

# FRAME BY FRAME

A MATERIALIST AESTHETICS OF ANIMATED CARTOONS

HANNAH FRANK



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# Frame by Frame

The publisher and the University of California Press Foundation gratefully acknowledge the generous support of the Ahmanson • Murphy Imprint in Fine Arts.

The publisher also gratefully acknowledges the generous support of the Department of Film Studies at the University of North Carolina Wilmington and, at the University of Chicago, the Department of Cinema and Media Studies, the Division of the Humanities, and Yuri Tsivian.

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*A Materialist Aesthetics of Animated Cartoons*



Hannah Frank

*Edited and with an introduction by Daniel Morgan*

*Foreword by Tom Gunning*



UNIVERSITY OF CALIFORNIA PRESS

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University of California Press  
Oakland, California

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Suggested citation: Frank, H. *Frame by Frame: A Materialist Aesthetics of Animated Cartoons*. Oakland: University of California Press, 2019. DOI: <https://doi.org/10.1525/luminos.65>

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#### Library of Congress Cataloging-in-Publication Data

Names: Frank, Hannah, 1984–2017, author. | Morgan, Daniel, 1977- editor, writer of introduction. | Gunning, Tom, 1949- writer of foreword.

Title: *Frame by frame : a materialist aesthetics of animated cartoons* / Hannah Frank ; edited and with an introduction by Daniel Morgan; foreword by Tom Gunning.

Description: Oakland, California : University of California Press, [2019] | This work is licensed under a Creative Commons CC BY-NC-SA license. To view a copy of the license, visit <http://creativecommons.org/licenses>. | Includes bibliographical references and index. |

Identifiers: LCCN 2018044521 (print) | LCCN 2018048471 (ebook) | ISBN 9780520972773 (ebook) | ISBN 9780520303621 (pbk. : alk. paper)

Subjects: LCSH: Animated films—History and criticism. | Motion pictures—Aesthetics.

Classification: LCC NC1765 (ebook) | LCC NC1765 .F65 2019 (print) | DDC 791.43/3409—dc23

LC record available at <https://lcn.loc.gov/2018044521>

*FOR MY FAMILY  
IN MEMORY OF MY FATHER*



*Apparently he had examined them patiently picture by picture and imagined that they would be screened in the same way, failing at that time to grasp the principle of the cinematograph.*

—FLANN O'BRIEN

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## FOREWORD: HANNAH FRANK'S PAUSE

Tom Gunning

Sometime in 2014, Hannah Frank sent me a draft of a chapter from her dissertation on Hollywood cartoons, which I read with curiosity and pleasure. In her analysis of the processes of cel animation, she discussed her own method of analysis and research. In this context she turned to the writings of Emily Dickinson, especially recent research on the poet that not only returns to the original manuscripts to restore Dickinson's eccentric punctuation and line spacing that early editors tended to tidy up, but investigates Dickinson's materials: the actual slips of paper she wrote on; their sources (wrappers, envelopes, flyleaves from books), shapes, and textures; as well as the various marks that appear on them. I read this with some fascination even as it went on for several pages. I could see the model that this new Dickinson research set for Frank's own investigation of the material basis of Hollywood cartoons. Frank was examining the individual animation cels from which animated cartoons of the studio era were composed, as well as tracing technological shifts in animation processes and how these affected what we watch on the screen. But when I met with her to discuss the chapter, I wondered aloud whether such a digression into Dickinson might pose a problem for readers and publishers, even if she had convinced her dissertation committee of its relevance. Hannah gave me that quiet smile I had come to recognize as a sign of her combination of amusement and confidence—plus a dash of mischief. Demonstrating how all these things were related—technology, history, materials, cinema, literature—was precisely the point of her work. I am delighted that now a publisher and editor have agreed and are making this daringly original and constantly surprising work available to a wide group of readers. The only regret that accompanies this happy event is the fact that Hannah herself could not see it, due to her untimely death at age thirty-three.

*Frame by Frame*, the published version of Frank's dissertation, then titled "Looking at Cartoons," is one of the most thorough examinations yet written of the animated cartoons of the studio era. Frank undertook in-depth research, scrutinizing the films and the materials underlying them, studying animation technology and its changes. She profited from recent decades of serious research and analysis by historians of animation. But she deliberately went further. She not only practiced close analysis of the cartoons she discussed, but asked how far close such readings could go, and what exactly we should pay attention to. Like recent Dickinson scholars, Frank paid attention to things others might ignore or consider unimportant. She highlighted the mistakes, glitches, and peripheral details that were revealed when she examined cartoons frame by frame. In these pages Frank performs a dizzying tour-de-force, uncovering aspects of cartoons that slip beneath the thresholds of ordinary viewing.

But we might ask, why? Does such a winnowing end up grasping at straws rather than wheat? Does this sort of criticism amount to more than just a demonstration of academic cleverness—like recent critics' uncovering of small errors in Alfred Hitchcock's films, or discovering props in them that seem to reveal possible in-jokes—but little else? No question, Frank is clever, but she is also serious. Her method of scrutiny offers more than a new edition of trivial pursuits. Her method and the discoveries it allows remain firmly grounded in the nature of her subject: the animated cartoon.

Like most brilliant doctoral students, Frank revised the topic of her dissertation a number of times over the years we worked together. At one point she wanted to focus on the actual labor involved in the studio system of animation. Recent research into studio animation has detailed the highly rationalized, industrialized, hierarchical work that lay behind the carnivalesque cavorting of Daffy Duck and Woody Woodpecker. Cartoons depended upon a sort of assembly-line process in which lower-paid workers such as "inkers" and "in-betweeners," often women, completed the details of the images that would appear on the thousands of individual cels that made up a cartoon. Frank's close examination of these cels, then, does not simply search out details invisible to the mass of spectators, but rather uncovers the traces of occluded labor. Rather than *recherché* cleverness, Frank's task is redemptive, bringing to light the contributions these anonymous and invisible workers made. Her scrutiny, however, is not primarily prosecutorial, but rather empathetic, focused as much on the creativity of the workers as on their exploitation. Even at the level of repetitive work Frank uncovers moments of wit, jokes, and protests against an effaced individuality—as well as signs of fatigue and inattention. At points Frank's discoveries recall the marginal figures, jokes, flourishes of creativity, and even hints at blasphemy that the art historian Michael Camille found medieval scribes left on the edges of manuscripts they were copying.

The hidden traces Frank reveals in this book fulfill the ambition of every critic: to make viewers see things in a work that they did not see before. Beyond

revealing the traces of a production process designed to remain tucked out of sight, Frank makes us look at cartoons differently—no longer as images that flit across the screen, but as documents of human labor that should be scrutinized. Her method of frame-by-frame analysis responds to the very nature and structure of animation. Beginning with the individual animation cel, Frank in effect retraces and reverses the process of animation itself. Animation depends on the rapid succession of still images to create a moving image. When we watch a film or cartoon on the screen, the individual images seem to disappear, absorbed into a perception of motion. But they are still there, underlying and creating that appearance of motion—and lying in wait for the careful attention of a scholar like Frank. If we want to understand animation, we need to rediscover those persistent still images. Frank not only does this, but closely interrogates them in order to make them yield their secrets.

For a long time cartoons were treated as a minor aspect of the history of cinema, marginal “short subjects,” mere child’s play. But new approaches to moving image technology, perceptual psychology, and even the archaeology of cinema have pushed animation to the center of cinema studies. The leap from the single still frame to the experience of movement in fact constitutes the miracle of all movies. Reversing the traditional hierarchy, we could now approach the “movies”—the feature film—as forming a subclass of animation. Hannah Frank understood that the great secret of cinema lies in its ability not only to animate an image, but to freeze it, to stop and pivot on a single frame. The mechanics of cinema are well known, but also easily forgotten. The filmstrip presents a succession of still images with slight differences between them, depicting the progression of an action or motion. Inserted into an apparatus, these still images can be made to move before our eyes. This process of making pictures move is known as animation, and it can be applied to both photographs and drawings.

If we have taken the process of animation for granted for a long time, the first viewers of cinema were fascinated precisely by this magical transformation from a series of still images to motion pictures. In 1894, when journalists from *Harper’s Weekly* first reported on Thomas Edison’s Kinetoscope, they stressed that the films were made up of numerous still images. The article actually reprinted each still image that Edison shot to demonstrate his new device, “Kinetoscopic Record of a Sneeze,” numbering them one through eighty-one. This proliferation of multiple images seemed to fascinate the journalists as much as the two seconds they recorded of the action of Edison’s employee, Fred Ott, sneezing out the snuff he had stuffed up his nose. Cinema was born as the art of animating individual images—in this case, photographs. But what about animation as we usually use the term: cartoons as “drawings brought to life”? Almost two decades later, in 1911, when the movies had become an international form of entertainment, the Vitagraph Company announced another innovation: famous newspaper cartoonist Winsor McCay would make the figures from his comic strip *Little Nemo* move on



the screen. An intertitle for the film announced that McCay would produce “four thousand drawings ready for the Vitagraph Company’s moving picture camera” in order to produce one of the first US cartoons. The sheer number of individual drawings formed a major attraction of this new form of entertainment; it was as fascinating as the bringing of images to life.

In its first years, cinema was often referred to as “animated pictures.” To animate means to bring to life, to endow with soul. The first audiences to witness moving pictures thus experienced animation as both a scientific marvel and a magic trick. These animated images came from the confluence of the nineteenth century’s scientific research into perception, the industrialization of precision machines, and a broad cultural fascination with visual illusions. But drawings had already been animated for decades by a variety of devices, often known as “philosophical toys.” Devices such as the phenakistoscope, the zoetrope, and the praxinoscope were operated by hand, and the children and adults who set them in motion both witnessed *and* caused (with the aid of the apparatus) the dialectical leap in perception from still images to visual motion. It was this perceptual transformation that constituted the attraction and pleasure of the toys.

As motion pictures became an industry and a form of mass entertainment, the production of motion was taken out of people’s hands, and the process soon slipped their minds. Moving pictures became a medium, a means of doing other things: telling stories, persuading or educating people, recording performances. The original fascination of generating motion from the single frame faded from consciousness. In the 1970s certain radical film theorists began to decry this suppression of the mechanical work of generating motion as an ideological swindle, a reactionary conspiracy designed to create complacent spectators and conformist citizens out of the masses spellbound before the cinema screen, like the chained prisoners in Plato’s cave. The pleasure of the cinema was denounced as a new opium of the masses. The only way to undo its power of fascination, it was claimed, was to insert a tick into the spoke of the wheel of cinema’s machinery of motion. But, like the film industry they abhorred, these critics seemingly forgot the knowing astonishment that originally accompanied the leap from still image to motion. Is all cinematic pleasure ideologically complicit?

I would claim that the pivot on the single frame that Hannah Frank makes in this book shows us how to restore that original wonder, while also maintaining skepticism and scrutiny regarding how the trick of animation is carried out. Rather than simply decrying the magical illusions that make up the cinema, Frank takes a more complex and materialistic viewpoint, one that never abandons a sense of humor and delight in what these philosophical toys create. She probes the materials and the processes of animation in order to see how things were done, and sometimes how they were *undone*. Her idea that the animation cels should be understood not only as images, but as documents, is revealing. Think of her dissertation title, “Looking at Cartoons.” Most viewers simply

*watch* cartoons, but Frank examines them, treats them as evidence, reads them like documents.

I am very proud to have had Hannah Frank as my student, although with a brilliant student one never can be sure what one taught them and what one learned from them. To my surprise, Hannah took great interest in my own teacher and dissertation adviser, Jay Leyda. Given her early research into Soviet cinema (one of her early possible dissertation topics was Soviet animated films), her interest in Leyda was not surprising. He was, after all, the translator of the writings of Sergei Eisenstein, having studied under this master filmmaker in the Soviet Union in the 1930s. Leyda had also written the first, and still the primary, history of Russian and Soviet cinema, *Kino*. But Soviet cinema did not form the center of Frank's interest in Leyda; rather it was his literary research, specifically the collections he published of source material and original documents dealing with Herman Melville and Emily Dickinson: *The Melville Log: A Documentary Life of Herman Melville, 1819–1891* (1951) and *The Years and Hours of Emily Dickinson* (1960). It was Leyda's passionate engagement with documents that intrigued Frank and offered her a model for her own method. Leyda had approached *The Melville Log* in particular as a cinematic work, an experiment in montage as a mode of literary history. As opposed to a traditional biography, *The Melville Log* juxtaposes documents and expects the reader to compose from them her own picture of Melville and his era. Leon Howard, whose biography of Melville drew on Leyda's research, described *The Melville Log* as "a sort of cinematic experiment in biography, it was new and exciting." Leyda dedicated *The Melville Log* as a "birthday present for my teacher, Sergei Eisenstein."

The cinematic technique of montage inspired a number of scholars in the era before World War II. Leyda's works on Melville and Dickinson were self-consciously modeled on his cinematic lessons from Eisenstein. But two other works of this era show (even though they remained unpublished during their authors' lifetimes) a similar ambition to place a collection of materials before the reader and allow her to make connections. Most famous and influential, even before its posthumous publication, is Walter Benjamin's vast *Arcades Project*, which collects a wide range of documents relating to the commercial and architectural innovation of nineteenth-century urban France, the shopping arcade, and a broad sense of its contexts and implications. As in *The Melville Log*, Benjamin wanted his work to consist of juxtaposed original documents: "This work must develop to the highest point the art of citing without citation marks. Its theory connects most closely to that of montage." Less well known (and still only partially published) is the archive of material on the coming of industrial machines entitled *Pandemonium*, assembled by the British filmmaker and social historian Humphrey Jennings. Jennings considered the unedited original documents he gathered as images in an unfolding film, which each reader would synthesize in her own way.

For these scholars the cinema represented a force that, rather than constituting a separate and isolated medium or art form, flowed across borders like a spring thaw. They recognized cinema not simply as a new art that could be studied, but as a model for understanding modern culture in all its dynamic metamorphoses. Establishing cinema as a serious art form worthy of careful consideration often took the form of emphasizing its difference from previous art forms. As important as this work by early film theorists was for charting the possibilities of cinema, it could also obscure the very strong effect cinema had on modern culture—painting, poetry, novels, architecture, dance. For Eisenstein, Benjamin, and Jennings, cinema's influence transformed the way we thought and perceived the world. And it could shape the way we did criticism. Although Frank does more than present a montage of documents, her method of breaking down the cartoon into its individual images—its *documents*, as she explains—extends this pioneering work of applying the method of cinematic montage to literature, history, and technology. Frank reverse engineers animation, breaking it down frame by frame, moving from a process of illusion into a method of investigation. By applying to animation the very procedure of its creation of motion, she also opens the cartoon to broader discussions of the nature of the film image, and its relation to literature and labor history.

Too often film studies poses a false dilemma: either to focus on the formal aspects of cinema, its unique sensual and aesthetic effects, or to dissolve the medium into a discussion of political, social, and ideological concerns. Frank weaves these approaches together, understanding that form has social implications and motivations, and that technology deals not simply with mechanical processes but with human experience as well. Further, one of the great unrecognized achievements of film studies lies in blurring the aesthetic hierarchies so carefully policed in other art forms. Frank exemplifies this in the way her work moves between commercial cartoons and avant-garde practices. Insofar as recent art movements allow a promiscuous interpenetration of high and low, they primarily evoke irony and social critique (as in Pop art, or postmodernist pastiche), expressing a degree of contempt for either kitsch or classics or both. Cinema as the art of the moving image bleeds across such divisions without invoking scare quotes or indulging in kitschy parody. Although she does not theorize this practice, Frank employs it masterfully, moving for instance between the works of experimentalist Robert Breer and industrialist Walt Disney—not with irony, but believing that each demonstrates a unique mastery of the art of the moving image and the practice of animation, and that they illuminate each other, partly through contrast.

Frank renews for us the joy of looking at cartoons, but it is a joy that does not indulge in childish regression or adolescent snickering. It focuses on insight, critique, and analysis. Frank demonstrates that the process of close examination need not lead to ideological disillusionment or a discourse of sobriety. Knowledge, Franks reminds us, can be an adventure, a wild hunt, a detective story in a search

for evidence, uncovering both pervasive crimes of exploitation and flashes of creativity. Frank's delight in her work comes through not only in her discoveries but also in the energy and wit of her prose. This is a book to learn from—and not only about cartoons.

In closing this essay, which mourns the loss of a brilliant young critic and celebrates her achievement and legacy, I want to return to the 1911 Vitagraph film of Winsor McCay and his four thousand drawings of Little Nemo and his friends. After McCay has completed his mass of drawings, they lie on his desk in towering piles, waiting to be animated. A curious office boy (whom McCay had previously shooed away) sneaks back and pokes around the precarious heaps of paper. Sure enough, they topple onto the floor in a messy pile of disordered leaves. Cowering from McCay's outrage, the boy sits among the mounds of paper, apparently trying to put them back in order, but also still examining them one by one and chuckling in delight. For me, Hannah Frank will always recall this mischievous kid, causing havoc in the intended order of images, but also carefully examining them, thinking about how they should be rearranged, and, of course, chuckling.



## EDITOR'S INTRODUCTION

Daniel Morgan

*My task which I am trying to achieve is, by the power of the written word, to make you hear, to make you feel—it is, before all, to make you see.*

—JOSEPH CONRAD<sup>1</sup>

*Why would anyone bother to slow down an animated film and look at every frame?*

—TOM SITO<sup>2</sup>

There is no subterfuge in what Hannah Frank intends to do with this book. Early on, she writes: “I thus inaugurate a study of the single frame, the single document, in which the tiniest of details—a brushstroke, a shadow, an errant speck of dust—is freighted with historical and, ultimately, political weight” (15). This is the crux of her ambition: to look at cartoons in a specific way—frame by frame—that will allow the process of their production to become visible within the finished films themselves. She wants to be able to see “the tiniest of details,” ones that are ordinarily invisible. And then to grapple with the question of how all of this close looking, all of the emphasis on what lurks beneath the horizon of perception, can be used to reimagine or reconceive our understanding and experience of cartoons. This breathtaking book does not provide a new history of how cartoons were made; it does not uncover new patents or reconceive what we know about the logic of their mass production (a logic that involves both the division of labor and a gendered hierarchy of creative authority). Rather, Frank aims to show that these well-known features of the production of animated cartoons do not hide behind or beneath the cartoons in a separation of industrial history and aesthetic experience. Through her acts of looking, she trains our perception such that we can see how art and industry come back together, and so understand how each enriches the other. These are the criteria that Frank isolates for what she describes as “an art formed on the assembly line” (2). Frame-by-frame analysis is what makes it all happen.

Yet in this early declaration of intent there is something beyond a description of the book's central premise. We hear the voice of a young scholar looking toward her own future. Her "I thus inaugurate" heralds the pages that follow, but it also suggests all the works to come. The tone is ambitious and confident: she is aware that she has a program that no one else could imagine undertaking, much less be capable of achieving. The words announce the beginning of a career, and with it the promise of a unique and original voice within the field. It is the mark of a future star.

This was not to be. On August 28, 2017, Hannah Frank died of bacterial meningitis at the age of thirty-three. She had completed only a single year of teaching at the University of North Carolina Wilmington, where she had already become a cherished member of that community. The future she should have had remains a promise found in the memories of those who knew her, and in her own words.

Frank's voice shines throughout the pages of this book. You hear it in her accounts of the cartoons she discusses, and when she describes what happens to our understanding of them once we start looking at the individual frames. But her voice emerges most clearly in the discussions of method:

The viewer of animated cartoons must work, too. . . . Looking at cartoons frame by frame is labor intensive—tiring, tedious. Yet her attention and her will must never waver. A single frame, so easily overlooked, might contain a pencil drawing that wasn't meant to be photographed, a profusion of feathery brushstrokes, a telling fingerprint. At the same time, she must also *play*. The monotony of frame-by-frame analysis leads one to daydream. . . . *What if?*, I ask again and again. What if we looked at works of cel animation like we do microform periodicals? What if we thought through cel animation's photographic basis in accordance with both realist and materialist theories of cinema? What if we treated each cel as a work of art in its own right? What if we compared inkers to secretaries? These questions, and the ones that emerge from them, are meant to test the limits of animation. (152)

This voice is after large questions, aimed at understanding the political economy of cartoons by way of the traces of their production left in the finished product. But it is also whimsical, aware of the vagaries of attention—not just as a flaw but as a model for an approach. One daydreams; one plays; one wonders.

