. Durham: Duke University Press, 1991.

Jankélévitch, Vladimir. *Music and the Ineffable*. Translated by Carolyn Abbate. Princeton, N.J.: Princeton University Press, c2003.

Jay, Martin. *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought*. Berkeley: University of California Press, 1993.

———. *Songs of Experience: Modern American and European Variations on a Universal Theme*. Berkeley and LA: University of California Press, 2005.

Kane, Daniel. *We Saw the Light: Conversations between the New American Cinema and Poetry*. Iowa City: University of Iowa Press, 2009.

Kant, Immanuel. *The Critique of the Power of Judgment*. Translated by Eric Matthews Paul Guyer. edited by Paul Guyer Cambridge, UK; New York: Cambridge University Press, 2000.

Keller, Evelyn Fox. *Refiguring Life: Metaphors of Twentieth-Century Biology*. New York: Columbia University Press, 1995.

———. "Rethinking the Meaning of Genetic Determinism (February 18, 1993)." In *The Tanner Lectures on Human Values*, edited by Grethe B. Peterson, 115-39. Salt Lake City: University of Utah Press, 1996.

Kittler, Friedrich. *Gramophone, Film, Typewriter*. Translated by Geoffery Winthrop-Young and Michael Wutz. Stanford, Calif.: Stanford University Press, 1999.

———. *Gramophone, Film, Typewriter*. Translated, with an Introduction by Geoffery Winthrop-Young and Michael Wutz. Stanford, Calif.: Stanford University Press, 1999.

———. *Optical Media: Berlin Lectures 1999*. Cambridge, UK; Malden, MA: Polity Press, 2010.

Klahr, Lewis. "Ken Jacobs and Estatic Abstraction." In *Optic Antics: The Cinema of Ken Jacobs*, edited by Michele Pierson, David E. James and Paul Arthur, 213-15. New York: Oxford University Press, 2011.

Kracauer, Siegfried. "Photography." Translated by Thomas Y. Levin. In *The Mass Ornament: Weimar Essays*, edited by Thomas Y. Levin, 47-63. Cambridge, Mass.; London: Harvard University Press, 1995.

———. *Theory of Film: The Redemption of Physical Reality*. Introduction by Miriam Bratu Hansen. Princeton, N.J.: Princeton University Press, 1960, 1997.

Krauss, Rosalind. "Two Moments from the Post-Medium Condition." *October* 116 (Spring 2006): 55–62.

Krauss, Rosalind E. *The Optical Unconscious*. Cambridge, Mass.: MIT Press, 1993.

———. *Perpetual Inventory*. Cambridge, Mass.: MIT Press, 2010.

———. "Reinventing the Medium." *Critical Inquiry* 25, no. 2 (Winter 1999, "Angelus Novus": Perspectives on Walter Benjamin): 289-305.

———. "A Voyage on the North Sea": Art in the Age of the Post-Medium Condition. London: Thames & Hudson, 2000.

Landecker, Hannah. "Cellular Features: Microcinematography and Film Theory." *Critical Inquiry* 31, no. 4 (Summer 2005): 903-37.

———. "The Life of Movement: From Microcinematography to Live Cell Imaging." *Journal of Visual Culture* (Forthcoming).

———. "The Life of Movement: From Microcinematography to Live Cell Imaging." *Journal of Visual Culture, Special Issue: Science and Documentary* 11, no. 3 (December 2012): 378-99.

———. "Live Cell Imaging! Live Theory Imaging! The Microscopic World Viewed, and Other Experiments in Science Film Theory." In *Science/Film: A Symposium*. Northwestern University: Organized by Scott Curtis, 8 April 2011.

———. "Microcinematography and the History of Science and Film." *Isis* 97, no. 1 (March 2006): 121-32.

Landecker, Hannah, and Christopher Kelty. "A Theory of Animation: Cells, L-Systems, and Film." *Grey Room* 17 (Fall 2004): 30-63.

Latour, Bruno. "Some Experiments in Art and Politics." *e-flux* 23, no. 3 (March 2011): 1-7.