In thinking about Frank's voice, and how to account for its power, I've sometimes turned for comparison to the early work of Stanley Cavell. This is less for the aspects of his philosophical method than for his critical voice, and the way that an act of looking—of looking very hard at something—can produce an explosion of what had always almost been in plain sight. Take this discussion of a phrase from *Romeo and Juliet*:

Now suppose I am asked what someone means who says, "Juliet is the sun." . . . I shall *not* try to put the thought another way. . . . I may say something like: Romeo means that Juliet is the warmth of his world; that his day begins with her; that only

in her nourishment can he grow. And his declaration suggests that the moon, which other lovers use as emblems of their love, is merely her reflected light, and dead in comparison; and so on. In a word, I paraphrase it.<sup>3</sup>

This is criticism of the highest order, combining eloquence with insight. Frank's writing shares the ability to transform our understanding, even our basic perception, of artworks with which we believe ourselves already intimate. The cartoons she discusses, and the characters who inhabit them, are utterly familiar: Mickey Mouse, Bugs Bunny, Woody Woodpecker, Popeye, Daffy Duck, Tom and Jerry, and so many more. We grew up with them—and perhaps for that reason we have never fully examined them. *Frame by Frame* trains us to see them anew, to grasp their freshness and depth.

There is, though, a crucial difference between Cavell and Frank, and it has to do with the perception of the labor of the critic. Cavell's analysis of *Romeo and Juliet* is certainly careful, thought through, studied; it took immense skill and effort to produce that reading. Yet his prose works hard to seem effortless: the casual "and so on" suggests that the reading was produced more or less off the cuff and could be continued at will.<sup>4</sup> This is not Frank's aim, nor her style. How could it be? "Imagine," she asks us in the opening words of the book, "studying a building not by walking its hallways or perusing its blueprints, but by examining each of its bricks: the pockmarks produced by air bubbles in the clay, the whorls of reds and browns, the trowel's impressions in the mortar. Imagine evaluating a mosaic not for the bigger picture but for the glint of individual tesserae. Or imagine not watching a film but looking at it frame by frame" (1). This is not just about a relation of part to whole, but about the work it takes to see—much less to examine—all these minutiae. *Frame by Frame* is built on an astonishing foundation of labor, a feat of viewing that required moving through somewhere in the vicinity of two million frames of animated cartoons.

Frank does not address her own work, the gargantuan yet mundane task of such a project of viewing, with the aim of garnering sympathy or favor. She regards this effort as one demanded by the very objects she is talking about. Repetitive work was crucial to the production of cartoons in studios, an unglamorous but necessary set of jobs—inking, in-betweening, et cetera—that were marked as uncreative but made what was called creative work a possibility. This work, moreover, was largely performed by women, who had little hope of advancing to more prestigious positions. In making the display of her own labor visible in her writing, Frank draws an affinity between her project and the uncredited work of the women who actually produced the images we see in the final cartoons. Part of the book's politics is thus enmeshed in its very method.

This method, the frame-by-frame approach, is what holds the book together. Over the course of its pages, Frank discusses an extraordinary range of topics, including the aesthetics of cel animation; the industrial organization of animation



studios; the technical history of animation; xerography; the relation between live-action and animated films; theories of montage; microfilm; Soviet cinema; abstract art; theories of authorship; the avant-garde; and deep-focus cinematography. In her hands, these topics turn out to bear directly on one another, but never in familiar ways. Every time you think you have an argument pinned down, the contours of a discussion mapped out, it becomes something else and leads not only into new sets of problems but into unexpected and surprisingly compelling ways of seeing and understanding the original one. If the ostensible topic of the book is cel animation in US studios, its insights range far beyond that—put differently, it shows how thinking about animation matters urgently to a range of debates and discourses.

*Frame by Frame* is basically the dissertation that Frank defended in August 2016. It is not the book that she would have published. In the months before her death, Frank had begun to think about how she might revise and change it. The part of *Frame by Frame* that dealt with Disney in the 1950s would be saved for its own book, while this book would incorporate much of the material from the dissertation but also expand to cover in more detail various techniques—whip pans, flicker effects, streaking effects—that bring cel animation into conversation with the strategies of experimental cinema. These books, surviving only in fragments and notes, will never be written. But what is contained here offers far more than testimony to the dream of what would have been; it is a powerful and original work, one that stands on its own as a significant piece of scholarship and intellectual inquiry.

There should have been more. More books, more essays, more reflections. Frank published only a few articles while she was alive. Two of these were on animation. One, drawn from the first two chapters of this manuscript and titled “Traces of the World: Cel Animation and Photography,” won the 2017 Norman McLaren—Evelyn Lambart Award for Best Scholarly Article in Animation.<sup>5</sup> The other was a study of affinities—actual and potential—between US and Soviet animation over a period that mostly covered the 1930s and 1940s.<sup>6</sup> Frank also wrote on Sergei Eisenstein: an essay on his drawings of *Macbeth*, and an account of how he read other authors.<sup>7</sup> And she wrote on the under-studied practice of synthetic sound, the fantasy of creating sound without any referent in the world.<sup>8</sup> At the time of her death she was involved in a range of other writing projects, from a study of Disney’s wildlife films of the 1950s—and the way special effects were used there—to an account of Paul Thomas Anderson’s *The Master* (2012) that focused on the intersection between the film’s use of a 70mm format and a reading of Scientology as a media theory. These projects, and the innumerable others that would have sprung from her, must remain incomplete or unrealized. We are the worse for that.

What we are left with is this extraordinary book. Its arguments are careful and nuanced, yet brim with a wild originality—not only Frank’s knowledge that she

could find something hitherto unseen in the individual frames of cel animation, but her confidence that she could draw out vast and compelling consequences from those fragments. And there is of course her voice. It is utterly unique: at once sharp, critical, generous, and above all playful. To look at cartoons frame by frame, she says, is to undertake a method that functions as a form of play, a kind of game that one plays with the films being seen. What a pleasure it is to play this game with her. If, as she writes in the concluding lines, "Looking is laborious. But looking is also dreaming" (156)—well, that is where we are now, with the book we have and the dream of what could have been. We are fortunate to have this much.

#### FRAME BY FRAME

The book works by wondering about a question: What is it like to look at animation frame by frame? It's not, after all, even clear that one *should*. Buried in a footnote, Frank quotes the animator Tom Sito: "Why would anyone bother to slow down an animated film and look at every frame?" (176n15). It's a fair question: What is to be gained by undertaking this obsessive analysis? Why would you stop the movement of the film, and the play of the figures, in order to see what's in each frame? What do you think you'll see there that you couldn't see otherwise?

Answering these questions is the burden of Frank's project. One response follows the logic of discovery: "I am able to look past their immediate attractions—the plasmatic, free-form, potent movement of painted bodies—toward those elements of the image that are static (a newspaper insert, a background painting) or repeated (cycled motion) or fleeting (flicker) or imperceptible (a single frame)" (153). The extraordinary and unexpected things she finds there—and then what she does with them—are the deep pleasures and joys of this book.

We see the power of this logic throughout the manuscript. In one section, for example, Frank analyzes instances of what she calls "retinal bombardment": "brief 'flicker' sequences consisting of the rapid alternation of all-black and all-white frames or positive and negative images—sequences meant to evoke blinding pulsations of lightning or elicit the sort of somatic overload brought on by shock" (24). Thus, in Walter Lantz's *\$21 a Day (Once a Month)* (Universal, 1941), a dog stuffs pillows into the holes in a sleeping turtle's shell; as the turtle breathes, the shell swells up and then explodes, leaving the turtle—in red pajamas—hanging on a hook. Frank remarks:

Nearly every frame stands as the sole record of an ephemeral document: a stack of transparent celluloid sheets, each one uniquely painted and inked, set against a static background painting. Every other frame, however, records not a cel setup but a white sheet of paper. The alternation between colorful representations of the struggling turtle and white frames creates a flicker effect that serves to enhance the visual impact of the explosion. (25)

This is a familiar kind of comic gag, repeated so often that its significance as a formal technique can go unnoticed. Frank surfaces it to examine how the alternations of black and white frames create their stroboscopic effect. Even more, she sees in it an important affinity with flicker films by Peter Kubelka, Paul Sharits, and other members of the 1960s and 1970s avant-garde. The lesson is not least about how a technique thought to be the privileged terrain of the avant-garde shows up within the very texture, the material substrate, of seemingly innocuous cartoons.

That conclusion would be enough to justify attention, but as a method it wouldn't be entirely unusual. Looking at a film frame by frame, after all, is not a new idea. Vlada Petric broke down Dziga Vertov's *Man with a Movie Camera* (1929) into its constituent frames, and from there was able to see patterns and structures underlying its most virtuosic effects. Noting the frequency of sequences constructed out of shots of one and two frames—either of different subjects or of black frames—Petric argues that they work to “subliminally stimulate” the viewer toward a given end.<sup>9</sup> There are also important examples from scholarship on animation.<sup>10</sup> In each case, frame-by-frame analysis enables the discovery of how things actually work, a fine-grained study that shows exactly how and why viewers are being affected.

Frank is doing something else, and it is this shift in orientation that produces discoveries that can astonish a reader. In the case of *\$21 a Day (Once a Month)*, as she works through the alternating white frames she notices something startling: “The particular white sheet of paper that has been photographed . . . is not blank, but rather bears a sketch of Woody Woodpecker, Walter Lantz's most famous cartoon star” (25). What a thing to suddenly see! And this sketch, Frank discovers after yet more viewing, is already from a frame in Alex Lovy's *Knock Knock* (Universal, 1940), made the previous year and (as it happens) the very first film to feature Woody Woodpecker. The camera operator, tasked with photographing a white sheet of paper, inserted—whether intentionally or not—a sheet that was not entirely blank. The light sketch in the white background, a frame that in the film alternates with frames showing the explosion of the turtle, only becomes visible when examined at the slow pace of frame-by-frame analysis. It challenges the very idea of what we thought we were seeing; it is the discovery of a world beneath the world.

What Frank realized is that she could find such phenomena throughout the history of US animated cartoons. She discovers, for example, a similar trace of a sketch in Bob Clampett's *A Gruesome Twosome* (Warner Bros., 1945), where a white frame is inserted at the moment a character is hit on the head by a club. Treating this frame as a photograph of a piece of paper, and isolating it from the flow of the film, Frank notices a “pencil drawing of a dog's head, which served as the basis for a cel painting that appears about twenty seconds earlier in the same film” (24). There are others. Frank finds frames in which mistakes were made in the

photographing (cels are flipped or even left out; the finger of the camera operator is still present); frames in which camera ephemera are preserved (traced characters from other cartoons); frames in which representation breaks down (smeared paint to depict fast movement; abstract patterns to represent explosions); frames in which the effects of the camera are visible (the presence of Newton's rings, or concentric circles on the image; the recording of dust motes attached to the cel). *Frame by Frame* catalogues these hidden moments.

These phenomena constitute the archive that the book mines for its insights, and which is the foundation of its originality. It is a unique kind of archive. Frank does not discover an archive that already exists—one that is, in a sense, out there in the world. The archive of *Frame by Frame* is the archive of frames, the archive of what she discovers by looking; it is the archive she creates.<sup>11</sup>

What Frank pulls out of this archive are the traces of the production process that allowed the Golden Age of cartoons to flourish, that made possible everything that came out of Disney, Warner Bros., Universal, and others. But Frank is not telling a conventional history; she is after something else. What traces of this production, she asks, can be seen in the films themselves? How does our perception of these traces change the way we see the films? These are questions, she says over and over again, that move between the epistemological and the aesthetic. Epistemological, because the actual objects that were produced—the cels themselves—are by and large no longer extant, either thrown away or washed and recycled for future use. Aesthetic, because there is a question of how this production process shaped the actual cartoons that we watch: “Even a mistake in a single frame can quake the world of the film. *Did I just see that?*” (57).

It is at the intersection of epistemology and aesthetics—about how “epistemological concerns . . . become a site of aesthetic inquiry” (47)—that Frank's frame-by-frame approach, and the archive she simultaneously discovers and creates, marks a distinct innovation within animation studies. That there is a divergence between the way we experience cartoons and the mode of production that makes them is a familiar claim about Hollywood animation. Eisenstein observed that the experience of freedom in Disney cartoons exists within the context of a social organization of labor that precludes the reality of that freedom.<sup>12</sup> Paul Wells makes the connection to Disney's own labor practice explicit,<sup>13</sup> while Scott Bukatman extends the argument to a condition of the medium itself:

Labor and anima, then, might be regarded as the elemental forces creating a dialectical tension that informs the early history of animation, a dialectic that centers on the energy of onscreen animated characters. . . . Writers on animation continually circle around the tension between the anarchic polymorphous perversity that it presents and the hyperregulated mode of production that produces it. Animation as an *idea* speaks to life, autonomy, movement, freedom, while animation as a *mode of production* speaks to division of labor, precision of control, abundances of preplanning, the preclusion of the random.<sup>14</sup>

As Bukatman notes, much of this discussion is centered around the depiction of characters who seem to come to life, to gain *anima*, by virtue of the seemingly spontaneous way in which they move—despite the fact that they are drawn in static poses, shot frame by frame, and animated on the assembly line.

Frank incorporates this opposition, but reorients it through two perspectival shifts she effects in thinking about animation. The first is to take seriously the fact that cel animation is a photographic medium. If one regards every frame of an animated film as a unique photograph, one could subject each frame to a range of investigative questions that would move from the composition of the image itself to the history of its production. As a photograph, the frame becomes a document. The second pushes against the most prominent way of thinking about animation: as a medium that creates an impression of reality, of liveliness, from the perpetual motion of its forms. Frame-by-frame analysis stops that motion—in effect, taking the animation out of animation—allowing aspects of the animated image to become visible for the first time.

These shifts go together, generating a new way of conceiving the intersection between the form of the cartoons, their aesthetic organization, and the epistemological questions raised by historical investigations into documents. More precisely, to see the unseen industrial labor behind the cartoon in the finished film, we have to interrupt its flow. As she notes, once the cartoons start to move, we are helpless before their pleasure: “To *remember* that animation is photography is not enough, for memory cannot compete with the present tense of the animated cartoon” (49). Again, Frank is using a familiar trope for new purposes. In one of the key texts of film theory from the 1970s, Jean-Louis Baudry lamented how difficult it was to resist being pulled along by the movement of a film, the successive and inevitable appearance of images that draw the viewer along. Filmmakers, he argued, needed to create films that would disrupt that experience.<sup>15</sup> Frank wonders what the viewer, on their own, might be able to do. The frame-by-frame approach is her tool to prevent such immersion. Frame-by-frame looking forces us to stop the flow of the cartoons, and make the pause button and step-by-step playback regular parts of our viewing experience.<sup>16</sup> To draw on a different critical language, we could say that frame-by-frame analysis works for Frank as a kind of eidetic reduction, a bracketing of the world that allows for attention to a specific phenomenon.

This is why finding the errors matters for Frank. They are moments when we can see cartoons differently, when the work of the uncredited artists—men and women, though mostly women—whose art we actually see on-screen comes to the fore. When we learn to see in an accidentally flipped cel “Daffy Duck’s gloppy underside, in which his bill lacks details like lips and nostrils and his hands distinct fingers” (60), we catch a glimpse of the work of the Paint Department and the traces of the women who labored there. Or when we can notice that Bugs’s head disappears for a frame in *Hair-Raising Hare* (Warner Bros., 1946): “Just like

that, we realize he has been painted in sections, his head on one cel and his body on another, and we see both the total coherence of Bugs's graphic design (insofar as every part of him is reacting in some way to Gossamer's physical threat) and the completely fragmented labor process that necessitated dividing him across several cels" (58). Or when we can look at movement and explosions and see in them the constitutive smears, abstract patterns, and other visual forms in which the parameters of representation are stretched to their limits:

The frame-by-frame examination of almost any animated cartoon will uncover at least one drawing, one cel, that seems out of place. It may, in the flow of the action, go unnoticed—but in isolation it is too puzzling, too wonderful, and often too abstract to be ignored. Perhaps it is the flurry of brushstrokes that seizes one's attention, or perhaps one is seduced by its radical minimalism or overwhelmed by its cacophonous colors. (90)

This is the wondrousness of the work of the assembly line, of the people whose job it was to translate the vision of the lead animators into the images that made it on-screen; it reveals what Frank describes as "the importance of noncreative labor, such as in-betweening" (78). These cels—really, these paintings—were all made by people who went uncredited in the cartoons but who produced images of stunning beauty. Watching the films at normal speed, the frames flow by under the guise of representational continuity; stilled in the frame-by-frame approach, they emerge as artworks in their own right.

Here we can come back to Frank's discovery of the sketch of Woody Woodpecker in the white frame from *\$21 a Day (Once a Month)*. Once one sees it, Frank notes, "one is thus brought back to the sequence's creation." But how do we learn about this creation? Any actual information about the production of a specific frame no longer exists (if any record of it ever did). This is a familiar kind of gap in historical arguments, and Frank fills in all the details from what we know about how cartoons were typically made: "The camera operator, the technician assigned what is notoriously the most tedious of studio tasks, arranging first the cels against the static background, then taking a photograph, then removing the cels and the background and putting the sheet of paper in their place, then taking a photograph, then replacing the background and arranging a new stack of cels, and so on" (25). But her genius is to ask questions that center around the activity of speculation, the articulation of what Frank, quoting Thomas Elsaesser, labels "possibilist histories."<sup>17</sup> She wonders: "Did the camera operator know Woody would be visible in the final film? Is it only possible to see him because *\$21 a Day (Once a Month)* can today be viewed via a 'restored' digital copy, one that perhaps brightened an image that the camera operator had intended to be obscure? These are facts that cannot be retrieved" (25). Her insight resides in the mapping of what we don't, or can't, know.

Frank frames this as a problem about the accessibility of evidence, though she is not quite clear on how to describe it. At times she says it as a matter of

“epistemological instability” (16); at other points it has to do with “epistemological uncertainty” (80). There is a difference in orientation between the terms, revolving around whether it is something inherent in the object itself or in our approach to it. Either way, Frank sees an epistemological dilemma as inevitable, and as irresolvable. As she put it elsewhere, “To deal with the image alone is to confront continual epistemological instability, only some of which can be satisfied by secondary sources. No matter how long one dwells on the material properties of the image—from the grain of the film stock to the fiber of the background water-color paper—certain practical questions remain, which then open onto deeper epistemological and ontological debates.”<sup>18</sup> What matters is the question of how one deals with the epistemological gap.

The speculative dimension of Frank's work cannot be overstated. Take this statement: “With *Little Nemo in Slumberland*, [Winsor] McCay set out to make ‘four thousand drawings that will move,’ and it is this movement we take to be its initial attraction—but no less astonishing is the filmstrip's frame-by-frame preservation of four thousand (give or take) individual drawings. Four thousand, coincidentally, is the number of photographs that Walter Benjamin, writing in 1931, attributed to Eugène Atget, while ten thousand is the number scholars now estimate him to have taken” (14). Obviously, there are factual truths and analytic insights here, about both McCay and Benjamin. But what about the “coincidentally” that Frank places in the midst of this? What kind of history is told like this? How are McCay and Benjamin related through matters such as numbers of images? These are real questions to ask of Frank's arguments, but it is important at such moments not to dismiss her historical claims. *Frame by Frame* is a meticulously researched book, based on exhaustive studies of industrial organization—both written and oral histories—visceral knowledge of the various production processes employed by the studios, and a full sense of historical context. The point for Frank, though, is to go beyond that. What matters are the speculations, the discovery of contingent affinities that allow her to develop her arguments. And these arguments, built out of but not limited to historical research, are what turn speculative questions into historical knowledge. The proof of the pudding will be in the eating.

Take her interest in the appearance of newspapers within cartoons. Frank realized that animators likely saved time and effort by using the template of an existing newspaper and inserting only a single new story. This allows her to look for the original newspapers, to read them against the images she finds, and from there to ask questions. Discussing a newspaper in Bob Clampett's *Tortoise Wins By a Hare* (Warner Bros., 1943), she notes a joke headline inserted into a copy of the *Chicago Sunday Tribune*: “Adolph [sic] Hitler Commits Suicide.” And then wonders:

Whose idea was it? Who wrote it? How could they possibly know that Hitler *would*, eventually, commit suicide? What is all the more fascinating is that Clampett would then reuse this mock newspaper at least two more times—first in *Fighting*

*Tools* (Warner Bros.), released October 13, 1943, and again in *What's Cookin', Doc?* (Warner Bros.), released January 8, 1944—each time altering the name of the newspaper, as well as the major headline and accompanying illustration, but never removing the reference to Hitler's suicide. (38)

It is one thing to stop a film to look at a paper; another to catalogue all the examples of newspapers and to see that the same image of a paper is reused; and still another to speculate on the evidence. Frank does all of these, and then brings them together in a single vision that we can use to see within the cartoon. Through its reuse, the fake headline becomes a historical document in its own right.

This is a glorious aspect of Frank's work—what sets it apart. Immersed as the author is in materialist analysis, historical discoveries, and formal studies, she is equally a dreamer. The phenomena she finds allow her to postulate the existence of untold histories, to imagine what it would have been like to work on these images, and to dream of the possibility of errors as intentional acts—moments in which an anonymous inker created a mistake that she could point to as proof of her own agency. It gives Frank's project a utopian, even redemptive dimension, one that revolves around the work of the unheralded workers who produced the cartoons.<sup>19</sup> Their stories have been told, to be sure, but they are often situated on the margins: fleshing out context, filling in details, creating minor histories. Frank wants to make their work legible in the cartoons themselves, to demonstrate that it was never invisible. This is what she needs to train her readers to see, so that they can look past the names of characters and animators—and studios—and see in the image the traces of the work that went into production.

To make the study of the production of cartoons matter for aesthetic analysis, one doesn't have to return to the tension over the seen and the unseen—a divergence between art and labor. What Frank shows is that it's precisely in their gestures back to their own production (intentional or not) that cartoons reveal their hidden power. The speculative questions she poses articulate the object of study, create new historical and aesthetic insights, and provide a path for us as readers to change our modes of viewership—to begin to wonder what we're looking at, and where such thoughts might lead us.<sup>20</sup>

#### THROUGH AVANT-GARDE EYES

If the frame-by-frame method is motivated by the desire both to disrupt the flow of the animated world and to treat animation as a succession of photographs—that is, as a succession of documents—the insights Frank gains from that approach reverberate outward. Central to this shift is the intersection of her project with the formative influence of a history of avant-garde cinema—especially that of structural film and its aftermath. There is an echo in this of Tom Gunning's celebrated argument for the connection between early cinema and the energies of



the avant-garde, with overlooked aspects of a “cinema of attractions” reemerging decades later as the foundation of an alternative cinematic practice.<sup>21</sup> Frank's approach is less causal. In cartoons (seen frame by frame) and the avant-garde she finds a shared interest in the movement between aesthetics and epistemology, between art and document. It is a restless exchange that becomes productive for thinking.

There are some formal affinities. Frank was interested in recent work by Martin Arnold such as *Whistle Stop* (2014), in which a brief fragment of Daffy Duck is subjected to Arnold's familiar battery of halts, repetitions, extensions, and reversals. These effects show that Arnold, too, saw the work that goes into animation. He recognized that animation is not a continuous unfolding of movement but the accumulation of individual images, and that they can be manipulated like other photographic media. But where Arnold used this knowledge as a basis for visual play, Frank takes it as part of aesthetic experience and draws wild epistemological and ontological conclusions from it, conclusions that span formal analysis, labor history, and the very material of film—and film history—itsself.

The connection to the avant-garde goes deeper. Frank's very understanding of the frame-by-frame method is based on similar forms of film production found in avant-garde films. This is one of the reasons for the importance of Robert Breer. *Blazes* (1961), which Frank takes as a model for her own work, is built out of the patterning of images on a hundred index cards. (She quotes Breer: “Those cards are frames. And so I am playing with a piece of film, really. I am editing with individual frames” [22].) The alternation of images in *Blazes* is often at the level of individual frames, shifting rapidly at the limits of perception—though also combined with longer pauses on individual images, as if inviting the viewer to contemplate a specific image before the rapid-fire montage resumes. Frank also finds attention to individual frames in the work of Stan Brakhage, Peter Kubelka, Martin Arnold, and other exemplary figures of the (largely) US avant-garde.

She derives two types of methodological orientation from the examples of Breer and others. The first is how such disruptive editing patterns produce new connections, a process she describes as a type of montage. As she puts it with respect to *Blazes*, “By overcoming the filmstrip's linear logic, these sequences invite us to treat them as if they were fragments of a montage—comparing them, linking them, interweaving them” (11); “Breer, in essence, re-sorts and cross-references his index cards, thereby allowing new connections to be forged between previously disparate documents” (20). Frank thus implies of her own method that by halting the movement of animated cartoons, and showing the details that can then be excavated, the individual frames become available to be placed into a combination that resembles the montage possibilities of Breer's films. The model here is

that of the creation of the archive as an act of montage, one that finds its inspiration in Walter Benjamin's *Arcades Project* and—though curiously undiscussed by Frank—Aby Warburg's *Mnemosyne Atlas*.<sup>22</sup> Warburg's project, strikingly similar to Frank's, was to create a form of art historical knowledge by isolating minor details (drapery, footwear, hair) from paintings and sculptures. Photocopying them, he could arrange and rearrange the images in various patterns on a large board, and their organization alone would teach the viewer about the development and transformation of visual style.<sup>23</sup>

Warburg's ambition exemplifies the second methodological orientation: the creation of the montage structure of fragments is designed to introduce a change in the viewer's perception of the images. For Warburg, this meant the ability to understand historical connections between disparate and fragmentary objects. For Breer, it is about the very perception of the film itself, which Jonas Mekas—quoted by Frank—describes: "Our eye has expanded, our eye reactions have quickened. We have learned to see a little bit better" (41). If Frank is a historian of the image in a way that Warburg would recognize, she is also attuned to the transformative power on our perceptual apparatus that Mekas indicates. In this vein, paying attention to the individual frame does not go against our experience of cartoons, but rather subtly yet profoundly changes it. What we learn by looking matters for how we watch, and for what we do with what we see: "Ultimately, the labor that shapes our aesthetic experience of animated cartoons is our own. . . . It is not only our attention and will that gives the film meaning, but also our imagination" (155). Knowing from the disappearance of Bugs Bunny's head in successive frames of *Hair-Raising Hare* that cels can be overlooked, we can start to wonder what the cartoon we're watching might look like—or might be imagined to be—were we think of its constituent cels as potential elements of a nonlinear montage. We can start to break apart the smoothness of the film as we watch it—in other words, to treat the animated cartoons as if they were bona fide members of the avant-garde.

It's in the context of Frank's investment in the avant-garde that we can understand one of the most peculiar aspects of *Frame by Frame*. To describe her method in the first chapter, she turns to books of ephemera from Emily Dickinson and Herman Melville that were produced by Jay Leyda.<sup>24</sup> Leyda is known largely as the first translator of Eisenstein's works, and his books *Film Sense* (1947) and *Film Form* (1949) were guides to aspiring filmmakers and film critics for decades.<sup>25</sup> He also wrote important early histories of Soviet and Chinese cinemas, and was a guiding presence at NYU for students in cinema studies. Yet what Frank focuses on are not his studies of cinema but the methodological questions he posed by creating accounts of major literary figures through careful juxtapositions of associated documents. This is a striking move on Frank's part. No one else has seen in these books a model for thinking about cinema, much

less animation, and no one has been so creative with such eccentric source materials. Again, Frank makes it work. She writes of Leyda's books on Dickinson and Melville:

While chronology is the overall structuring principle, Leyda is most interested in what happens on a smaller scale, through juxtaposition. In his introduction to *The Melville Log*, for instance, he argues that "the relation *between* two documents, *among* a cluster of documents . . . tells us far more than we would ever have guessed by examining them singly," and that "these invisible relationships speak not only of Melville but of the historical climate in which he worked and died." (28)

If Warburg created a montage of fragments as a way to do art history, Leyda presents documents from the lives of Dickinson and Melville as a kind of speculative literary history. The fragments may or may not mean anything; they may or may not reveal secret histories; and the indeterminacy is what requires speculation to be a part of literary history. Yet this speculative history is at its core deeply materialist: "[Leyda] thought of books not as immaterial texts whose material is only incidental but rather as historical artifacts that exist as concrete objects capable of circulating through social networks, bearing notes in their margins, and surfacing in unexpected contexts" (30).

Leyda, then, provides a model for Frank that shows how to take the material context in which works are embedded—including, in the case of Dickinson, the details of the paper on which she wrote—and use the combinations of fragments to generate new questions. Equally important, however, is the figure of Leyda himself, who provides links among Frank's range of methodological interests, drawing into the orbit of his own practice the theorization of montage in Eisenstein and Benjamin.<sup>26</sup> Eisenstein's model could be emphatically determinate—"a tractor plowing over the audience's psyche," as he once put it<sup>27</sup>—but for Benjamin (as for Leyda) the result of the montage was not given in advance. Indeed, Benjamin's very idea of the dialectical image involves sudden theoretical insights that link together disparate phenomena through the illumination of juxtaposition.<sup>28</sup>

Frank aims to elicit this model of montage within animated cartoons. If much of this is what she discovers through frame-by-frame analysis, it is also simply there in the cartoons themselves:

Many animated cartoons contain moments that serve to disrupt the linearity of the filmstrip, breaking the forward flow of the animation. These include flicker sequences that consist of the rapid alternation of distinct frames, which causes the animation to stutter and strobe, and expository inserts such as newspapers, which grind the animation to a halt. By overcoming the filmstrip's linear logic, these sequences invite us to treat them as if they were fragments of a montage—comparing them, linking them, interweaving them. (11)

This requires a shift in perception, almost a change in aspect, in which a work of art, whether a drawn image or a fragment of a film, suddenly becomes a document—a document that presents its own information, but also connects to a wider context, whether that is of the production process or of the historical moment to which it belongs. Frank remarks admiringly of Benjamin that he “reads not only documents as art, but art as documents” (35–6). This switching is itself part of the avant-garde: where Robert Breer’s *Jamestown Balloos* (1957) treats the microfilm document as the subject for art, Ken Jacobs’s *Tom, Tom, the Piper’s Son* (1969) scrolls through the frames of a film as if it were placed on a microfilm machine (41–3).<sup>29</sup>

Frank seeks to harness these energies: “By straining our eyes, we can understand animated cartoons dialectically, as historical documents *and* aesthetic objects, not just one or the other” (43). Yet the path that Leyda takes—or that Eisenstein and Benjamin imagine—is not open to her. Leyda’s books on Dickinson and Melville succeed precisely because he had access to an array of contextual material that could be used to create juxtapositions around the source object. Frank simply has the finished cartoons, the only surviving traces of the industrial production process that created them. The original cels, the material documents, were destroyed, discarded, or reused. They no longer exist, and so the montage of fragments cannot get going, cannot have meanings arise naturally from combinations of the objects themselves. Frank must produce the criticism that will allow the elements of montage to become legible in the way they require.

This is the role of the speculative questions Frank asks of the errors, smears, and contingencies she finds in the frames of cartoons. We can hear in her project an echo of a distinction drawn by Hollis Frampton:

The historian of cinema faces an appalling problem. Seeking in his subject some principle of intelligibility, he is obliged to make himself responsible for every frame of film in existence. For the history of cinema consists precisely of every film that has ever been made, for any purpose whatever. . . . The historian dares neither select nor ignore, for if he does, the treasure will surely escape him. The metahistorian of cinema, on the other hand, is occupied with inventing a tradition, that is, a coherent, wieldy set of discrete monuments, meant to inseminate resonant constancy into the growing body of his art. . . . Such works may not exist, and then it is his duty to make them. Or they may exist already, somewhere outside the intentional precincts of art. . . . And then he must remake them.<sup>30</sup>

To be sure, Frank is not Frampton. She is not aiming to found a tradition, certainly not one based on a set of “discrete monuments.” Indeed, part of the aim of looking at “art on the assembly line” is precisely to discourage a lineage of thinking that privileges the individual work and the singular artist. She even takes Eisenstein to task for succumbing to this tendency: “While Eisenstein did claim to ‘believe

very strongly in the principle of collectivism in work,' his ultimate interest was in the singular genius, in the great man" (89); "creative visionaries like Leonardo da Vinci or Rockwell Kent (or Walt Disney) . . . are primarily responsible for great works of art, and the social context in which each of these figures worked is a secondary concern" (89). Not so for Frank. Though she admits fascination with "the fetishized signature" (89), the hallmarks of the Eliot-inspired modernism that Frampton embraces are missing. There is no privileging of high art; no lists of figures and artworks out of which a tradition might be built. There is only the mass of cartoons, the explosions of everyday pleasures that reveal mysteries in the minute details of their construction.

Still, we can see how Frank's work blurs the distinction between historian and metahistorian. If her approach comes close to invoking a "responsibility for every frame of film in existence," the speculations that result belong to the inventiveness that Frampton reserves for the metahistorian. For example, when Frank sees in *Meet John Doughboy* (Warner Bros., 1941) a newspaper with a headline, "Sitdown Starts Big Ford Strike at Dearborn Plant," she is able to weave a story about this fragment that goes outside the "intentional precincts of art." Part of this turns on the status of the frame as a document: Frank looks for the article in the *Los Angeles Examiner* archives and finds it, but with a different headline. She infers: "The altered version of the *Examiner* that made its way into the cartoon is from an edition—the '9 A.M. Extra,' presumably—that has not been preserved on microfilm" (39). Thus, the film frame presents a unique document; it may in fact be the only existing record of this edition of the newspaper. But Frank goes on. Thinking about the content of the headline, a wildcat strike lasting ten days, she suspects that the delay between production and release likely meant that the event had been forgotten. The fact of the strike itself, though, leads to a new history. In the months after the cartoon was made, Warner Bros. producer Leon Schlesinger locked out his animators, and then shortly thereafter (May 1941) the Disney animators went on strike (and Warner Bros. animators picketed in solidarity). This is not a mistake like an absent cel, nor an oversight like the appearance of a sketch on a blank piece of paper. But it contains historical puzzles as well, and it is the gaps—both historical and epistemological—that Frank finds in the newspapers that open space for her to speculate.

Certainly this is not a straightforward history; there is no claim of a direct relation between the cartoon's production and release and the labor unrest that was going on. But the headlines, Frank thinks, allow us fortuitous access to this historical moment, a way to bring events into new patterns and constellations. Alluding to Benjamin's *Arcades Project*, she writes: "The dialectic between art and labor, between the aesthetic object and the historical document, is articulated in this three-month interstice" (40). The metahistorical impulse finds a way to move forward. This is how speculative stories are themselves forms of historical knowledge—a lesson from and for the avant-garde.

PHOTOGRAPHY AND OTHER REPRODUCTIVE  
PRACTICES

Frank's use of the term "document" produces an interesting wrinkle in her account. One of the central ambitions of *Frame by Frame* is to take seriously the idea of animation as a photographic medium—not just to give an account of the technical practice but to use this fact to rethink animation's place within the history of film theory. The link between animation and photography has been a vexed topic. Of course scholars know that cartoons were photographed, that any frame in cel animation was made when the cels were placed on top of each other and positioned underneath a camera, and a photograph of them taken. But understanding how to draw consequences from this has proved difficult. For theories interested in cinema as a photographic medium, animation has no clear place. This view is found throughout classical film theory, and was put succinctly by Stanley Cavell: "Cartoons are not movies"—and therefore do not have to be treated in the way that films are.<sup>31</sup> But defenders of animation are no less fond of this binary opposition. Lev Manovich argues that animation is the key to understanding digital cinema against the history of photographic media. Esther Leslie seized on animation's freedom from photography's burden of verisimilitude to demonstrate the possibilities of a radical cinema. Even Karen Beckman's *Animating Film Theory* (2014) largely treats animation as a separate history from photographic cinema.<sup>32</sup> What this means is that, historically, animation has been defined as what cinema is not. The radical gesture Frank undertakes is to show that the two are inextricably intertwined, and to insist that we treat each cartoon seriously as a succession of photographic documents.

This move has, she thinks, a range of consequences. At a basic level, Frank wants to show that treating animation as a photographic practice means that you can see it as offering a view of the world. This is precisely what theorists such as Cavell denied, as they argued that the frame in photographic media demarcates a continuous space that extends into off-screen, whereas the ontology of drawn or painted media means that one could not reliably ask what lay beyond the border. Often this is framed in terms of the distinction between a photograph being of *the* world and a cartoon creating *a* world. When Frank argues that individual frames are recordings of the process of their own production, she is explicitly going against this distinction.

In this context, it is worth recalling one of the strongest criticisms of film theories that rely on the idea of photography. Noël Carroll argued that if we really held that to be true, that a film is about what was in front of the camera at the moment of recording, a range of startling consequences would follow. It would turn out, he says, that "*M* is about Peter Lorre rather than about a psychopathic child killer; *The Creature from the Black Lagoon* is not about a rivulet off the Amazon but about Wakulla Springs, Florida. Films you thought were representations of

castles, graveyards, and forests are really about studio sets.”<sup>33</sup> (Frank refers to this passage in the conclusion.) Carroll means this to be ridiculous, and so to ridicule his opponents. It is a perverse pleasure of *Frame by Frame* that Frank happily accepts Carroll's conclusion: the photograph of the cels, the creation of an image of an animated film, is actually of the world of its production. Outside the border of a Bugs Bunny cartoon is the Warner Bros. studio; Mickey is separated from the Disney studios only by the line of the frame; Woody Woodpecker resides at Universal Studios. This is her direct challenge to the history of film theory, and at the heart of her project of looking at cartoons. Treating each frame as a photograph, a document of what it is of, allows her to move seamlessly from the errors she sees in the image to the production processes that generated them.

At the same time, Frank wants to use the idea of photography to stay with the image itself, to make sure that we do not escape what is within the frame of the cartoons. She describes this as an argument against the supposed transparency of the photographic image, an ambition “to find the world *within* the image, to study the windowpane as well as the view beyond it” (72–3). What we see is also part of the photographic record. Cartoons document “India ink, watercolor paints, paper, glass, and stacks of transparent cellulose nitrate or acetate sheets; particles of dust traverse half the screen and fleeting, spectral reflections are cast by the animation stand's overhead lights; Newton's rings knit together” (73). Thinking about photographs in these two ways, Frank joins a major trend of thinking about photography that eschews the idea of the index—or at least a thin account of it—as a way to capture a photograph's relation to the world.<sup>34</sup> This is not a topic she directly takes up, preferring to deal with it in footnotes. But it is a problem that she would have had to address eventually, whether through an extended discussion of Charles Sanders Peirce or a more sustained reflection on the dynamics of photographic reference within the animation process. Even without that work, we can tell that she embraces the idea that photographic reference is complex, multifaceted, and multidirectional. It includes the traces of the world being shown, but also the hidden components that gave rise to them. It also includes what Frank describes as the “graphic of the photographic”: the ontological uncertainty of what it is one is seeing, and even whether it is anything at all.

This reconceptualization of animation as a photographic practice, and the different ways in which its referential dimension points, give Frank the materialist fragments she collects and archives and make possible the speculative histories she produces. Without being able to read individual frames as causally linked to the moment of their production, the connections that Frank draws between image and studio would have been significantly more tenuous. But it also gives Frank a way to examine and extend the long-standing view that, as she puts it, “Animation [is] . . . uniquely self-reflexive” (67). This is famously the case for cartoons like *Duck Amuck* (Chuck Jones / Warner Bros., 1953), with Bugs's address to the camera and his figuration within the film as the animator capable of tormenting Daffy.<sup>35</sup>

Echoing Dana Polan, Frank argues that “The world of *Duck Amuck* makes no allowances for *our* world. Its narrative elides the actual human labor that went into its making” (68).<sup>36</sup> This is the power of the frame-by-frame method, in which we see traces of production: the smears, the errors, the tricks. Even without deliberately staging this, the cartoon is inherently a document of—hence a film about—the fact of its own making.<sup>37</sup>

Finally, by treating animation as photography, Frank is more readily able to bring cartoons into dialogue with the aesthetics of live-action cinema. Discussing cartoons that use blurs or smears to depict motion—“those cels we know to be representations of bodies, but which, when taken on their own, operate on another aesthetic register altogether” (91)—Frank argues that their prevalence can be attributed to the interest of animators in motion studies, and in their own frame-by-frame analyses of fast-moving bodies in feature films (93ff). Perhaps the most compelling discussion of this interaction comes in the conclusion to the book, where Frank takes up critically disparaged animated films of the 1940s and 1950s. Critics claimed that these films “mimicked too closely” the aesthetics of live-action cinema, or “lost” the special qualities of motion—qualities that Eisenstein hailed under the name of the “plasmatic”—that animation alone could do. Manny Farber, for example, deplored what he saw as the “affectation of reality” in these cartoons.<sup>38</sup> Frank thinks something more complicated is going on. She discusses two examples, the animated short *Sniffles Bells the Cat* (Warner Bros., 1941) and the Disney feature *Cinderella* (1950), to show how they employ cinematic techniques. Frank acknowledges that they are explicitly *simulating* the effect of deep-focus cinematography of the kind that was popularized by Gregg Toland. However,

I argue that *Sniffles Bells the Cat* is an animated cartoon not in spite of but indeed *because* of its reliance on cinematographic codes. Its simulation of the wide-angle lens in particular demonstrates not a slavish adherence to preexisting codes of representation but rather an imaginative expansion of the possibilities of cinema as a whole—not just animation. What it might lack in the plasmatic-ness of its figures, it makes up for in plasticity of the entire image. (149)

The answer, it turns out, has to do with color. Deep-focus cinematography was nothing new by the end of the 1940s, but it was done with black-and-white photography. It was impossible with the color technology of the moment, so much so that the creation of deep focus in Howard Hawks’s *A Song Is Born* (1948) was done through special effects. What *Sniffles Bells the Cat* and *Cinderella* do, then, is to make a claim for the uniqueness of the medium of animation by doing what live-action cinema could not at the time do: they create an impossible image by following the *codes* of live-action cinema to the letter. As Frank puts it, “Even a cartoon that imitates cinematographic techniques must first deform the world in order to make it whole again. It dissolves *and* reinforces conventional reality” (151).<sup>39</sup>



As she does in all the other aspects of *Frame by Frame*, Frank finds a node of contention and pushes the debate in new directions. In chapter 4, she again takes up the debates over photographic media and the way they generate a reproduction of the world, this time in the context of an altogether different technology: the Xerox machine. The discussion of mechanical or technological reproduction in film and media studies is often, and rightly, focused around photography. Exploring how Xerox machines were taken up by animators, Frank shows that xerography needs to be considered as a major form of technological reproduction.<sup>49</sup> But xerography does not follow the same terms as photography. Drawing on marketing campaigns and their use for office work, Frank shows that xerography is based on the reproduction of only certain aspects of the image, most notably the line. Discussing an ad that demonstrates its reproductive qualities on a Pablo Picasso ink drawing, Frank writes:

The black calligraphy and white paper of Picasso's eagle drawing make it the perfect test case. If the original had been drawn in graphite or crayon, the copy would lose some of its finer textures. An all-black eagle would yield a mottled clone. But here the line is fine—but not *too* fine—and strong—but not *too* strong. We can read it as clearly as if it were written. . . . Text abuts image, image abuts text, and the photocopier, which regards the entire field of the sheet of paper as a single unit, does not discriminate between text and image. It treats each squiggle and dash equally, as black marks on a blank field. Particles of pigment amass only where there is darkness. (109)

Where André Bazin praised photography for its ability to compel belief that no matter how an image looked it was a document of the existence of the object, Frank sees in xerography an indiscriminate treatment of the identity of the source material. Text or image—it doesn't matter. What is reproduced best are lines.