Leeming, David. "Leda." In *The Oxford Companion to World Mythology*. Oxford: Oxford University Press, 2005.

Levin, Tom. "From Dialectical to Normative Specificity: Reading Lukács on Film." *New German Critique* 40 (Winter 1987): 35-61.

Lukács, Georg. "Narrate or Describe? (1936)." In *Writer and Critic, and Other Essays*, edited by Arthur D. Kahn, 110-48. London: Merlin, 1970.

"The Lumière Brothers' First Films." edited by Archives du Film du Centre National de la Cinématographie, Institut Lumière and narrated by Bertrand Tavernier, 60 min: Kino International, 1996.

Lye, Len. "A Note on Dance and Film (1967)." In *Figures of Motion: Len Lye, Selected Writings*, edited by Wystan Curnow and Roger Horrocks, 55-56. Auckland, New Zealand: Auckland University Press, 1984.

Lyotard, Jean-François. *Discourse, Figure*. Minneapolis: University of Minnesota Press, 2011.

Mann, Thomas. *The Magic Mountain*. Translated by John E. Woods. New York: Vintage, 1995, c1927.

Mannoni, Laurent, and Musée d'Orsay. "Mouvements De L'air: Étienne-Jules Marey (1830-1904), Photographer of Fluids." Musée d'Orsay.

Manovich, Lev. *The Language of New Media*. Leonardo. Cambridge, Mass.: MIT Press, 2002.

Marey, Étienne-Jules. *Movement*. Translated by Eric Pritchard. New York: D. Appleton and Company, 1895.

Marrati, Paola. "Time, Life, Concepts: The Newness of Bergson." *MLN* 120, no. 5 (2005): 1099-111.

McCall, Anthony. "'Line Describing a Cone' and Related Films." *October* 103 (Winter, 2003): 42-62.

McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press, c1962.

Mekas, Jonas. "Texts on Ken Jacobs." In *Optic Antics: The Cinema of Ken Jacobs*, edited by Michele Pierson, David E. James and Paul Arthur, 38-42. New York: Oxford University Press, 2011.

Menzies, Michelle. "Art/Film: A Conversation with Anthony McCall." In *Cinema & Painting. Catalog of an Exhibition Held at the Adam Art Gallery, Wellington, March 11-May 11, 2014*, edited by Michelle Menzies, 96-99. Wellington, New Zealand: Adam Art Gallery, Victoria University of Wellington, 2015.

———. "Interview with Anthony McCall." New York: August 2, 2011.

———. "Interview with Anthony McCall (2 August 2011)." New York: August 2, 2011.

———. "Interview with Ken Jacobs (2 August 2011)." New York: August 3, 2011.

Merleau-Ponty, Maurice. *Nature: Course Notes from the Collège De France*. Translated by Robert Vallier. edited by Dominique Séglaard Evanston, Ill.: Northwestern University Press, 2003.

Metz, Christian. "On the Impression of Reality in the Cinema." In *Film Language: A Semiotics of the Cinema*, 3-15. Chicago: University of Chicago Press, 1965/1991.

Michaud, Philippe-Alain. *Aby Warburg and the Image in Motion*. Translated by Sophie Hawkes. New York & Cambridge, Mass.: Zone Books & MIT Press, 2004.

———. "Line Light: The Geometric Cinema of Anthony Mccall." *October* 137 (Summer 2011): 3-22.

Michelon, Olivier. "Interview with Anthony Mccall." In *Anthony Mccall: Elements for a Retrospective, 1972-1979/2003-*, edited by Olivier Michelin, 53-60. Rochechouart and London: Musée de Rochechouart and Serpentine Gallery, with Monografik Editions, 2007.

Michelson, Annette. "New Forms in Film: 'Tom, Tom, the Piper's Son' by Ken Jacobs." Frances Mulhall Achilles Library, Archives, Whitney Museum of American Art, New York. Solomon R. Guggenheim Museum, August 13, 1972.