Frank uses the reading of the aesthetics and epistemology of the Xerox machine to show how it transformed animation style. She provides a reading of Disney's *One Hundred and One Dalmatians* (1961) that demonstrates not only the use of xerography in the film's production, but how this changed its look, and how the qualities of xerographic reproduction are alluded to within the film itself. (Indeed, the title of the film already suggests photocopying.) Frank lays the foundations for the new form of production process that resulted, one in which inkers, in-betweeners, and painters had a different set of roles to play. With the Xerox machine, animators were now able to directly transfer their sketches onto cels without what they regarded as the intervening hands of others (who now filled in rather than re-created the original forms). As a result, the animation style of *One Hundred and One Dalmatians* appears decidedly more artisanal, the lines of its drawings more fluid and less polished than in earlier cel animation practices. This is, Frank observes, something of a paradox: a new technology of reproduction, one that positions a machine in the place of a human, makes the final product look more handmade:

The discourse around this division of labor offers a multifaceted and sometimes contradictory theory of the line. A line is a trace of the human (namely, of the creative worker) *and* a line must be evacuated of the human touch (namely, of the noncreative worker). A line is a singular expression *and* a line is infinitely reproducible. A line is an index of physical contact *and* a line's life is not located in the original sheet of paper. These paradoxes are particularly pertinent for . . . *One Hundred and One Dalmatians*. If a line is not bound to the paper on which it was painted and the ink that constitutes its body, then it can circulate like text, extracted from its material origins. This is the logic of illustrations and comics, which are drawn in order to be reproduced. A lithograph of a line *is* the line, a photograph of a line *is* the line, and a Xerox of a line *is* the line. (119)

The result is a more fluid, expansive line—a new aesthetic.

Xerography changes not only style but industrial practice and organization as well. It shifts emphasis away from the (female) uncredited workers and gives the (male) animators an even greater sense of authorship. The changes it makes to the feel of animation are one thing: “Xerography, in this context, offers viewers a tantalizing proximity to the original, inimitable trace of the artist, in all its imperfections and idiosyncrasies” (113). Frank's discussion is a reminder that new technologies are never simple, and that their introduction has unpredictable outcomes.

#### ROADS NOT (YET) TAKEN

The unwritten future of *Frame by Frame* is already articulated in the latter part of the book. When Frank turns to *One Hundred and One Dalmatians* and *Cinderella*, the topic of frame-by-frame analysis becomes less pressing—though certainly not absent—and an investigation into changes in the aesthetics of animated cartoons takes on an increased role. As she began to rethink this manuscript, Frank acknowledged this break, and decided to split it into two distinct projects.

One project would focus on Disney films from the 1950s. This was never developed beyond an initial sketch, but it would have extended the arguments about *One Hundred and One Dalmatians* and *Cinderella*: to reappraise Disney's critically maligned films of the 1950s; to show how they in fact accomplished “things only possible in animation”; and to reevaluate the relation between live-action cinema and animation. The book was to have six chapters:

1. On *Bambi*, its embrace by Eisenstein, and its relation to Soviet animation of the 1930s.
2. On deep-focus cinematography and *Cinderella*, an expanded version of what is contained in the conclusion of *Frame by Frame*.
3. On CinemaScope and *Lady and the Tramp* (1955), focusing on the relation between the new technological format and the depiction of space—especially of the home.

4. On special effects and *True-Life Adventures*, the nature documentaries produced between 1948 and 1960; this chapter would focus on “techniques of postproduction manipulation, which were achieved with the optical printer” and supervised by Ub Iwerks.<sup>41</sup> Reading against the grain, Frank proposed “an investigation into the ontology of the rephotographed image.”
5. On 70mm and *Sleeping Beauty*: beyond a note that this would involve a discussion of “painting” and “magic,” no description of this chapter exists.
6. On xerography and *One Hundred and One Dalmatians*, an expansion of chapter 4 of this manuscript.<sup>42</sup>

Some of the material that would have gone into these chapters had been presented at conferences, but the vast majority of the work remained to be done.

The second project involved the manuscript of *Frame by Frame* itself. Frank proposed a revised structure organized more explicitly around specific formal techniques. She described it as follows:

#### INTRODUCTION: LOOKING AT LABOR

The introduction defines the historical parameters and theoretical stakes of the book: its focus on theatrical shorts released between 1915 (the advent of cel animation) and 1965 (the decline of the studio system), the industrial labor practices in place during this period, and the problems assembly-line production poses for aesthetic analysis. After describing the tasks and technology involved in the manufacturing of animated cartoons, the introduction explains how *Frame by Frame* exploits digital editing software to resuscitate an obsolete form. Thousands of frames can be cross-referenced and their component parts disassembled; each individual frame can in turn be treated as both a primary historical document and a work of art in its own right. It also lays out the chapters to follow.

#### PART I: GLIMPSES

Each chapter in part I draws on a theory of photography in order to consider how the photographic process shapes the visual aesthetics of animated cartoons. Chapter 1 focuses on photography as a means of reproducing documents, while chapter 2 examines photographic theories of cinema.

##### *Chapter One: Fragments of Daily Life*

By and large, the primary visual components of cel animation—the transparent nitrate and acetate cellulose sheets that give the form its name and the painted backgrounds over which cels were laid—no longer exist. The cels and backgrounds that made their way to auction houses or found residence in archives are but a

minuscule sample of all of the cels and backgrounds created during the heyday of the theatrical shorts, the majority of which are lost to history. However, these physical objects survive in another form: *they have been preserved on film*. Each frame of an animated cartoon, in effect, doubles as the photographic record of ephemeral documents. Chapter 1 teases out the theoretical and historical implications of this observation by attending to a common expository device in animated cartoons: the use of pages from contemporary newspapers in which real headlines are combined with fictional ones to convey narrative information. In their collage practices, these inserts can thus be discussed alongside Rosalind Krauss's writing on Picasso's still lifes of 1912–13 and Walter Benjamin's comments on Dada readymades: "The tiniest authentic fragment of daily life says more than painting."

### *Chapter Two: A Glimpse of the World*

Animation has long been excluded from film theory on the grounds that it is not a photographic practice. But cel animation was, in fact, produced photographically: a single-reel short could consist of as many as seven thousand individual photographs, each corresponding to a frame of film. What happens, then, when animated cartoons are understood in accordance with photographic theories of cinema? Chapter 2 attends to the visual evidence lurking within each frame that testifies to the image's photographic origins. By cataloguing the various visual imperfections—errant shadows, dust particles, fingerprints—that stand as traces of the physical reality of the world beyond the frame, and in particular the world of the animation studio, chapter 2 argues that thinking of cel animation as a photographic medium makes visible the hitherto invisible production process.

## PART II. EYESTRAIN

Each chapter in part II highlights a stylistic convention in cel animation that evokes a specific cinematographic technique. Chapter 3 looks at the design of cartoon whip-pans and chapter 4 at the poetics and aesthetics of stroboscopic effects.

### *Chapter Three: Vertiginous Views*

The rostrum camera used to photograph animated cartoons could only move up and down, in effect zooming in and out of the image. To simulate movement across a space—for instance tracking, crane, aerial, tilting, and panning shots—it was, in fact, the background painting that was moved, sliding under the fixed camera. The background paintings used in such shots often took the form of long, narrow scrolls, some as long as nine feet, only a small fraction of which was photographed at a time; the entirety of the painted space never appeared on-screen in a single frame, but would rather unfurl temporally, frame by frame. Using digital tools,

chapter 3 reconstructs several of these panoramic background paintings, in particular those that incorporate photographic effects, such as motion blur and barrel distortion, into their design. Whip pans make for particularly striking examples, as the middle sections of the painting (the “whip” portion of the simulated camera movement) are often quite abstract while the left and right sides (in which the simulated camera is at rest) conform to perspectival conventions. These paintings ultimately are *sui generis*, out of step with both contemporary art practices and the cinematographic construction space. Pulled between abstraction and representation, they warrant comparison to two alternative filmic modes: avant-garde films such as Robert Breer's *Jamestown Balloos* (1957), Ken Jacobs's *Tom Tom The Piper's Son* (1969), and Hollis Frampton's *Pan 698* (1974) on the one hand and microform periodicals on the other. The first reinvents the eyestrain engendered by scrolling through reels of microfilm and rapid whip pans alike into a vertiginous aesthetic experience, while the second illuminates the artistic labor that the rapid camera movement obscures.

#### *Chapter Four: Arresting Animation*

Cel animation and structural film would seem to have little in common. Popular animated cartoons use recognizable character types to tell stories; however much they may try to subvert the stylistic and narrative conventions of classical Hollywood, they can never fully escape the ideological and economic structures of the studio system. Structural films, by contrast, aim to test the thresholds of cinema's formal and material structures, often by pushing photographic representation into the realm of abstraction. Yet in spite of these differences, the two practices share an important feature: they were, by and large, produced frame by frame. Chapter 4 examines the aesthetic implications of this similarity through an investigation of the historical poetics of stroboscopic effects in popular animated cartoons. As early as the 1920s—decades before Peter Kubelka's *Arnulf Rainer* (1960) and Tony Conrad's *The Flicker* (1966)—films in Otto Messmer's *Felix the Cat* series routinely featured brief “flicker” sequences that consisted of the rapid alternation of either all-black and all-white frames or positive and negative images. By the 1930s, animators had begun integrating multiple colors into these sequences, producing unprecedented visual pulsations that disrupt the flow of the animation and arrest the eye of the viewer—if only for a few seconds at a time. Although cartoon flicker always possesses a clear narrative function (for instance to simulate lightning, explosions, and other violent shocks), its deployment nonetheless ruptures the very illusion of movement on which classical animation is predicated. At the same time, these sequences challenge much of the preexisting scholarship on flicker, which stresses that the technique is nonrepresentational, if not anti-representational. By looking at several animated cartoons frame by frame, chapter 4 reveals that even the most radical and abstract of filmmaking practices cannot

do away with representation altogether: what appears at first to be a blank frame, evacuated of all content, might in fact be the photographic reproduction of the verso side of a sheet of used sketch paper, its discarded drawing still faintly visible. General claims about the formal function of stroboscopic effects thus give way to detailed observations about the specific materials out of which these sequences were constructed, and the frame-by-frame model of production becomes a model of historical and aesthetic analysis.

### PART III. SPECULATION

Both chapters in part III concern themselves with the painted cel in isolation. Chapter 5 uncovers the many abstract paintings that lurk within animated cartoons, and chapter 6 studies how thousands of distinct paintings culminate in a single cartoon character.

#### *Chapter Five: The Limits of Representation*

In numerous animated cartoons there exist moments—sometimes but a frame—in which famous characters are distorted beyond all recognition, becoming perhaps a mere streak of paint, or rendered unrecognizable by an extreme close-up. These abstract paintings were produced by the animation studio's painters, most of whom were women who went uncredited, their work considered noncreative and unskilled. In order to challenge the division between art and labor, chapter 5 first provides a genealogy of this particular mode of gendered labor, which has resonances with other industries traditionally dominated by women (from the coloration of postcards and early motion pictures to stenography and typewriting to sewing and quilting, as well as the pioneering textile work of both the Bauhaus Weaving Workshop and Soviet Constructivists like Varvara Stepanova and Lyubov Popova). Second, chapter 5 reviews specific examples of these unsung women's handiwork from films produced at a wide range of studios. A tornado of feathers whipping through the air in Disney's *Birds of a Feather* (Burt Gillett, 1931), removed from their context, becomes a dizzying swirl of jet-black droplets against a blank background, and a blustery blizzard in *Now That Summer Is Gone* (Frank Tashlin / Warner Bros., 1938) is depicted as a stream of dots and dashes, nonsense lines of Morse code. An overflowing bathtub in *Bathing Buddies* (Dick Lundy / Universal, 1946) is rendered in a milky, translucent wash of varying shades of turquoise, while in *Daddy Duck* (Jack Hannah / Disney, 1948) a jet of water gushes toward the putative camera, filling the entire frame with starbursts of blues, whites, and teals. In Disney's *Touchdown Mickey* (Wilfred Jackson, 1932), meanwhile, a cat's tail in close-up is the sole occupant of the frame: a black, jagged crescent that stands in sharp contrast to the background's white expanse. The image is meaningless on its own, yet it assumes new visual power when placed alongside another frame from

a later Disney film, *Donald's Camera* (Dick Lundy, 1941), in which Donald Duck, in a burst of anger, turns into a curved bolt of lightning. The two shapes, both bent, both serrated, echo and almost negate one another; the lightning bolt is smaller, black on white instead of black on gray.

*Chapter Six: What Mickey Mouse Proves*

In 1931, Walter Benjamin wrote, "Mickey Mouse proves that a creature can still survive even when it has thrown off all resemblance to a human being." That same year, Walt Disney successfully sued Van Beuren Studios, a rival animation company, for producing several cartoons featuring Mickey and Minnie lookalikes. In 1940, Sergei Eisenstein admiringly observed that the animation of Mickey Mouse tested "the limits of normal representation." In 1978, the United States Court of Appeals ruled that Mickey Mouse was "sufficiently delineated," and hence protected under copyright law. Through the frame-by-frame examination of numerous Disney cartoons from the 1920s to the 1940s, as well as the many parodies of Mickey Mouse that appeared in underground comix of the 1960s and 1970s, chapter 6 considers just what makes Mickey Mouse Mickey Mouse. What are the limits of his representation? Can he still survive if he has thrown off all resemblance to himself? What if "noncreative" workers were to exercise their creativity, such that Mickey Mouse looked different in every frame? To imagine what might result, the chapter turns first to examples of 1930s *Popeye* cartoons that were colorized in the 1970s, then to Robert Breer's *Rubber Cement* (1976), which features a crude rendering of Felix the Cat, and finally to the recent work of Martin Arnold, in which classic Disney, Warner Bros., and MGM cartoons are digitally taken apart and put back together again.

CONCLUSION: THE LABOR OF LOOKING

The conclusion takes as a final case study a single film, Hugh Harman and Rudolf Ising's *Bosko in Person* (Warner Bros., 1933), working—and playing—with it in multiple ways. *Bosko in Person* is a thoroughly unremarkable cartoon on its own terms, but it is noteworthy insofar as it has been repurposed several times—first by Harman and Ising themselves, as *Bosko's Parlor Pranks* (1934), then by Ken Boyer for an early episode of the children's television series *Tiny Toon Adventures* (1990–95), and finally by Ken Jacobs in the epic experimental film/video *Star-Spangled to Death* (1956–2004). Each of these variations comes with its own histories and aesthetics, and each solicits a new way of looking at *Bosko in Person*—to see what is missing, what has been hiding in plain sight, what went without saying, and all that might have been and might still be.

As is clear, the emphasis on the relation between frame-by-frame analysis and the avant-garde is more explicit, so that "the theorist of animation becomes

an experimental animator. . . . Ultimately, this mode of looking inaugurates its own experience.”

All this is the future that was not to be. And it leaves open the question: What should we do with the book we have? There are reflections that could easily be built out of the manuscript. Some take on a heightened import in the contemporary media world. Frank's discussion of the relation between “creative” and “uncreative” work, both the way this distinction is gendered and the way its terms fluctuate over time, certainly has relevance for our current environment. So too does her reflection on how digital media made her project possible: Frank is attuned to the complexities of the relation between the analog originals and the digital copies through which they circulate. (Her attention to the Xerox machine as an intermediary between photography and digital media is evidence of this care.) Recall her discovery of the sketch of Woody Woodpecker: “Is it only possible to see him because *\$21 a Day (Once a Month)* can today be viewed via a ‘restored’ digital copy, one that perhaps brightened an image that the camera operator had intended to be obscure?” Frank reminds us of the materiality of the digital image—not just the fact of its material existence, but the various ways in which that materiality can be used to manipulate (whether to obscure or to clarify) the image being presented.

Within animation studies, the most obvious and direct form of influence will be the method itself, the frame-by-frame approach. One could build off Frank's own work, the archive of stills she assembled in the course of her research; there are materials there that have not yet been addressed, ways of thinking about errors and documents that are yet to be uncovered. But if we want to extend into new areas, even just different kinds of animation, we must tread carefully. It would be a mistake to treat Frank's method as something that can be isolated, hypostasized, set in stone—or applied indiscriminately. Frank is clear that frame-by-frame analysis, one that looks at the material properties of the image for traces of the hand of the (usually unnamed) artist, is a *tool*. In particular, it is a tool for the analysis of animated cartoons made under the studio system, where the question of intentionality—the responsibility for the creation of the image—is obscured or unknown.<sup>43</sup> Frame-by-frame analysis is a way to break the industrially produced image apart, to create the archive necessary for more expansive historical and theoretical speculations. How should one apply it elsewhere? Would it be worth thinking about, for example, the films of Caroline Leaf, or Jim Trainor, or Jodie Mack—or even Faith and John Hubley—by looking at them frame by frame? If one did, what one was looking for would not be the same. Mistakes would be treated differently—indeed, they might not even be mistakes—and many of these independent artists often incorporate the chance effects, the contingencies, of production into the texture of the image itself.

Ryan Pierson and Alla Gadassik have proposed one way to resolve this question, seeing in Frank's work what they describe as the analytical concept of “the Frankish



frame.” By this they mean “any frame that demands to be seen independently of its placement in a phase of motion.”<sup>44</sup> This could be a glitch in a walk cycle from Disney’s *The Skeleton Dance* (1929), or forms of gestural repetition in Len Lye’s *Free Radicals* (1958). Pierson and Gadassik emphasize two key features: that looking takes work, and that the conclusions that one draws involve an intense form of imaginative play.

The idea of the Frankish frame leads to an additional set of questions: What should one do with computer-generated animation? Would it be worth using *Frame by Frame* to think about a film like *Toy Story* (1995), or *Moana* (2016), or *WALL-E* (2008)? Should one go through digitally animated films frame by frame looking for whatever contingencies might be in the algorithms? Would such intense looking reveal the seams in digitally generated images, moments that could generate the kind of nonlinear montage structure that could be used for Frank’s speculative histories?

Perhaps. Or perhaps not. What is clear, though, is that we wouldn’t be able to tell whether such an enterprise was worth it without undertaking it—without looking at the millions of frames it would entail. One would have to have confidence in oneself. This wouldn’t be a project trying to tell a labor history of special effects artists, nor to provide a study of the constitutive algorithms that make up the images, nor even to produce a straightforward formal analysis. But one would bring all of these questions to bear. It’s not entirely clear what this approach to digital animation would look like—and that uncertainty seems appropriate. Part of what it means for Frank to repeatedly describe her approach as “aesthetic” is that there are no fixed criteria by which it will succeed, no way to determine in advance what will work. We have to try, to test our judgments. We have to look and see.<sup>45</sup>

Taking a view of the whole, then, what defines Frank’s work is three principles that work in counterpoint. The first is that what matters is less the “frame by frame” than the “materialist.” Frank is interested in thinking about how something is made, about what that can show us, and about how we can get to production from the product. This is at once a method and a politics. The second is to take under-examined truths seriously—like the fact that all frames in cel animation are ultimately photographic documents—and see what happens to our theoretical presuppositions when we do. The third is to look carefully for instances where representation breaks down, and to experiment with what we can extract from those moments of crisis. Looking and playing; laboring and dreaming. These are the antinomies out of which Frank builds her method.