Mitchell, W. J. T. *The Reconfigured Eye: Visual Truth in the Post-Photographic Era*. Cambridge, Mass.: MIT Press, 1992.

Moore, Gordon E. "Cramming More Components onto Integrated Circuits (1965)." *Proceedings of the IEEE* 86, no. 1 (Reprinted from Electronics Magazine, 19 April 1965, pp. 114–117. January 1998): 82-84.

Morgan, Daniel. *Late Godard and the Possibilities of Cinema*. Berkeley and Los Angeles: University of California Press, 2013.

Mulvey, Laura. *Death 24x a Second: Stillness and the Moving Image*. London: Reaktion Books, 2006.

———. "Visual Pleasure and Narrative Cinema (1975)." In *Feminisms : An Anthology of Literary Theory and Criticism*, edited by Robyn R. Warhol and Diane Price Herndl, 432-42. New Brunswick, N.J.: Rutgers University Press, 1996.

"Nsa Prism Program Slides." The Guardian, <http://www.theguardian.com/world/interactive/2013/nov/01/prism-slides-nsa-document>, Friday 1 November 2013, accessed October 21, 2015.

O'Hara, Frank. "Ave Maria (1960)." In *Lunch Poems*, 51-2. San Francisco: City Lights Books, 1964.

———. "An Image of Leda (1950)." In *The Collected Poems of Frank O'Hara*, edited by Donald Allen, 35-6. Berkeley: University of California Press, 1995.

———. *Lunch Poems*. San Francisco: City Lights Books, 1964.

———. "Personism: A Manifesto (1959)." In *The Collected Poems of Frank O'Hara*, edited by Donald Allen, 498-9. Berkeley: University of California Press, 1995.

———. "A Step Away from Them (1956)." In *Lunch Poems*, 15-17. San Francisco: City Lights Books, 1964.

Olkowski, Dorothea. "The End of Phenomenology: Bergson's Interval in Irigaray." *Hypatia* 15, no. 3 (Summer 2000): 73-91.

. Oxford University Press.

Pearson, Keith Ansell, and John Mullarkey, eds. *Henri Bergson: Key Writings*. London and New York: Continuum, 2002.

———. "Introduction." In *Henri Bergson: Key Writings*, edited by Keith Ansell Pearson and John Mullarkey, 1-45. London and New York: Continuum, 2002.

Perloff, Marjorie. *Frank O'Hara: Poet among Painters*. Chicago: University of Chicago Press, 1997.

Pierson, Michele. "Jacobs' Bergsonism." In *Optic Antics: The Cinema of Ken Jacobs*, edited by Michele Pierson, David E. James and Paul Arthur, 196-212. New York: Oxford University Press, 2011.

Poe, Edgar Allan. "The Daguerreotype (1840)." In *Classic Essays on Photography*, edited by Alan Trachtenberg, 37-8. New Haven, Conn.: Leete's Island Books, 1980.

Poggi, Christine. *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage*. New Haven: Yale University Press, 1992.

Rancière, Jacques. *The Politics of Aesthetics: The Distribution of the Sensible*. Translated by Gabriel Rockhill. London; New York: Continuum, 2004.

———. "Why Emma Bovary Had to Be Killed." *Critical Inquiry* 34, no. 2 (Winter 2008): 233-48.

Rancière, Jacques, translated by Jon Roffe. "Thinking between Disciplines: An Aesthetics of Knowledge." *Parrhesia: a journal of critical philosophy*, no. 1 (2006): 1-12.

Riegl, Alois. *Late Roman Art Industry*. Translated by Rolf Winkes. *Archaeologica*. Roma: G. Bretschneider, 1985.

Robinson, Daniel. "Intel Predicts Moore's Law to Last Another 10 Years." *V3* <http://www.v3.co.uk/v3-uk/news/2403113/intel-predicts-moores-law-to-last-another-10-years> (8 Apr 2015).

Rodin, Auguste, and Paul Gsell. *Art: Conversations with Paul Gsell*. Translated by Jacques De Caso and Patricia B. Sanders. Berkeley: University of California Press, c1984.