*What if?*, I ask again and again. What if we looked at works of cel animation like we do microform periodicals? What if we thought through cel animation’s photographic basis in accordance with both realist and materialist theories of cinema? What if we treated each cel as a work of art in its own right? What if we compared inkers to

secretaries? These questions, and the ones that emerge from them, are meant to test the limits of animation. They are games, but that does not mean they are frivolous. The theoretical riddles they pose reveal buried histories. The counterfactual histories they write upend theoretical truisms. They introduce the possibility of ambiguity into film theory and history. (152–3)

#### A NOTE ON THE TEXT

As I mentioned above, what appears in *Frame by Frame* is essentially the text of Hannah Frank's dissertation, which she defended at the University of Chicago in August 2016. In the process of putting this manuscript together, I wanted to preserve her voice as much as possible, and so have kept a light editorial hand. Much of the work I did involved untangling some grammatical confusions, standardizing references in footnotes—though I have, following Frank's wishes, retained her citations from Benjamin's *Illuminations* rather than the more recent editions—and adding a few clarifying clauses. The only major change is the title. Frank's dissertation was entitled "Looking at Cartoons: The Art, Labor, and Technology of American Cel Animation." Yet within a couple of months she had already discarded that title, and begun to test alternatives. The title of this book, *Frame by Frame: A Materialist Aesthetics of Animated Cartoons*, was taken from the final version of the book proposal she wrote. It fits its topic well.

Many people helped to bring this book into existence. At the University of California Press, I am grateful to Elena Bellaart for overseeing its production, and especially for helping with the art. Lindsey Westbrook provided superb copy editing that improved the manuscript while preserving its unique style. Jordan Schonig created the final versions of the images in the book. We are all deeply indebted to Raina Polivka, who recognized the quality of the manuscript and made sure that it appeared in the world.

There have been tributes to Hannah, emotional and intellectual, at the University of Chicago, the University of North Carolina Wilmington, the 2018 Society for Cinema and Media Studies Conference, and elsewhere. A debt of gratitude is owed to everyone who organized and spoke at those events, who ensured that Hannah will be remembered.

Sam Frank, Hannah's brother, has been central to the preparation of this manuscript, and supported its publication throughout the process. Jacob Blecher, Hannah's husband, provided the material contained in this book, often searching through archives of files for the right document; this book is not least for him. I am also indebted immeasurably to Hannah Frank for her friendship, for what I learned from her, and for all that I never had the chance to put into words.

A last topic. Most dissertations, no matter their originality, suffer in the writing—the prose is flat, or too academic. One of the hallmarks of *Frame by*

*Frame* is that Frank's prose is so carefully and exquisitely composed. It bears analysis on its own. She begins, for example, with the evocation of construction: "Imagine studying a building not by walking its hallways or perusing its blueprints, but by examining each of its bricks" (1). The brick motif is not a throwaway. She will return to it twice. The first is to confirm her initial metaphor, quoting Robert Breer: "The single frame is the basic unit of film just as bricks are the basic unit of brick houses" (74). The second involves a character from Studs Terkel's *Working* (1974), a steelworker who longs to see the marks of his own labor in the buildings he makes. He dreams: "Let's say the whole building is nothing but red bricks. I'd like to have just the black one or the white one or the purple one" (80). And this sounds the larger topics of mistakes, and intentionality, that run throughout the book.

But then one might also wonder: Is Frank thinking as well of the debate between about the structure of montage between Vsevolod Pudovkin and Eisenstein, which turned on whether it should be thought of as bricks or collisions? And is she also thinking of Bazin's discussion of Roberto Rossellini's elliptical style, in which we come across reality like stones found in a stream that we use to cross rather than bricks made for the purpose of a bridge? And if these allusions are on her mind, what should we make of that?

These are speculative questions. That they are unfortunately unanswerable does not mean they should not be asked. To read Frank's prose is to entertain precisely the operation she undertakes with cel animation: one looks carefully, with effort, at the details of the writing itself, and then one dreams up new ways of thinking.

## ACKNOWLEDGMENTS

This book wrestles with the relationship between the part and the whole, the frame and the filmstrip, the individual and the collective. While I am credited as its author, I hardly worked alone. I wish especially to thank the members of my dissertation committee for their kindness and attentiveness, to which I cannot possibly do justice in this short space. Tom Gunning went over every page with me, scrutinizing not only the project's big theoretical and historical stakes but also the individual words in which it was anchored. The impact his scholarship and mentorship have had and will continue to have on my research cannot be overstated. Yuri Tsivian showed me that it was possible for scholarly writing to marry humor and rigor. He is a true heir to Eisenstein and Chaplin. Daniel Morgan found all the holes in my argument that I had secretly been hoping no one would notice, and helped me develop precision instruments with which to patch them up. (The gaps that remain are my fault entirely.) And, again and again, Robert Bird pointed me to the big picture.

I am indebted to the intellectual guidance and support I received from the Department of Cinema and Media Studies at the University of Chicago. James Lastra trusted me to do what I needed to do. His unwavering confidence in my work was the most generous of gifts. Noa Steimatsky told me to look deeply and read widely, and then to look again and read some more. Jennifer Wild called my bluff. Thanks also to James Chandler, Phil Kaffen, Richard Neer, David Rodowick, and Eivind Røssaak for their incisive comments and suggestions, and to Joy Miller, Hank Sartin, and Matt Wallace for smoothing out all the bumps.

Many of the arguments in this book were first tested out during my two years at the University of Iowa, where I had the privilege of studying with such scholars and

filmmakers as Rick Altman, Paula Amad, Steve Choe, Corey Creekmur, Franklin Miller, Leighton Pierce, Michele Pierson, Lauren Rabinovitz, and Shelton Stromquist. When I was an undergraduate at Yale, John MacKay introduced me to Dziga Vertov's *Soviet Toys* (1924), among so many other films, and with dangerously infectious enthusiasm. I cannot thank him enough. My research has also benefited enormously from ongoing conversations with Zoe Beloff, Donald Crafton, Scott Curtis, Oliver Gaycken, and Allison Whitney. Lisa Gitelman and Yuriko Furuhata kindly shared drafts of their articles on xerography with me. Valentina Pichugin steered me through the thickets of Eisenstein's Russian. And Lucy Rubin, Erick Gordon, Maria Fahey, and Donovan Hohn were the ones who got me here in the first place.

A Hanna Holborn Gray Advanced Fellowship in the Humanities, awarded by the University of Chicago and funded by the Andrew W. Mellon Foundation, provided essential material support, without which this project would not have been possible. Grants from the Division of the Humanities and Department of Cinema and Media Studies enabled me to conduct and present research in far-flung places. A Stuart Tave Teaching Fellowship allowed me to spend ten weeks watching cartoons with a bunch of very sharp University of Chicago undergraduates.

My research was facilitated by countless librarians and archivists. Julia Gibbs and the staff of the University of Chicago Film Studies Center went above and beyond in acquiring films for my teaching and research (and Julian Antos projected them beautifully). Thanks also to everyone at the University of Chicago Special Collections, the Amherst College Archives and Special Collections, the Jones Library of Amherst, the Tamiment Library / Robert F. Wagner Library and Fales Library and Special Collections at New York University, the New York Public Library for the Performing Arts, Yale University Manuscripts and Archives, the Lilly Library at Indiana University, the Museum of Modern Art Archives, and the Charles E. Young Research Library at the University of California, Los Angeles. Special thanks to Natasha Lyandres of the Department of Rare Books and Special Collections in the Hesburgh Libraries of Notre Dame.

A condensed version of chapters 1 and 2 appeared in the March 2016 issue of *Animation: An Interdisciplinary Journal*, and I am exceedingly grateful to Eric Herhuth, Suzanne Buchan, and the two anonymous reviewers for their feedback. A portion of chapter 3 will appear in *Reading with Sergei Eisenstein* (Caboose Books), edited by Ada Ackerman and Luka Arsenjuk. In addition, my work has been greatly enriched by exchanges on all things animated with the likes of Dan Bashara, Andrea Comiskey, Alla Gadassik, James J. Hodge, Andrew Johnston, Mihaela Mihailova, and Ryan Pierson.

Early drafts of the chapters that follow were presented at conferences and panels organized by Katie Bird, Jon Crylen, Nathan Holmes, Luke Stadel, Sam Stewart-Halevy, and Colin Williamson, among others. I wish also to express my deepest gratitude to the many participants in the University of Chicago's Mass Culture,

New Media, and Animal Studies Workshops, including but not limited to Chris Carloy, Will Carroll, Richard Davis, Alyson Hrynyk, Matt Hubbell, Bill Hutchison, Katerina Korola, Zdenko Mandušić, Nicole Erin Morse, Sabrina Negri, Solveig Nelson, Daniel Phillips, James Rosenow, Nova Smith, Amy Stebbins, Pao-chen Tang, Shannon Tarbell, Junko Yamazaki, and Ling Zhang. They have been the best of colleagues. Indeed, many of the people I have already listed are dear friends, and their contributions to this book can never be fully quantified or enumerated. Where would I be without the jokes, games, movies, songs, foodstuffs, and general camaraderie of Laura Cechanowicz, Doron Galili, Adam Charles Hart, Matt Hauske, Ian Bryce Jones, Tien-Tien Jong, Mikki Kressbach, Noa Merkin, Andrew Ritchey, Jordan Schonig, Tyler Schroeder, Richard Wiebe, and Artemis Willis?

My friends outside of academia and my extended family kept me afloat. Ian Blecher, Joel Blecher, Marc Blecher, Sharon Blecher, Sara Nichols, Sam Prekop, Summer Renault-Steele, and Bettina Richards were constant sources of encouragement, while Solomon and Naomi Blecher and Helen and Francis Prekop always put things in perspective. And, when all seemed lost, Joanna Hunter August, Laura Potash Fruitman, Smita Ghosh, Cassie Kaufmann, Una Osato, Tavie Phillips, Anika Schwarzwald, Danya Shneyer, and Kefah Crowley Spreitzer were there to remind me that there is more to living than this.

This book is dedicated to my family. It is dedicated to my brother, Sam Frank, who gave me *Chuck Amuck* when I turned ten and *Of Mice and Magic* when I turned eleven. He has been my lifelong mentor, interlocutor, rival, and best friend—and I'm sure this entire paragraph will make him cringe. It is dedicated to my mother, Carter Frank, who uses "eccentric" as a compliment and "clever" as an insult. May this book be more the former than the latter, and may she one day know just how much her warmth and wit shape everything I do. It is dedicated to my husband, Jacob Blecher, who never fails to remind me that cartoons are meant to be funny. His love undergirds every page of what follows. And it is dedicated to the memory of my father, Sheldon Frank, from whose copies of Benjamin and Pessoa I quote.



# Introduction

## *Looking at Labor*

*We may capture the portrait of history in so-called insignificant visual and verbal textualities and textiles. In material details. In twill fabrics, bead-work pieces, pricked patterns, four-ringed knots, tiny spangles, sharp-toothed stencil wheels; in quotations, thought-fragments, rhymes, syllables, anagrams, graphemes, endangered phonemes, in soils and cross-outs.*

—SUSAN HOWE<sup>1</sup>

### FRAGMENT BY FRAGMENT

Imagine studying a building not by walking its hallways or perusing its blueprints, but by examining each of its bricks: the pockmarks produced by air bubbles in the clay, the whorls of reds and browns, the trowel's impressions in the mortar. Imagine evaluating a mosaic not for the bigger picture but for the glint of individual tesserae. Or imagine not *watching* a film but looking at it frame by frame. Bodies in motion would suddenly freeze, their irresistible sensuousness submitting to clinical scrutiny. Minute details in the photographic image would supplant the broader strokes of the narrative. The part would overwhelm the whole.

But each of those fragments affords its own pleasures and hints at its own story. In this book, I use the fragments to piece together a portrait of cinema history and theory. I focus in particular on US animated cartoons, a tremendous body of work long excluded from the study of film proper. The animated cartoons I examine were produced with the technique of cel animation, which gets its name from the transparent sheets of cellulose nitrate or acetate ("cels") on which cartoon characters were painted. Cel animation is now a moribund medium, kept alive only by independent practitioners, but it was the dominant technique for most of the twentieth century. Its basic parts were interchangeable, which facilitated high-volume production and made it particularly amenable to standardization and mechanization. From the 1920s through the 1960s, the classical era of US animation, major studios like Walt Disney, Leon Schlesinger / Warner Bros., Fleischer, Walter Lantz,



MGM, and United Productions of America used the cel animation technique to produce hundreds of seven-minute films each year. Animation was an industry as much as it was an artistic medium. By arresting the animation of animation, I aim to return cartoons to how they were made: one drawing at a time, one photograph at a time, one frame at a time. Through this mode of *very* close analysis, I provide an account of the aesthetics of an art formed on the assembly line.

In order for Mickey Mouse (or Bugs Bunny or Popeye or Woody Woodpecker or Tom and Jerry) to move on-screen, thousands of cels had to be photographed in succession, a highly labor-intensive process that was divided across a factory of artists and technicians. One group of animators was responsible for the initial sketches, another for painting these drawings onto cels, a third for taking each photograph. But the paradox of cartoons is that all of this carefully choreographed work disappears the moment the image springs into motion. The knowledge that Mickey Mouse is nothing more than ink and paint cannot overcome the perception that he is alive. By viewing the film frame by frame, however, one can spot the traces of the hundreds of hands that touched Mickey before he made his way to the screen. Sometimes these assume the form of stray brushstrokes or strands of hair, and sometimes they linger as oily smudges, the literal fingerprints of the workers who handled the image. Such traces reveal aspects of the animation process that the viewer was never intended to see, but their discovery does not undermine the film's aesthetic power. Instead, the cartoon assumes new historical weight: even if the world it conjures up is populated by anthropomorphic animals and governed by impossible physics, it becomes apparent that its constitutive elements were real, material things: pen and paper and glass and celluloid.

The photographic process is thus not simply an incidental step in the industrial production of animated cartoons. Camera technology invests animated cartoons with the same evidentiary force as any work of photography. It says, *This object existed, this object was made by human hands*. Studied frame by frame, photograph by photograph, animated cartoons serve a powerful documentary function. They show us parts of *our* world. At the same time, they can be placed into larger theoretical debates about the nature of technological reproduction as such, for instance the relationship between image and text, the fraught authorship of popular art, and the political implications of the circulation of hitherto inaccessible works of art.

This book thus takes seriously the photographic image's dual status—as a document that testifies to the existence of a specific time and place, and as a work of art with its own affective power. Its governing tension lies between the *knowledge* one can obtain through photographic evidence and the *aesthetics* of those photographs. What can images tell us, and how do they speak? A photograph of a cel might reproduce a coagulated stroke of ink, but I can only guess at the cause of its coagulation. There is a limit to what the photograph alone can show. Yet the pursuit of that limit itself constitutes a form of aesthetic experience. This mode of looking is the very object of my study.

## FRAGMENTATION

First devised by Earl Hurd and John Randolph Bray in the mid-1910s, the cel animation technique was predicated on the principles of scientific management. As advanced by Frederick Taylor and Frank Gilbreth, scientific management broke the labor process down to discrete movements, allowing for its measurement and rationalization.<sup>2</sup> The earliest patents for cel animation proposed a method of dividing labor between “the artist,” who provided an original sketch, and “an assistant,” who did not need to possess “the originality, skill, or ability of an artist” in order to perform his or her primary tasks of tracing and painting. An influential how-to manual first published in 1920 picked up the language of the patents in its recommendation of “a division of labor between the animator and his helper,” whereby “the animator does the first planning and that part of the subsequent work requiring true artistic ability,” while “the actual toil of repeating monotonous details falls upon the tracer.”<sup>3</sup> Dividing the tasks of animating (performed by a skilled artist) from those of tracing (performed by an unskilled laborer) and other steps in the production process enabled studios to speed up production, reduce labor costs, and standardize their product.

While the division prescribed by the patents was not unique to cel animation (for instance, a rudimentary division of labor was enacted between the pioneering animator Winsor McCay and his assistant, John Fitzsimmons), the process’s technological components, particularly the cels themselves, paved the way for the implementation of assembly-line production. There was no conveyor belt per se. Rather, the introduction of interchangeable parts married the Taylorist emphasis on efficiency and standardization to the Fordist model of mechanization of the labor process. Moreover, by eliminating the sorts of technical errors to which rival techniques like McCay’s artisanal model or Raoul Barré’s slash-and-tear system were prone, the process and the product alike were streamlined.<sup>4</sup>

There was variation in how tasks broke down from studio to studio, and some (for instance Disney) had higher degrees of rationalization and regulation than others (for example Fleischer and Warner Bros.).<sup>5</sup> This book focuses on the work of four departments that no studio went without: the Animation Department, the Ink Department, the Paint Department, and the Camera Department. The first of these comprised several positions, including that of the head animator, who supervised the animation of a particular scene or character. His job was to oversee the drawing of the “extremes,” the most dynamic poses in a given action, and he often had assistant animators to aid him in the task. His crew also included in-betweeners, who were responsible for all the intermediary poses that came between one extreme and the next, and clean-up artists, who erased the stray lines from the rough sketches. The men who held the latter positions were generally considered noncreative or “below-the-line” laborers, but they had the potential for promotion to creative or “above-the-line” positions as

assistant or head animators. The drawings the Animation Department churned out—up to twenty-four per second, or one for every frame of film, but usually no more than sixteen—would then be sent to the Ink and Paint Departments for transfer onto cels. The inkers (who traced the drawings onto cels) and the painters (who colored inside the inked lines) were almost exclusively women. Although they had to undergo significant training, their work was noncreative, and they had no expectation of promotion to above-the-line positions. Finally, the inked and painted cels would make their way to the Camera Department to be photographed by below-the-line technicians. Detailed exposure sheets provided by the cartoon's director instructed the camera operator on the number and relative placement of the cels to be photographed, the positions of both the camera and the painted background relative to the cels, and the number of times each of these cel setups (as many as four cels atop a background) was to be photographed.

All of these tasks were repetitive and demanding, performed for long hours and little pay. In the 1930s, unionization efforts were undertaken at two of the studios then based in New York—an unsuccessful drive at Van Beuren, followed by a successful strike at Fleischer Studios in 1937. In 1941 the Los Angeles studios encountered their first wave of labor unrest, the most significant being the strike by workers at Walt Disney. This book, while not a traditional industrial or labor history, takes these early unionization efforts as the original inspiration for its questions about the relationship between art and labor.<sup>6</sup> I rely on primary sources, particularly interviews and oral histories, in order to understand better how animators (as well as inkers, painters, and camera operators) conceived of that relationship. Importantly, while all the early strikes in the animation industry concentrated on standard labor grievances, they were also anchored in a romantic notion of artistic autonomy. But I do not consider their answers definitive. Instead, they underscore the difficulty of disentangling the creative from the noncreative, intention from accident or inevitability, work as such from the work of art. Ultimately, my interest lies in how this knowledge—of technology and of labor—bears (or *should* bear) on the viewing of the animated cartoons themselves. During the strike at Fleischer Studios, union members picketed theaters and on occasion would interrupt screenings with Bronx cheers and cries of “Take that scab picture off the screen!”<sup>7</sup> Eighty years hence, I am not willing to boycott Popeye cartoons. Even so, I want to watch them in a way that recognizes their invested labor and technology as integral to their artistry.

Does knowing about a particular technical process shape what we are able to see—indeed, *how* we see? Conversely, can we learn to treat these films as sites of potential knowledge—that is, as primary evidence, equal in their documentary value to patents, interviews, trade press articles, and technical manuals? In pursuit of answers, I have studied 1,625 animated cartoons released between 1915 and 1965,

a period that begins with the first cel animation patent and ends with the industry's shift away from shorts intended for theatrical exhibition, toward commercials and programs for television.<sup>8</sup> These films ranged from installments in beloved series like Disney's *Silly Symphonies* and Warner Bros.' *Merrie Melodies* and *Looney Tunes* to the output of lesser-known studios like Terrytoons and Screen Gems. Many, if not most, of them amount to little more than corny ephemera. They are repetitive: plots, gags, and individual animation sequences reappear from film to film. (How many dachshunds were tied into knots in the 1920s and 1930s? How many sticks of dynamite were set ablaze in the 1940s and 1950s?) Yet even the most slapdash among them manages to evince what Vivian Sobchack has called the "seductive spontaneity" characteristic of the medium—a spontaneity so seductive, in fact, that it belies the highly regulated production apparatus that makes it possible.<sup>9</sup> Here is where our knowledge of the labor process comes into conflict with our aesthetic experience of the films themselves. It seems one cannot be integrated into the other.

A common solution to this problem is to let the films themselves perform the critiques. There are countless examples, starting with the very advent of the form, of self-reflexive, quasi-Brechtian animated cartoons that purport to show us how they were made. In the pre-cel era, these included the vaudevillian films of McCay and J. Stuart Blackton, who starred as magicians of the pen endowed with the power of cinema to conjure living drawings before our eyes. As Donald Crafton has shown, the trope of the animator's self-figuration continued through the early 1920s, with the early cartoons of Hurd, Fleischer, and Lantz. But soon the magic of the animators was transferred to their creations, which were granted the ability to animate themselves; thus Felix the Cat and Oswald the Lucky Rabbit and Mickey Mouse could miraculously improvise anything—propellers, punctuation marks, staircases—out of their own bodies.<sup>10</sup> The putative hand of the artist would continue to resurface, most famously in Disney's *The Three Caballeros* (1944) and Chuck Jones's *Duck Amuck* (Warner Bros., 1953), but these hands were always animated themselves.

Building on Crafton's observations, scholars have since identified other ways in which the production process was represented on-screen. Kirsten Moana Thompson, for example, has argued that the labor of the inkers and painters was brought to the fore in the spectacular Technicolor displays of 1930s Disney films, and Peng-yi Tai's dissertation on the animation industry, which opens with the assertion that "animation is a record of a labor process," analyzes how assembly-line production is represented in the films of Disney and Fleischer. Nicholas Sammond's recent book on the intertwined histories of animation and blackface minstrelsy makes a compelling case that the fluid figures of Felix et al. were displacements of the animators' longing for rebellion.<sup>11</sup> Scott Bukatman, too, has examined the rebellion of such characters as Little Nemo

and Pinocchio, in the course of which he provides a tidy formulation of one of the chief concerns of this book:

Writers on animation continually circle around the tension between the anarchic polymorphic perversity that it presents and the hyperregulated mode of production that produces it. Animation as an *idea* speaks to life, autonomy, movement, freedom, while animation as a *mode of production* speaks to division of labor, precision of control, abundances of preplanning, the preclusion of the random.<sup>12</sup>

What follows, while indebted to these analyses, departs from them in a significant way. Only one chapter, the fourth, considers the narrative content of a film, Disney's *One Hundred and One Dalmatians* (1961), at any length. What I offer might be considered formal analysis, insofar as I provide an account of the visual style born of specific technologies and techniques, but I do not argue that the aesthetic properties I am interested in have any expressive function—at least not by design. My focus is on the incidental and the accidental, the qualities of the image that resist being understood as the product of creative intention: the textures of a graphic mark, the patterns of paint splatter, jarring collages, swirling specks of dust. The random, as it turns out, is not necessarily precluded from the production of animation. “How do you maintain a sense of improvisation in a cartoon that is built out of thousands of drawings and dozens of tests?” Scott Curtis asks.<sup>13</sup> To answer him, I show that there resides a spontaneity as seductive as the metamorphoses of cartoon bodies in those parts of the image that rebel against the coherence of the whole. And by attending to those details, those fragments, I revivify the divided labor process.

#### ANYTHING CAN HAPPEN. . .

This is not how cartoons have ever been watched. They are meant to be seen in motion, as objects of pure pleasure. They grant not knowledge but instead, crucially, what Sergei Eisenstein called “obliviousness.” And this is precisely their appeal: they give us access to limitless worlds in which the impossible is possible. Writing in the early 1940s, Eisenstein praised Walt Disney for granting viewers a momentary respite from “the suffering caused by the social conditions of the social order of the largest capitalist government.”<sup>14</sup> Walter Benjamin, in an essay published in 1933, posited that Mickey Mouse held out “a dream for contemporary man.”<sup>15</sup> The escape animated cartoons offered might have been fleeting or illusory, but it was nonetheless *urgent*. “We cartoon characters can have a wonderful life, if we only take advantage of it,” Jeckle tells Heckle in *The Power of Thought* (Eddie Donnelly / Terrytoons, 1948). “We can do anything we think of.” “Anything can happen in a cartoon,” writes Richard Thompson in 1971, paraphrasing Tex Avery's *Big Heel-Watha* (MGM, 1944): “In a cartoon, you can do anything.” In 2014 Bukatman continues the refrain, drawing this time on Friz Freleng's *Peck*

*Up Your Troubles* (Warner Bros., 1945): “Anything is possible in a cartoon.”<sup>16</sup> The fundamental appeal of animated cartoons, whether they star Elmer Fudd or Gerald McBoing-Boing, Gandy Goose or Screwy Squirrel, lies in the entrancing mutability of their worlds.

Siegfried Kracauer once praised Max Fleischer’s *Ko-Ko the Clown* for his “captivating silliness.”<sup>17</sup> But three decades later, in his influential *Theory of Film* (1960), he would shunt animation aside on the grounds that “the best method of getting at [film’s] core is to disregard, at least temporarily, its least essential ingredients and varieties.”<sup>18</sup> Indeed, the obvious artificiality of cartoons (as the historian Eric Smoodin enumerates, “the animals that spoke and danced, the ease with which objects changed shape or color, the painted rather than realistic *mise-en-scène*”) arguably contributed to their long exclusion from film theory and history.<sup>19</sup> First published more than thirty years ago, Kristin Thompson’s “Implications of the Cel Animation Technique” (1980) remains a compelling account of the medium’s marginalization, first within Hollywood and later within the domain of academic film studies. Thompson centers her attention on the formal and technical features that distinguish cel animation from live action:

The crucial aspect of cel animation is its separation of the different foreground and background layers. Typically, the background layer(s) remain constant throughout a shot, while the cels for the moving figures must be frequently redrawn. This difference in the amount of work involved [in] the background and foreground tends to promote a split between the types of depth cues used in the separate layers. . . . In practice, this visual difference between backgrounds and figures has led to a considerable mixing of whole perspective systems within single films.<sup>20</sup>

These formal properties, when fully exploited, threatened the stable codes of live-action narrative feature filmmaking. In order to assimilate such “potentially disruptive” characteristics into the Hollywood system, animation had to be recast as mere children’s entertainment. Live-action films could thereby in part be defined—and their primacy reinforced—by how they differed from the trivial cartoon: “Since disruption unmotivated by narrative is unwelcome in the classical system, Hollywood needed to tame the technology,” Thompson writes. “Trivialization provided the means.”<sup>21</sup> While the historical dimension of her argument may be somewhat *post hoc, ergo propter hoc* in its narrative, her larger observations are nonetheless refreshing. She takes this marginalized form seriously, centering the bulk of her analysis on the relationship between film technology and film style in order to provide a rigorous account of why animated cartoons look the way they do.

The 1980s and 1990s saw the publication of several important popular and academic works on the industrial and cultural history of animation.<sup>22</sup> Neglected, however, was any sustained engagement with the theoretical and aesthetic issues posed by cel animation as both a technology and a technique.<sup>23</sup> It is only in recent

years that scholars have begun to pick up where Thompson left off. Indeed, much has changed in the last decade alone. In addition to some of the works cited above, numerous articles and books now offer vital insights into the formal properties of cel animation. These include Daniel Goldmark's and Lea Jacobs's studies of cartoon soundtracks; Thomas Lamarre's and Casey Riffel's examinations of the spatial qualities of the flat layers of cel setups; Tom Klein's and Scott Curtis's auteurist studies of, respectively, Shamus Culhane and Tex Avery; and Donald Crafton's and Dan Bashara's histories of cartoon style in, respectively, the 1930s and the 1950s.<sup>24</sup> Jacobs, who draws on bar and exposure sheets—tools used by animators to track and record information about music and cels over the time of the cartoon—in her research on sound-image relations in early Disney cartoons, quotes William Garity, a technician at the studio:

The director and the musician work hand in hand, measure by measure, frame by frame; each one trying to adjust his particular problem to meet the demands of the story. When the layout sheet is completed, the director has this picture completely laid out to the frame, and the musician his master note to the score. Slight changes may later be made in order to accommodate the exigencies that may arise when the pictures are animated.<sup>25</sup>

Measure by measure, frame by frame, note by note, Jacobs then reconstructs the production process that made possible the silliest of symphonies, treating the films as primary sources as rich with historical significance as Garity's remarks. Klein, meanwhile, uses a frame-by-frame study of the animated cartoons of Shamus Culhane to expose the abstract "mini-films" that lurk within seemingly innocuous Woody Woodpecker cartoons, thereby unsettling the history of cartoon poetics. Their attention to detail is matched by that of the other scholars I have listed. With the obsolescence of the cel animation technique has come the rebirth of serious criticism of animated cartoons.

We can attribute some of this shift, too, to the rise of new media technologies and digital cinema, which have reshaped the landscape of film studies more broadly. By throwing into flux many established presuppositions about the ontology of the photographic image, new media have made space for the consideration of forms and formal aspects of cinema that theories such as Kracauer's had necessarily bracketed. Lev Manovich's *The Language of New Media*, published at the turn of the twenty-first century, has become the pivotal source for identifying one implication in particular:

Manual constructions and animation of images gave birth to cinema and slipped into the margins . . . only to reappear as the foundation of digital cinema. The history of the moving image thus makes a full circle. *Born from animation, cinema pushed animation to its periphery, only in the end to become one particular case of animation.*<sup>26</sup>

Through the heuristic of digital cinema, all of cinema can now be recast and reappraised as animation. The margins haven't come to the center—they've become the frame. While Manovich does not alter how we look at animated cartoons per se, he at least opens up that possibility.

Tom Gunning, in turn, provides an important revision of film theory that aims in part to integrate a consideration of animation. For Gunning, animation's exclusion from film theory is one of the discipline's "great scandals," an unintended consequence of the "photographic understanding of cinema."<sup>27</sup> By revealing the ontological instability of photography, new media allow us to direct our attention to another property specific to the filmic medium, one that has been taken for granted for too long: the *movement* of moving images, the *motion* of motion pictures, the *kinesis* of cinema—and the *animation* of animation. In a follow-up essay, Gunning builds on this claim by arguing that animation triggers wonder in "its pivot from stillness to motion," a transformation that "reveals the single frame, the brief incremental of time, through the *possibility* of motion."<sup>28</sup>

But can the still frame *alone* inspire wonder? Can the individual frame offer escapism, oblivion, *impossibility*? My desire to arrest movement, to view animated cartoons not in motion but as a series of stills, tacitly acknowledges the primal power of movement to occlude the labor behind it. To view an animated cartoon in pieces, one motionless image after another, affords a precision of vision that allows us to see the strokes that constitute cartoon characters, which stand as physical traces of the lowest craft worker. One travels through the photograph, through the camera lens, through the glass platen that holds the cels in place, toward the individual layers of cels, each of which has been inked and painted by hand—and from these cels back toward the original animation drawings from which they were traced. The single frame is a palimpsest, a document, a fragment. But what happens to art? And what happens to aesthetic experience?

#### THE MONTAGE OF FRAGMENTS

Laura Mulvey has described the meaning and the beauty that can be found in "some detail or previously unnoticed moment," the discovery of which is made possible through a form of "interactive spectatorship"; Christian Keathley has suggested that these kinds of details "are the sites of both a challenge to historiographic practice and an opportunity for its transformation"; and Garrett Stewart has claimed that the single frame's "function in the apparatus of cinema . . . is so widely overlooked in commentary that to reclaim its somewhat demonstrable (and always necessary) contribution counts as a theoretical proposal in its own right."<sup>29</sup> These three arguments—all closely related, but the first primarily aesthetic, the second historiographical, and the third theoretical—intertwine in my approach to the study of animated cartoons. Looking at cartoons frame by frame enables me to think of each frame as the photograph it is, which brings them into conversation



with the discourses of photography in film theory from which they have been excluded. Moreover, each frame is a documentary record of a moment in time, which gives it new historical significance. And the very process of going through a film 1/24th of a second at a time, cross-referencing frames between films, creating catalogues of recycled images and abstract images, and uncovering otherwise obscured details—all operations I perform in the course of this book—becomes an act of play.

I am aided in my mode of analysis by digital technology, which has made films more accessible and, as a consequence, easier to manipulate. Of course, prior to the arrival of home-video formats, scholars were able to conduct close analysis using film prints, and many dwelled on individual shots or even frames.<sup>30</sup> The difference is a matter of degree—but so large is the degree that it might very well be one of kind, too. Without such resources as DVDs and YouTube, not to mention QuickTime, Final Cut Pro, and Adobe Photoshop, I would not have been able to watch the hundreds of shorts that I did, nor amass such a vast archive of images with just a few keystrokes.

Ultimately, the way I watch cartoons is the way Stan Brakhage watched *On Duty* (1973), the colorized version of *One More Time* (Rudolf Ising / Warner Bros., 1931), and one of the sources for his found-footage film *Murder Psalm* (1980); it is the way Standish Lawder watched Paul Terry's *Fox Hunt* (1927), the source for two of his studies in rephotography and optical printing, *Runaway* (1970) and *Roadfilm* (1970); it is the way both Bruce Conner and Martin Arnold watched classic Mickey Mouse cartoons, which Conner quotes in *Cosmic Ray* (1962) and Arnold dissects in *Soft Palate* and *Shadow Cuts* (both 2010). And it is the way Robert Breer, an experimental animator whose films I cite in each chapter, watched the work of Émile Cohl and Otto Messmer, to whom he pays tribute in *LMNO* (1978) and *Rubber Cement* (1976). As Robert Ray has argued vis-à-vis “Cubist collages, Surrealist film-watching habits, Duchamp's readymades, Pop Art's cartoons and soup cans, [and] Joseph Cornell's flea-market boxes,” the fetishistic attention to detail and repurposing of found fragments that characterize these avant-garde films are, in fact, “methods of research.”<sup>31</sup> And, in turn, my methodology is a form of montage.

It is thus noteworthy that several seminal shot-by-shot studies have been devoted to the films of Sergei Eisenstein.<sup>32</sup> He is, along with Walter Benjamin, one of the thinkers central to this book, not only for his influential writings on Walt Disney—which Scott Bukatman has deemed “the ur-text of animation studies”—but also for his theory and practice of montage.<sup>33</sup> Anne Nesbet has called him and Benjamin surrealist philosophers, a term Theodor Adorno used derisively but which she finds, at the very least, provocative. Both Eisenstein and Benjamin, she notes, reveled in finding junctures “between seemingly disparate objects or epochs.”<sup>34</sup> Their theoretical practice, in other words, had consequences for the writing of history—and they delighted in it as if it were an aesthetic experience.

Indeed, Ivor Montagu remembers that Eisenstein “taught us to see much with new eyes.”<sup>35</sup> I train this new vision on animated cartoons.

#### CHAPTER OUTLINE

The poet Susan Howe, an admirer of both Eisenstein and Benjamin, has noted that writers like Herman Melville and Emily Dickinson were all “using montage before it was a word for a working method.” Curiously, Jay Leyda, one of Eisenstein’s protégés, used montage to write documentary biographies of both Melville and Dickinson, the first of which he dedicated to his mentor. Howe’s description of Melville’s and Dickinson’s method applies to Leyda’s—as well as Benjamin’s and Eisenstein’s: “Their writing practice (varied though it was) involved comparing and linking fragments or shots, selecting fragments for scenes, reducing multitudes (chapters or stanzas) and shots (lines and single words) to correlate with one another, constantly interweaving traces of the past to overcome restrictions of temporal framing.”<sup>36</sup> The first chapter of this book likewise seeks to resist what I call the sequential logic of animation. Through an examination of alternative organizational models such as Eisenstein’s imagined “spherical book,” Benjamin’s “mosaic,” Leyda’s biographies, Dickinson’s poetry, and Robert Breer’s *Blazes* (1961), I posit that animation, too, can be reconfigured as montage. In fact, many animated cartoons contain moments that serve to disrupt the linearity of the filmstrip, breaking the forward flow of the animation. These include flicker sequences that consist of the rapid alternation of distinct frames, which causes the animation to stutter and strobe, and expository inserts such as newspapers, which grind the animation to a halt. By overcoming the filmstrip’s linear logic, these sequences invite us to treat them as if they were fragments of a montage—comparing them, linking them, interweaving them.

The first chapter forms a diptych with the second, which argues that animated cartoons can be understood as photographic records of their own production. Both chapters emphasize the form’s connection to photographic practices and discourses—in the first, to cinematic montage and single-frame cinematography, and, in the second, to realist and structuralist/materialist theories of cinematic ontology. A model for this method is the work of the artist Andrew Norman Wilson, whose *ScanOps* (2012) consists of a series of photographs culled from Google Books. Just as Wilson reveals that the scanner and the scanner’s operator are not incidental to Google’s digitization practices, I aim to show how the camera and the camera operator played an active role in creating animated cartoons. Therefore, taking as its basic premise the fact that all works of cel animation were photographic in origin, chapter 2 demonstrates the ways in which the physical reality of our world, and particularly the world of the animation studio, leaves its mark on the cartoon image. I catalogue the various visual imperfections that testify to cel animation’s photographic origins. These include improperly placed cels, reflections of the

camera apparatus, dust and dirt particles, and even fingerprints left by anonymous laborers. Although these mistakes may only appear on the screen for a fraction of a second, each has been preserved for posterity as a still photograph.

The problem of the “mistake” is then complicated in the third chapter, which marks a shift away from photographic accounts of animation, toward its graphic characteristics. I look in particular at cels painted by anonymous female laborers whose work it is that we ultimately see on-screen. This chapter aims to challenge the division between creative and noncreative labor by imagining that these paintings might contain “deliberate mistakes,” an oxymoron that exposes the impossibility of knowing artistic intent in works of mass art. Although our knowledge here encounters an absolute limit, we can nonetheless speculate about what such mistakes might look like: the frame-by-frame examination of numerous cartoons uncovers countless instances in which representation falls apart, as when famous cartoon characters are distorted beyond all recognition (usually in order to simulate graphically a photographic effect, such as motion blur). I then pose a counterfactual: What if every frame contained these mistakes? Once again, this might seem like an unsolvable riddle, but, once again, the films themselves raise a possible answer: the continuous unspooling of the filmstrip—the sequential logic the first chapter resists—readily assimilates even the most discontinuous of images.

It is only in the final chapter that I offer a means of bringing my mode of close analysis to bear on formal analysis. Looking at cartoons frame by frame illuminates the relationship between form and content, the medium and the message, the means of production and the narrative. Furthermore, chapter 4 comes closest to a traditional history of film style and technology, charting how changes in the US animation industry of the 1950s altered the aesthetics of popular cartoons. As I show, rising production costs and competition from television forced many studios to downsize or even send work overseas. Walt Disney, for one, eliminated an entire branch of his studio—the Inking Department. The method of manual reproduction that had held sway for four decades was supplanted by xerographic reproduction, also known as photocopying. Disney’s *One Hundred and One Dalmatians* (1961), the central case study, is a film that could not have been made without the Xerox machine, as well as a film *about* the Xerox machine. A close analysis of its visual style reveals how cel animation is shaped both by the demands of mass production and by technologies of reproduction.

Each of these chapters thus provides a way of looking at the art, labor, and technology of cel animation. The first treats each frame as the photographic reproduction of a historical document, the second as a photograph proper, the third as a graphic image, the fourth as text. These are thought experiments. To look in each of these ways in turn and in conjunction requires concentration. A cubist hermeneutic, it strains the eye and tests the limits of plausibility, with a view toward the impossible. In animated cartoons, anything can happen.

# Animation and Montage

## *Or, Photographic Records of Documents*

*I would like to make a montage from the fragments discovered by others, but for a different purpose—mine! It is like the cinema: I don't need to play any part at all. My job is to link all the pieces up.*

—SERGEI EISENSTEIN<sup>1</sup>

*The first stage [ . . . ] will be to carry over the principle of montage into history. That is, to assemble large-scale constructions out of the smallest and most precisely cut components. Indeed, to discover in the analysis of the small individual moment the crystal of the total event.*

—WALTER BENJAMIN<sup>2</sup>

### ORDER AND DISORDER

Variations on the same gag appear in the live-action prologues of both *Little Nemo in Slumberland* (1911) and *Gertie the Dinosaur* (1914), two pioneering contributions to the art of animation by the cartoonist-cum-vaudevillian-cum-filmmaker Winsor McCay. In the first, an intertitle informs us that “Winsor McCay [has agreed] to make four thousand pen drawings that will move, one month from date.” Assistants shuttle barrels of ink and reams of drawing paper into his studio while he toils away at a desk already teeming with finished sketches. A boy, intrigued by a particularly tall stack of papers, cannot contain his curiosity: Just what does all this amount to, anyway? In his eagerness to flip through McCay’s drawings, he spills the pile—and himself—across the floor. In the later film, shortly after McCay declares that he has “made ten thousand cartoons,—each one a little bit different from the one preceding it,” a hapless assistant, charged with bearing a towering testament to McCay’s feat, tumbles down the stairs and brings hundreds of papers fluttering along with him. In each instance, the pratfall simultaneously bolsters the magnitude of McCay’s claim (how did he ever keep all those papers in order in the

first place?) and playfully deflates his self-aggrandizing rhetoric (no prisoners will be denied parole or patients medical care because of the paperwork that is here so dramatically—that is, comically—misplaced). Tellingly, the live-action prologue to McCay’s foray into wartime propaganda, *The Sinking of the Lusitania* (1918), forgoes this gag, but not the reference to the staggering amount of work: “Twenty-five thousand drawings had to be made and photographed one at a time,” an intertitle notes, a total that speaks to the seriousness of both McCay’s dedication to his craft and the film’s subject matter.