Rodowick, D.N. *Reading the Figural, or, Philosophy after the New Media*. Durham: Duke University Press, 2001.

Roelstraete, Dieter, ed. *The Way of the Shovel: On the Archaeological Imaginary in Art*, Catalog to the Exhibition 'the Way of the Shovel: Art as Archaeology' at the Museum of Contemporary Art, Chicago, 9 November 2013-9 March 2014. Chicago: Museum of Contemporary Art, Chicago in association with The University of Chicago Press, 2013.

Rose, William. "Annotated Filmgraphy and Performance History." In *Optic Antics: The Cinema of Ken Jacobs*, edited by Michele Pierson, David E. James and Paul Arthur, 263-75. New York: Oxford University Press, 2011.

Røssaak, Eivind, ed. *The Archive in Motion: New Conceptions of the Archive in Contemporary Thought and New Media Practices*. Oslo: Novus Press, 2010.

Said, Edward. *Orientalism: Western Conceptions of the Orient*. New York: Penguin Books, 1978, 1995.

Schwartz, David, Tom Gunning, Ken Jacobs, and Flo Jacobs. "Interview with Ken Jacobs (Aug 10, 11, 1989)." In *Films That Tell Time: A Ken Jacobs Retrospective*, edited by David Schwartz, 29-61. New York: The American Museum of the Moving Image, 1989.

Schwartz, Louis-Georges. "'Henri Bergson Talks to Us About Cinema,' by Michel Georges-Michel from Le Journal, February 20, 1914." *Cinema Journal* 50, no. 3 (Spring 2011): 79-82.

Shakespeare, William. *A Midsummer Night's Dream*. Oxford Shakespeare. edited by Peter Holland Oxford & New York: Oxford University Press, 1994.

———. *The Sonnets ; and a Lover's Complaint*. Penguin Classics. edited by John Kerrigan London: Penguin, 1999.

———. *The Winter's Tale*. Oxford Shakespeare. edited by Stephen Orgel Oxford & New York: Oxford University Press, 1996.

Sherman, Tom. "The Premature Birth of Video Art." Email, [http://www.experimentaltvcenter.org/sites/default/files/history/pdf/ShermanThePrematureBirthofVideoArt\\_2561.pdf](http://www.experimentaltvcenter.org/sites/default/files/history/pdf/ShermanThePrematureBirthofVideoArt_2561.pdf), 2007.

Sims, Lowery Stokes. "Hans Hofmann in Twentieth-Century Art." In *Hans Hofmann in the Metropolitan Museum of Art. Catalog of an Exhibition Held at the Metropolitan Museum of Art, April 13 to Oct. 17, 1999*, edited by Lowery Stokes Sims, 6-18. New York: Metropolitan Museum of Art, 1999.



Snyder, Joel. "Res Ipsa Loquitur." In *Things That Talk: Object Lessons from Art and Science*, edited by Lorraine Daston, 195-222. New York: Zone Books, 2008.

Snyder, Joel, and Neil Walsh Allen. "Photography, Vision, and Representation." *Critical Inquiry* 2, no. 1 (Autumn 1975): 143-69.

Solomon, Phil. "Nervous Ken: "Xcxhxexrxrxixexsx" and After." In *Optic Antics: The Cinema of Ken Jacobs*, edited by Michele Pierson, David E. James and Paul Arthur, 188-95. New York: Oxford University Press, 2011.

Stein, Gertrude. "Composition as Explanation (1926)." In *Look at Me Now and Here I Am: Gertrude Stein, Writings and Lectures 1911-1945*, edited by Partica Meyerowitz. London: Peter Owen, 1967.

———. "A Transatlantic Interview 1946." In *A Primer for the Gradual Understanding of Gertrude Stein*, edited by Robert Bartlett Haas. Los Angeles: Black Sparrow, 1971.

———. "What Is English Literature (1934)." In *Look at Me Now and Here I Am: Gertrude Stein, Writings and Lectures 1911-1945*, edited by Partica Meyerowitz. London: Peter Owen, 1967.

Stramer, Brian M., and Graham A. Dunn. "Cells on Film – the Past and Future of Cinemicroscopy." *Journal of Cell Science* 128 (2015): 9–13.

Thacker, Eugene. *Biomedica*. Minneapolis: University of Minnesota Press, 2004.

———. "Biophilosophy for the 21st Century." *CTheory* <http://www.ctheory.net/articles.aspx?id=472> (2005).

———. "Networks, Swarms, Multitudes." *CTheory* (Two Parts) (2004): [http://www.ctheory.net/text\\_file.asp?pick=422](http://www.ctheory.net/text_file.asp?pick=422).

Tsivian, Yuri. *Early Cinema in Russia and Its Cultural Reception*. Translated by Richard Taylor. Soviet Cinema. London ; New York: Routledge, 1994.

———. *Early Cinema in Russia and Its Cultural Reception*. Translated by Richard Taylor. London; New York: Routledge, 1994.

U.S. Department of Energy Office of Science, Office of Biological and Environmental Research, Human Genome Program. "Human Genome Project Information." [http://www.ornl.gov/sci/techresources/Human\\_Genome/home.shtml](http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml).

Vaughan, Dia. "Let There Be Lumière." In *Early Cinema: Space, Frame, Narrative*, edited by Thomas Elsaesser and Adam Barker, 63-67. London: BFI Pub., 1990.

Veyne, Paul. "Foucault Revolutionizes History." Translated by Catherine Porter. In *Foucault and His Interlocutors*, edited by Arnold Ira Davidson, 146-82. Chicago: University of Chicago Press, 1997.

———. *Foucault: His Thought, His Character*. Cambridge; Malden, MA: Polity, 2010.

Vinci, Leonardo da. "The Motions of Air and Water: Ms. I. Ff. 87 R; 72 R (1497-99)." Translated by Stefania Toccafondi. In *Leonardo: Waters and Lands*, edited by Carlo Starnazzi, 57-66. Firenze: Gran'tour, 2002.

Whitman, Walt. "America's Bulk Average." In *Complete Poetry and Collected Prose*, 1299-300. New York: Literary Classics of the United States, Viking Press, 1982.

Williams, Alan. *Republic of Images: A History of French Filmmaking*. Cambridge, Mass.: Harvard University Press, 1992.

Williams, Allan. "The Lumière Organization and "Documentary Realism"." In *Film before Griffith*, edited by John L. Fell, 153-61. Berkeley & L.A.: University of California Press, 1983.

Williams, Raymond. "Dominant, Residual, and Emergent." In *Marxism and Literature*, 121-7. Oxford and New York: Oxford University Press, 1977.

———. *Television: Technology and Cultural Form*. London: Fontana, 1974.

Williams, William Carlos. *The Collected Poems of William Carlos Williams*. edited by A. Walton Litz and Christopher MacGowan. Vol. 1, New York: New Directions, 1986-1988.

Winthrop-Young, Geoffery, and Michael Wutz. "Translators' Introduction." Translated by Geoffery Winthrop-Young and Michael Wutz. In *Gramophone, Film, Typewriter*, 315. Stanford, Calif.: Stanford University Press, 1999.

Woolf, Virginia. *The Waves*. New York: Harcourt, 1959.

Worden, Fred. "I Owe Ken Jacobs." In *Optic Antics: The Cinema of Ken Jacobs*, edited by Michele Pierson, David E. James and Paul Arthur, 245-48. New York: Oxford University Press, 2011.

Yeats, W. B. "Leda and the Swan." In *The Collected Poems of W.B. Yeats*. New York: Macmillan Co., 1941, c1918.

Zola, Émile. "The Experimental Novel." Translated by Belle M. Sherman. In *The Experimental Novel, and Other Essays*, 1-56. New York: Haskell House, 1964.

———. *Zola Photographe: 480 Documents*. edited by François Emile-Zola and Massin Paris: Denoël, 1979.

Zryd, Michael. "History and Ambivalence in Hollis Frampton's 'Magellan'." *October* 109 (Summer 2004): 119–42.