Although it has been amply demonstrated that McCay inflated these numbers—and, moreover, that he was not the sole laborer in his production crew—the fact remains that each of his animated films effectively serves as a record of several thousand discrete images.<sup>3</sup> Most of the original drawings are lost. Their photographic reproductions, in the form of these films, are all that survive. Thus *The Sinking of the Lusitania* is doubly a documentary: the graphic reconstruction of a devastating act of war and the photographic record of that graphic reconstruction. With *Little Nemo in Slumberland*, McCay set out to make “four thousand drawings that will move,” and it is this movement we take to be its initial attraction—but no less astonishing is the filmstrip’s frame-by-frame preservation of four thousand (give or take) individual drawings.

Four thousand, coincidentally, is the number of photographs that Walter Benjamin, writing in 1931, attributed to Eugène Atget, while ten thousand is the number scholars now estimate him to have taken.<sup>4</sup> Atget, who for thirty years documented the buildings, streets, and people of Paris, never wrote about the visual database he amassed. His photographs, even his portraits, are stripped of vital contextual clues; they seem haunted by what is not visually present. The reception of Atget’s photographs by Benjamin, the Surrealists, and others privileges an aesthetic discourse, but one can also submit them to another discursive order, as Rosalind Krauss has argued—that of the filing cabinet, which “holds out the possibility of storing and cross-referencing bits of information and of collating them through the particular grid of a system of knowledge.”<sup>5</sup>

Similarly, we might think of Winsor McCay’s films—and, indeed, of any animated film—as belonging to the discursive order of the filing cabinet, that is, as a visual catalogue. While the documents catalogued therein happen to be ordered in such a way that, if viewed in succession at a precise speed, they produce the illusion of movement, they can also be re-sorted, cross-referenced, or simply viewed one frame at a time, just as they were photographed. Imagine, for instance, if the papers scattered by the errand boy had been recorded in whatever order they happened to be picked up. The viewer of this resultant film would not perceive *Little Nemo* or *Gertie the Dinosaur* as alive, but would rather have the sense of watching a series of rapidly alternating individual drawings. This chapter aims to likewise disrupt the viewing process: to free the constitutive frames of the animated film from the sequential logic of the filmstrip and approach animation as nothing more

and nothing less than a collation of reproduced documents. If, as the film theorist Imamura Taihei phrases it, “An unbreakable rule of animation is that one frame must follow the next to move Mickey and Donald,” then this chapter breaks that rule.<sup>6</sup> The single frame is viewed in isolation, in conjunction with frames that do not precede or follow it, and is juxtaposed with other instances of photographic reproduction wholly distinct from animation.

I thus inaugurate a study of the single frame, the single document, in which the tiniest of details—a brushstroke, a shadow, an errant speck of dust—is freighted with historical and, ultimately, political weight. After all, this is the conclusion Benjamin draws from Atget’s photographs of deserted Parisian streets: “A crime scene, too, is deserted; it is photographed for the purpose of establishing evidence. With Atget, photographic records begin to be evidence in the historical trial. This constitutes their hidden political significance.”<sup>7</sup> By “document,” meanwhile, I aim to link the graphic compositions out of which animated cartoons are composed to the sorts of mundane, everyday primary materials that form the basis for histories, biographies, and documentaries, not to mention criminal investigations: postcards, death certificates, invoices, ticket stubs, prescriptions, classified advertisements. Any given document can be read on its own, put under the microscope, held up to the light, smelled, torn, or read against similar documents—whether of the same genre, the same place of issue, the same paper stock, or the same typeface—in search of salient differences.

Confronted by the thousands of constitutive frames of a motion picture and seeking to recover the ephemeral documents to which each frame corresponds, I must play at being the police detective Alphonse Bertillon or the art historian Giovanni Morelli. I must analyze the elements of the reproduced image as if they were “footprints, stars, feces (animal or human), colds, corneas, pulses, snow-covered fields or dropped cigarette ash”—that is, the traces of a crime scene.<sup>8</sup> This is an impossible task, a foolhardy task. Bertillon confessed that not even he could be expected to scour the collection of criminal portraits his police force had amassed. To sift through hundreds of thousands of photographs was an undertaking “so fatiguing to the eye” that “errors and oversights” would be inevitable.<sup>9</sup>

Sometimes the clues I seek are buried or misplaced. Certain revelatory details may have been swallowed up by the chemical deterioration of film stock. Films transferred to DVD and Blu-ray, meanwhile, are typically scrubbed of many of the most revealing “imperfections”—but they also are accessible for review and examination in ways that archival prints are not. In addition, special-effects techniques like multiple exposures, optical printing, wash-off relief emulsions, or rotoscoping may turn the document into an illegible palimpsest. In fact, rare is the animated film composed solely of one *kind* of document. *Gertie the Dinosaur* is perhaps the simplest case, a collation of sheets of rice paper measuring seven by nine inches—but even these basic facts about the materials cannot be obtained simply by watching the film.

The document produces knowledge, but its legibility as a document is also determined by the knowledge one brings to it: a historian of science might be most interested in how the individual drawing conforms to the standards of contemporary paleontology, a graphologist in the particularities of each pen stroke, a film archivist in the discrepancies from one frame to another. I approach it in order to understand the individual photograph as the reproduction of both a historical document *and* an aesthetic object. Benjamin articulates this dialectic in “One-Way Street” (1928): “The artwork is only incidentally a document,” he writes, whereas “no document is, as such, a work of art.” Yet documents, in Benjamin’s schema, are rich with buried surprises that, once unearthed, are overpowering: “The more one loses oneself in a document, the denser the subject matter grows.”<sup>10</sup> How do we cut through that thicket? How do we penetrate the document’s tangled overgrowth?

For Allan Sekula, these questions are imperative. Sekula, writing about *how* to write about photographs of miners in Nova Scotia, argues, “We need to understand how photography works within everyday life in advanced industrial societies: the problem is one of materialist cultural history rather than art history.” He thus privileges the photograph as a historical document—but, importantly, not therefore as “a transparent means to knowledge.”<sup>11</sup> Rather, the photograph becomes, for him, an object in which knowledge hides, an object out of which knowledge must be startled. I regard the photographs taken in US animation studios—the photographs of which animated cartoons are composed—to be just as socially and politically fraught as the objects of Sekula’s study. They invite the same level of scrutiny and provoke the same contradictions. Inspired by Benjamin’s “Theses on the Philosophy of History” (1940) Sekula declares: “The archive has to be read from below, from a position of solidarity with those displaced, deformed, silenced or made invisible by the machineries of profit and progress.”<sup>12</sup> I must look at the visual archives that are animated cartoons, in other words, to see what is not there, to locate what has been obscured. Most often, it is the labor-intensive photographic process that is silenced by the movement of the film through the projector, a labor process that is only restored when one enacts it oneself. This chapter marks my attempt to read these archives from below, as Sekula implores us to do, in order to recuperate the dynamic interplay between art and labor.

To do so, of course, is to confront continual epistemological instability. *The Sinking of the Lusitania*, for instance, presents the viewer with a wider range of materials than its predecessors. About them we can only speculate. We know, based on extant publicity materials, that McCay painted layers of transparent cellulose nitrate to achieve some of the film’s rich, sensuous pleasures, but just how many cels, and exactly what kind of paint did he use? Once the production of animated cartoons became fully industrialized, the documents that have been reproduced are all the more ephemeral. Each film frame presents us with an overhead view of a stack of multiple cels that cohered only in the brief period it took for the camera operator to assemble and photograph them—an object that, according to

some animation scholars, “should not be considered a painting with a uniform, flat surface, but a layered image, similar to a relief.”<sup>13</sup> But the relief is flattened, its photographic reproduction resolutely two-dimensional. I cannot turn it over or peel apart its layers. I will inevitably encounter resistance, brought on in part by “the self-effacement of production,” which Edward Small and Eugene Levinson identify as “characteristic of motion pictures.” As they explain, “The film or video viewed by the spectator are not those physically created by the filmmaker; film/video images are separated from their creation by one or more stages of processing and duplication and are normally viewed in optical or electronic projection, a condition that further isolates the spectator from the physical piece of work.”<sup>14</sup>

The object I desire is necessarily at a remove from me. My experience of watching cartoons resembles that of historians poring over archival materials on microform: the Melville biographer Hershel Parker, for one, remembers how the text of microfilmed issues of the New Orleans *Picayune* looked “like specks under a film of milk”; literature scholar Lawrence Cummings, while working through a microfilm of Renaissance manuscripts, thought he had discovered in “the phantasms of the old handwriting flitting by on the viewer” a poem by Sir Walter Raleigh, but the spectral signature turned out to be merely “a few random pen scratches and an interesting pattern of wrinkles.”<sup>15</sup> It seems that, however close I may wish to come to the original document, I will always be “kissing [it] through a pane of glass,” which is how one microform user described the research process.<sup>16</sup>

Nonetheless, there *is* information to be gleaned from frame-by-frame study of the animated cartoon—deictic information that points both to the reproduced document’s composite elements and to who and what is absent from the frame—hence the need for a forensic gaze. To watch animated cartoons in this way—“at closer range and as if through a magnifying glass,” adopting Marcel Proust’s phrase—is to evoke something not unlike Proust’s comparison of photography to kissing:

Apart from the latest developments in photography—which lay down at the foot of a cathedral all the houses that so often, from close up, seemed to us to be as high as towers, which deploy like a regiment, in file, in organized dispersion, in serried masses, the same monuments, bring together on the *piazza* the two columns that were so far apart a while back, distance the nearby Salute, and, on a pale and lifeless background, manage to contain an immense horizon beneath the arch of a bridge, in a single window frame, between the leaves of a tree in the foreground that is more vigorous in tone, frame a single church successively in the arcades of all the others—I know of nothing that is able, to the same degree as a kiss, to conjure up from what we believed to be something with one definite aspect, the hundred other things it may equally well be, since each is related to a no less valid perspective.<sup>17</sup>

A single still from an animated cartoon, read as the photographic document it is, likewise enlarges, compresses, reframes, and aestheticizes its subjects. What



was visible to the naked eye, such as the transparent sheet of celluloid, disappears beneath the camera's gaze, while the photograph simultaneously reveals what even the most diligent technician had missed.

In what follows, I examine a range of historical fragments, all of which test both the limits of technological reproduction and the linear organization of the filmstrip. Bits of information are cross-referenced and stored along new grids of knowledge, models of which are provided by the mosaic and the card index, in which disparate elements are brought into contact—and into conflict. This is the montage principle of Benjamin's *Arcades Project*, of Sergei Eisenstein's film theory, and of Eisenstein's protégé Jay Leyda, whose biographies of Herman Melville and Emily Dickinson I examine in relationship to questions of reproduction and materiality. This is, too, the organizational structure of many of the experimental films of Robert Breer, whose *Blazes* (1961) sorts and re-sorts one hundred index cards. But it is also, surprisingly, a model suggested by popular animated cartoons themselves. While they may prioritize the movement of their characters, through which they are imbued with life, they occasionally break from that frame-by-frame logic. For instance, they deploy single-frame "flicker" sequences in order to rupture the illusion of motion. Alternatively, they halt the animation altogether in order to allow the viewer to linger over expository text, and notably, this text often assumes the form of collaged newspapers and magazines. All of these examples preserve ephemera—scraps, fragments—through technological means, and all resist the linearity of normal viewing: in "the procedure of montage," according to Benjamin, "the superimposed element disrupts the context in which it is inserted."<sup>18</sup> Once viewed in this way, against the forward propulsion of the filmstrip, the aesthetic objects I consider emerge as historical documents, bearing traces of labor that would otherwise be silent and invisible.

#### PHOTOGRAPHIC RECORDS OF DOCUMENTS

Ludwig Wittgenstein took notes on index cards, as did Claude Lévi-Strauss and Aby Warburg and Michel Leiris and Stéphane Mallarmé. Preserved in Roland Barthes's archive at the Institut Mémoires de l'édition contemporaine are around 12,250 of the critic's index cards and slips of paper.<sup>19</sup> Walter Benjamin's *Arcades Project* comprises thousands of what he called "scraps" or "shreds"; his near-microscopic handwriting fills everything from "the reverse sides of letters sent to him, postcards or an invitation to review, library forms, travel tickets" to "proofs, an advertisement for 'S. Pellegrino,' [and] prescription pads discarded by his friend Fritz Fränkel, doctor and drug connoisseur." Emily Dickinson wrote her two thousand or so poems on such scraps of paper as "a guarantee from 'The German Student Lamp Co.,' an advertisement for *The Children's Crusade*, instructions for laying down carpet from 'J.C. Arms & Co.' in Northampton, an invitation from twenty-six years earlier, the 1871 schedule for an agricultural college's proceedings,

part of a 'John Hancock Number One Note,' and a 'Western Union Telegraph Co.' envelope." Sergei Eisenstein, too, wrote prolifically, and on whatever he had at hand—whether calendar pages or napkins or screenplays or concert programs.<sup>20</sup> The verb Benjamin used for his note-taking process, *verzetteln*, can mean "to fritter away," but its less pejorative meaning within library science has resonance for the creative practices of Barthes, Dickinson, Eisenstein, et al.: "to disperse things that belong together into individual slips or into the form of a card index."<sup>21</sup>

When an index card or a slip of paper marked by one of these artists or writers is photographically reproduced, perhaps in a book (for instance Barthes's *Roland Barthes* or *Mourning Diary*) or an online database (for example the Emily Dickinson Archive or the Emily Dickinson Collection), we generally accept the photographic reproduction as a suitable proxy for an original document that would otherwise be inaccessible, perhaps because it is too fragile or precious to be handled or has been since lost or destroyed. In the words of the poet Susan Howe, "The original remains perfect by being perfectly what it is because you can't touch it."<sup>22</sup> Hence a scholar who is eager to learn more about the genesis of Charles Sanders Peirce's theory of photography ("photographs [are] produced under such circumstances that they were physically forced to correspond point by point to nature") but who is unable to make the trip to Harvard's Houghton Library to peruse his manuscripts will find the contents of the microfilm reels photographed between 1963 and 1970 a satisfactory substitute.<sup>23</sup> Perhaps she will express disappointment, as one reviewer did, in the somewhat pallid color of the first thirty reels, but it is doubtful that image quality will undermine her basic faith in the *that-has-been* of the sheet of paper bearing Peirce's idle doodles.<sup>24</sup> Skepticism about the why and the how of photography's evidentiary function has a time and a place, to be sure, but here the scholar is more than willing to take the image before her at face value—much as the United States Patent Office felt no need to question the premises undergirding George Lewis McCarthy's Checkograph, a microfilm camera invented in 1925 for banks to keep track of monetary transactions, which he neatly described as an "apparatus for making photographic records of documents."<sup>25</sup>

In this sense, then, *Blazes*, an animated film by the experimental filmmaker Robert Breer, is a photographic record of documents—one hundred index cards, each of which appear about forty times in the course of the film's three minutes and fifteen seconds. Like Wittgenstein and Leiris, Breer frequently worked from the index card, a medium he settled on for several reasons. For one, its relatively small dimensions (around four by six inches) could be filled faster than the eight-by-twelve-inch sheets of paper he had used for the film *A Man and His Dog Out for Air* (1957). As he told Robert Gardner in a 1976 episode of *Screening Room*, "Cutting down in size meant that I wouldn't have to draw as much"—reasoning he then likened to the decision by animators to give cartoon characters such as Mickey Mouse only four fingers.<sup>26</sup> For another, the stiffness of the cards

enabled him to save additional time, in that he could simply “jam them right up against a stop,” thereby foregoing the standard “peg-and-hole registration, which takes time.”<sup>27</sup> He could also fashion the cards into a makeshift flip-book in order to preview his work before he photographed it. But, while Breer was guided by concrete economic and material concerns, it seems possible that the use of index cards in *Blazes* was not wholly incidental. One could say that it also offered a model for organizing a collection of documents, such as the contents of one of Barthes’s *fichiers*. Breer explained his creative process in an interview in 1966:

There are a hundred separate pictures for this film. Some 4,000 pictures make the film. But only 100 images to start with. By changing the order around, it changes completely, since they are very closely related to each other, one overlapping the other. You have a feeling of seeing the same image twice. I shuffle the cards the way you shuffle a deck of cards, to get new arrangements. And to go from one hundred to four thousand, I had to do it quite often.<sup>28</sup>

The structure of *Blazes* is dictated by a chance operation, not unlike Mallarmé’s die rolls or Merce Cunningham and John Cage’s coin flips (although Breer admits that he would sometimes revise the order slightly if the shuffled outcome was not to his liking). He thus offers a novel solution to the oft-intractable problem of how to organize vast quantities of paperwork: the order of randomness. In addition, with each new performance of this operation, Breer, in essence, re-sorts and cross-references his index cards, thereby allowing new connections to be forged between previously disparate documents.

What if Benjamin’s scraps were submitted to the same protocol? This is not merely a whimsical exercise. After all, according to Ursula Marx, Benjamin had portions of the *Arcades Project* photographically reproduced and the photographs sent to the Institute for Social Research in New York.<sup>29</sup> It would not be a stretch to imagine its entire contents being photographed scrap by scrap on microfilm—but in what order? As Benjamin’s editors make clear, the meaning of each of his individual documents is very often contingent on the documents preceding and following it. Struggling with how best to reproduce the organizational system devised by Theodor Adorno after Benjamin’s death, Benjamin’s editors ultimately opted to translate *Konvolut*, which in German means “a larger or smaller assemblage—literally, a bundle—of manuscripts or printed materials that belong together,” as “convolute,” on the grounds that it was “the most precise and most evocative term for designating the elaborately intertwined collections of ‘notes and materials’ that make up the central division of this most various and colorful of Benjaminian texts.”<sup>30</sup> An animated *Arcades Project* that followed the organizational system proposed by *Blazes* would make visible such intertwining, such convolution, such color. The order of Breer’s cards—and by extension the order of his film’s frames—fundamentally alters what the viewer sees, and so too

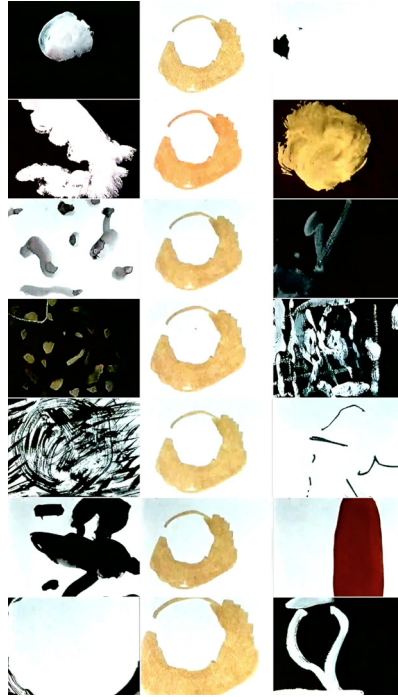


FIGURE 1.1. Selected three-frame sequences from Robert Breer, *Blazes* (1961).

would this reimagined *Arcades Project* yield unexpected and revealing juxtapositions between its source scraps.

Consider the many iterations of just one of Breer's index cards (fig. 1.1). Against the card's white background Breer has painted an ochre-colored incomplete outline of a circle. The top third of the shape is rendered in a single, thin stroke. The remaining circumference is wide and jagged, its paint unevenly applied. Not all of these elements are apparent when the film is watched at regular speed; the image on the card registers merely as a golden halo that glows for an instant and then is gone. But when one compares and contrasts it to the many different cards that immediately precede and follow it throughout the film, new aspects of the card's contents are brought to the fore. In one sequence, it is sandwiched between a black card with a large white painted circle that almost—but not quite—corresponds to the circle suggested by the interior of the ochre-colored circumference and a white card with two small black splotches in its left third. It is hard not to notice here the placement and the shape of the ochre ring: it seems, on the one hand, decidedly less circular than the shape on the first card, and yet more deliberately applied than those splotches that mark the third card. In another sequence, the white card

with ocher ring comes between two black cards; on one is painted a thick zigzag that somewhat resembles a dove in flight, and on the other a yellow circle about the size of the ocher ring. The gestalt of the first card, how it conjures up a bird flapping its wings, makes the ring seem all the more abstract in comparison, while the yellow circle, by way of its similar color and shape, serves to concretize it. A third sequence highlights how thickly or thinly paint can be applied; a fourth inaugurates a subtle interweaving of colors, from black and gold to white and gold to white and black; still another demonstrates the variety of brushstrokes Breer has in his arsenal.

One becomes aware, too, of the mediating presence of the camera—how its exposure settings and proximity to the object before the lens can affect the color of the paint, the whiteness of the index card, and the scale of the image. Each new arrangement in which the index card appears illuminates, in turn, a new aspect of its material characteristics. What is emphasized, ultimately, is the card as a *historical document*, one that has emerged from what D. N. Rodowick calls a “past process that took place in the physical world”—and at this juncture I confront the limits of both my own knowledge and the vocabulary I have to express that knowledge.<sup>31</sup> That I am compelled to liken the painted shape to a circle and pin its ever-shifting color within the yellow-ocher-gold range—indeed, that I do not hesitate to call the chemical compound on the card “paint”—is suggestive of the force of its appeal as an aesthetic object. Indeed, it would be ludicrous to speak of such an image as if it did not cohere into a recognizable shape, a discernible color. But even as I fall back on the familiar language of painting to describe what I see, I am repeatedly reminded of the manipulability and materiality of the original index card.

I cannot handle this particular index card, but I understand that it had an existence in the world. Other animated experiments by Breer I could have touched, for they did not always assume a cinematic form. In the mid-1960s, for example, he exhibited as sculptures several mutoscopes, mechanical variations on the flip-book. Their sculptural form makes literally tangible the three-dimensionality of the organizational model offered by *Blazes*. In addition, these mutoscopes remind the viewer of the three-dimensionality of the film’s source material. Its constitutive cards could be picked up, moved around, rearranged, rotated. “I have frames in my hand,” Breer told P. Adams Sitney and Jonas Mekas in 1971, describing the process behind three of his later films, 66 (1966), 69 (1969), and 70 (1971). “Those cards are frames. And so I am playing with a piece of film, really. I am editing with individual frames.”<sup>32</sup>

Through such manipulation Breer was able to “attack the basic material, to tear up film, pick up the pieces and rearrange them.”<sup>33</sup> Breer thus inadvertently—but significantly—answers earlier calls for “three-dimensional” systems of organization by Benjamin and Eisenstein. Benjamin, for one, anticipated how Breer’s mutoscopes would make palpable the multiple reorderings to which Breer

submitted the hundred index cards of *Blazes*: “The card index,” he wrote in “One-Way Street,” “marks the conquest of three-dimensional writings.”<sup>34</sup> Eisenstein, in a diary entry written one year after the publication of “One-Way Street,” reached a similar conclusion: “It is very hard to write a book. Because each book is two-dimensional.” The book, then, should be three-dimensional, in fact, spherical, which would allow for “a synchronic manner of circulation and mutual penetration of [its] essays.”<sup>35</sup>

Eisenstein’s emphasis on simultaneity and synchrony finds its realization in *Blazes*, “a film where notions of continuity are shattered,” as Breer calls it: “The succession of abstract pictures follows so quickly and is so different from one to the next that one doesn’t accurately see any one picture, but has the impression of thousands.”<sup>36</sup> That Breer here chooses the word “impression” is, I think, particularly striking. However colloquial in its deployment, it nonetheless recalls Eisenstein’s frequent use of the word *Eindruck* in the original German version of “The Dramaturgy of Film Form” (1929), in which he explores the relationship between the still image and cinematic montage. As François Albera has observed, this seminal essay borrows from the lexicon of printing: *Eindruck*, or “impression,” is a term common to engraving.<sup>37</sup> What is significant about this word choice is how it reinforces the *-graph* of the photograph, of the still image. In Eisenstein’s account, the image is *inscribed* in the viewer’s perception. “The idea (sensation) of movement” of a discrete object, Eisenstein explains, “arises in the processing of superimposing on the retained impression of the object’s first position the object’s newly visible second position.”<sup>38</sup> We might read this explanation as an erroneous allusion to the role the “afterimage” was believed to play in facilitating human perception of cinematic movement. What is most important, however, is its emphasis on the *force* of the still image. The single frame is an “impression,” an engraving, a *print*. Even if no one frame is ever discernible to the naked eye, so great is “the degree of incongruity” between each frame that even greater is “the intensity of impression.”<sup>39</sup>

According to Albera, meanwhile, the “frame-based” works by experimental filmmakers like Werner Nekes, Peter Kubelka, and Paul Sharits also realize Eisenstein’s argument. But it is not only the avant-garde that produces frame-based work. Like Edward Small and Eugene Levinson, I would contend that all animation—whether produced by a single artist, such as Breer or Jacobs, or at a major production studio, such as Universal or Warner Bros.—amounts to “single-frame cinematography,” a definition that “logically implies that animation and montage are equivalent, that they represent the same basic operation.”<sup>40</sup> And while most cartoons aim to soften the discontinuity between frames through the careful frame-by-frame reconstruction of animal and human locomotion, they sometimes deviate from that tendency—and quite radically. I will examine this technique, along with its implications for the single frame’s dual status as art and document, in the next section.

## RETINAL BOMBARDMENT

As early as the 1920s, with Otto Messmer's *Felix the Cat* series, animated cartoons began featuring brief "flicker" sequences consisting of the rapid alternation of all-black and all-white frames or positive and negative images—sequences meant to evoke blinding pulsations of lightning or elicit the sort of somatic overload brought on by shock. This technique is used in Wilfred Jackson's *The Busy Beavers* (Disney, 1931) in the midst of a rainstorm, in Walt Disney's *The Golden Touch* (Disney, 1935) to simulate the granting of King Midas's wish, and in William Hanna and Joseph Barbera's *The Night before Christmas* (MGM, 1941) to underscore an electrocution. Decades before Peter Kubelka's *Arnulf Rainer* (1960), Tony Conrad's *The Flicker* (1965), or Paul Sharits's *Epileptic Seizure Comparison* (1976), animated cartoons explored the thresholds of cinema's formal and material structures. The "retinal bombardment"<sup>41</sup> induced by stroboscopic effects deliberately undermines the fluidity of the animation.

To produce these effects, the camera operator usually photographed a blank card every other frame. Some of the more blinding sequences alternate cards of varying colors—red to blue to yellow—but a simple white insert is typical. But not all blank frames are created alike. They, too, are historical documents. This is particularly evident in stroboscopic sequences from two separate films: Bob Clampett's *A Gruesome Twosome* (Warner Bros., 1945) and Walter Lantz's *\$21 a Day (Once a Month)* (Universal, 1941). In Clampett's film, a white frame flashes on-screen at a moment of impact: a character has been pummeled over the head with a club, and the audience, too, is pummeled by the sudden blast of white. The white frame is an ellipsis in the action—we last see the character upright, the club coming down on his head, and when we are returned to the scene the club is broken in half, the character's eyes are drooping, and his tongue is dangling out of his mouth. In the missing moment we are both concussed. The white frame breaks the sequential logic of animation. And, on closer inspection, it does even more to break the continuity of the scene. Visible in the upper-left corner is a sketch, and not just any sketch: it is a pencil drawing of a dog's head, which served as the basis for a cel painting that appears about twenty seconds earlier in the same film. In other words, that incongruous white frame is a document of the film's production, one that can be cross-referenced with a document in the same film: a "before" sketch and its "after" painting, one upside down and the other right side up, one black and white and the other fully fleshed out in ink and paint, one an irruption in the flow of the animation and the other embedded in its frame-by-frame logic.

The stroboscopic sequence in *\$21 a Day (Once a Month)* is more protracted. The first in the studio's *Swing Symphonies* series, *\$21 a Day (Once a Month)* showcases an original song by Felix Bernard and Ray Klages. An army of toy soldiers and stuffed animals, stationed at "Camp Pain," engage in training exercises as well

as a spirited performance of the title song. The sequence in question features a stuffed dachshund and turtle, asleep in their barracks. The dog, disturbed by his companion's snores, first knocks the turtle's head into his shell. When the snores continue, he stuffs a pillow into the shell. The turtle, now unable to breathe, flails about, and his shell fills with air until it finally bursts, sending him ricocheting out of it. The sequence concludes with the turtle, now shell-less, hanging from a nail by the seat of his red flannel pajamas. Most of the sequence is done "on twos"—that is, the same cel setup is photographed twice, a standard labor-saving practice at most US studios, in that only twelve original drawings were needed per second, rather than twenty-four. But this changes in the second or so it takes for the turtle's shell to explode: the majority of the cel setups in this sequence are photographed only once, and much attention is paid to subtle changes in details even seemingly as minor as the contours of the puffs of smoke emitted by the turtle's shell. Nearly every frame stands as the sole record of an ephemeral document: a stack of transparent celluloid sheets, each one uniquely painted and inked, set against a static background painting. Every other frame, however, records not a cel setup but a white sheet of paper. The alternation between colorful representations of the struggling turtle and white frames creates a flicker effect that serves to enhance the visual impact of the explosion.

As with *A Gruesome Twosome*, what is unusual about *\$21 a Day (Once a Month)* is the particular white sheet of paper that has been photographed. The sheet is not blank, but rather bears a sketch of Woody Woodpecker, Walter Lantz's most famous cartoon star. Once Woody has been detected, one can begin to think in all earnestness of this sequence as a catalogue of historical documents. Although Woody's position shifts ever so slightly from frame to frame, one can compare each of the frames in which his face appears and determine that it is, in fact, the same drawing that has been photographed multiple times. One is thus brought back to the sequence's creation: the camera operator, the technician assigned what is notoriously the most tedious of studio tasks, arranging first the cels against the static background, then taking a photograph, then removing the cels and the background and putting the sheet of paper in their place, then taking a photograph, then replacing the background and arranging a new stack of cels, and so on. Because the sheet of paper's sole function is to provide a white frame, it matters only that it covers the entirety of the field of the lens; it matters not if Woody appears in the exact same place each time.

Did the camera operator know Woody would be visible in the final film? Is it only possible to see him because *\$21 a Day (Once a Month)* can today be viewed via a "restored" digital copy, one that perhaps brightened an image that the camera operator had intended to be obscure? These are facts that cannot be retrieved from the reproduction of this document alone. What I *can* observe is that only Woody's head and neck have been drawn on the sheet of paper, which leads me to believe that this sketch served as the source for an animation cel onto which Woody's



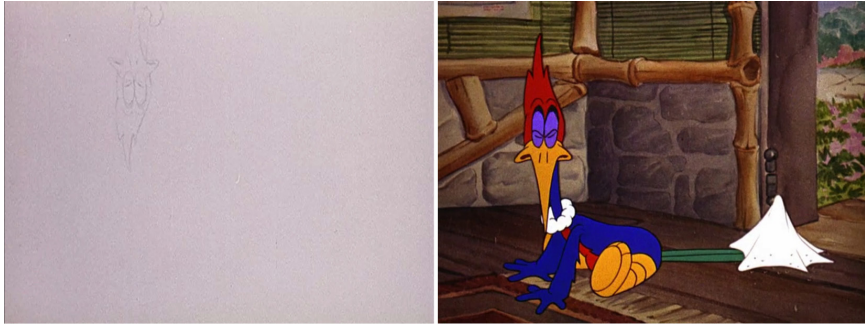


FIGURE 1.2. Woody Woodpecker in *\$21 a Day (Once a Month)* (Universal, 1941) and *Knock Knock* (Universal, 1940).

head and neck were then traced in ink and painted. That cel would have subsequently been placed on top of another cel, on which the rest of Woody's body had been inked and painted. A study of early Woody Woodpecker shorts reveals that the cel counterpart of this sketch appears at the end of Alex Lovy's *Knock Knock* (Universal, 1940)—the very first short to feature Woody Woodpecker, as it turns out. A comparison of the original sketch as recorded in *\$21 a Day (Once a Month)* and the final cel setup (as recorded in *Knock Knock*) strongly suggests that the camera operator for the former flipped over the sheet of paper in order to photograph its verso side—all the more reason to believe that Woody was not meant to be visible (fig. 1.2). The close study of the most minute details of these frames, these documents, as well as the differences between them, brings to the fore the process of the film's production, which would otherwise be obscured. The original sketch bearing Woody Woodpecker's face is long lost, and with it the trace of an animator's hand, but here it is preserved.

Yet an unbridgeable gap separates the viewer from the history to which this document testifies. It is possible to see that the animator drew on paper and that he used a pencil, but we do not know the animator's name, the paper's dimensions, the pencil's grade. More importantly, effaced is "the mark of the history to which the work has been subject," which, as Benjamin states, "can be detected only by chemical or physical analyses (which cannot be performed on a reproduction)."<sup>42</sup> There is thus a limit to the knowledge afforded by the reproduced document, a limit all too familiar to researchers who work with, say, magazines on microfilm. It is this distance that Nicholson Baker bemoans in his extended polemic against the endemic practice of destroying old newspapers in order to photograph (and hence preserve) them—the loss of the "empirical, thumbable thing."<sup>43</sup> Without such "thumbability," the bibliographical analysis of text is impossible, as Lawrence Cummings notes:

The “document” cannot be held up to bright light or tilted toward it in order to decipher erasures, to separate bleeding from the reverse from actual marks on the obverse, to look at a crabbed hand at an angle, or to practice similar techniques. The writing surface cannot be examined to determine whether it is paper or vellum, much less what quality. Watermarks are usually invisible, chain marks disappear, and gatherings cannot be determined. Stubs left from removed leaves can easily be missed.<sup>44</sup>

Perhaps this all seems gratuitously nostalgic, this pining for the irretrievable, reified moment. Or perhaps it all amounts to a rejection of the utopian potential of technological reproducibility, that promise of hitherto unconceivable proximity, of the new microscopic vision afforded by the camera lens, of the placement “of the copy of the original in situations which the original itself cannot attain,” and the resultant revolutionizing of social relations.<sup>45</sup> But my pursuit of the original document is driven largely by a desire to understand how its physical properties shaped the work of art. I know, for instance, that inkers and painters at the studios had to wear white cotton gloves, so as to prevent smearing the cels with the grease on their hands, and that the departments in which they worked had to be kept both humid (to prevent the paint from chipping) and cool (to prevent the paint from getting too sticky). The mediating presence of the screen—not to mention an unknown number of generations between the “restored” digital copy and the photographic negative—keeps the material, the witness to these conditions, beyond reach. If I long to touch the original document, to hold it in my hands, it is because I hope to understand how the paper’s dimensions and the pencil’s grade determined just what trace the anonymous animator could leave, as well as to understand the economic, social, and political networks that likewise left their mark on the work’s construction. Or, as Virginia Jackson says of Emily Dickinson’s manuscripts:

These objects themselves mark not only the absence of the person who touched them but the presence of what touched that person: of the stationer who made the paper, of the manufacturer and printer and corporation that issued guarantees and advertisements and of the money that changed hands, of the butcher who wrapped the parcel, of the manuals and primers and copybooks that composed individual literacy, of the expanding postal service, of the modern railroad, of modern journalism, of the nineteenth-century taste for continental literary imports.<sup>46</sup>

The intensity of the impression left by these white frames, these historical documents, extends beyond the initial violent impact on the viewer. They do more than leap out of the filmstrip. They lead us away from the film altogether, toward the anonymous workers who produced them, toward the organization of labor at the studios, toward the circulation of materials (paper, cels, pencils, paints), toward the histories of which they are but a fragment, a crystal.

## THE MANUSCRIPTS THEMSELVES

What I have described is montage. In Eisenstein's formulation, montage resists the linearity of the filmstrip. Conceived of as superimposition, in which one image is overlaid atop another, or as juxtaposition, in which two ideas are not just placed side by side but pitted against one another in conflict, montage overflows the continuous stream of film. The Kino-Fist thrusts itself into the audience; the advent of the synchronized soundtrack brings with it the possibility of sound-image counterpoint; the wide-angle lenses of his cinematographer Eduard Tisse mobilize the static image through wild contrasts in scale; "the dynamic square," a screen that can change shape, suggests frames that exceed the dimensions afforded by the conventional filmstrip. Montage is multidimensional, contradictory, simultaneous, contrapuntal, stereoscopic.

Jay Leyda, who studied with Eisenstein in the Soviet Union and translated many of his writings into English, attempted to apply his mentor's theory of montage to literature and, ultimately, history. His efforts culminated in two documentary biographies, *The Melville Log: A Documentary Life of Herman Melville* (1951) and *The Years and Hours of Emily Dickinson* (1960), the first of which was dedicated to Eisenstein. The structuring principle behind both works is simple: they present, without commentary and in chronological order, excerpts from marginalia, deeds, newspaper articles, census reports, and other historical documents pertaining to the lives of these two great writers. While chronology is the overall structuring principle, Leyda is most interested in what happens on a smaller scale, through juxtaposition. In his introduction to *The Melville Log*, for instance, he argues that "the relation *between* two documents, *among* a cluster of documents . . . tells us far more than we would ever have guessed by examining them singly," and that "these invisible relationships speak not only of Melville but of the historical climate in which he worked and died."<sup>47</sup>

Leyda thus follows a model of "literary montage" remarkably similar to that which guided Benjamin's *Arcades Project*: "I needn't *say* anything," Benjamin writes. "Merely show. I shall purloin no valuables, appropriate no ingenious formulations. But the rags, the refuse—these I will not inventory but allow, in the only way possible, to come into their own: by making use of them."<sup>48</sup> Indeed, Leyda referred to his own research process as "rag-picking."<sup>49</sup> How familiar Leyda was with Benjamin's work is unclear. He corresponded with Max Horkheimer about translating "The Work of Art in the Age of Its Technological Reproducibility," about which Benjamin then sent him a letter in 1937, but this project never came to fruition.<sup>50</sup> Nonetheless, it is hard not to read his claim that Emily Dickinson "would make mosaics of her oblique quotations, each jagged color fragment lightly contributing to her broad design"<sup>51</sup> without hearing echoes of Benjamin's *The Origin of German Tragic Drama* (1928):

Just as mosaics preserve their majesty despite their fragmentation into capricious particles, so philosophical contemplation is not lacking in momentum. Both are made up of the distinct and the disparate; and nothing could bear more powerful testimony to the transcendent force of the sacred image and the truth itself. The value of fragments of thought is all the greater the less direct their relationship to the underlying idea, and the brilliance of the representation depends as much on this value as the brilliance of the mosaic does on the quality of the glass paste. The relationship between the minute precision of the work and the proportions of the sculptural or intellectual whole demonstrates that truth-content is only to be grasped through immersion in the most minute details of subject-matter.<sup>52</sup>

Both Leyda and Benjamin are interested in the relationship between the part and the whole, the tile and the mosaic. Each individual fragment catches the light in its own way, teasing the eye; set alongside another glass shard, light bounces to and fro, changing colors. Out of this interplay emerges a picture of the whole. Thus Leyda warns in the preface to the biography of Dickinson that “the reader should be prepared for the strangest possible variety of juxtaposed documents, transcribed and extracted from manuscript and printed sources, ordered and dominated by a single chronology, and presented with a single aim: to get at the truth of Emily Dickinson.”<sup>53</sup>

There exists extensive literature on the status of the document vis-à-vis Dickinson’s poetry, much of it concerned with the economic, social, and political networks in which Dickinson and her materials were enmeshed.<sup>54</sup> For instance, Alexandra Socarides concludes her recent monograph on the paper used by Emily Dickinson with the observation that William Carlos Williams wrote many of his poems on prescription pads. “Might we attribute Williams’ short lines not only to the tenets of Imagism, but to the contours of his small prescription pad?” she asks. In posing this question, Socarides invites us to return “to the moment of writing,” to “the scene of composition.”<sup>55</sup> A similar question leads me to scour the reproduced document in search of clues about the original’s materials. But, as I have suggested above, this search often comes up empty. Worse, it risks privileging one aspect of the production process over others or engaging in a naive materialism that “tells us that in regard to railways one should only think of rails and ways, in regard to trade contracts only of sugar and coffee, and in regard to leather factories only of leather.”<sup>56</sup> How far back should one go? To the factory where cels were manufactured? To the chicken coops wherein hens laid the eggs that will serve as base for tempera paints? To the earth from which the pencil’s graphite was extracted?

Leyda’s biographical study of Dickinson provides one solution. In his pioneering attempt at the avenue of research gestured at by Socarides, Leyda claimed to have ransacked “the dust of neighbors’ attics” in pursuit of material on Dickinson. The result is a model of organizing historical documents that facilitates

cross-referencing and re-sorting. Of particular fascination to him were the books that Dickinson read, for he thought of books not as immaterial texts whose material is only incidental but rather as historical artifacts that exist as concrete objects capable of circulating through social networks, bearing notes in their margins, and surfacing in unexpected contexts.<sup>57</sup> (His description of his method as “rag-picking” is thus especially apt, as rag-pickers were the ones who sold paper manufacturers their base materials.) In a letter to Millicent Todd Bingham, the daughter of Mabel Loomis Todd, who was one of Dickinson’s early editors and the mistress of Dickinson’s brother Austin, he writes, “I’m using Miss Dickinson for my excuse to be reading all of George Eliot (and most for the first time, too).” In the course of his reading, he tells Bingham, “I have come across some surprising links,” including an echo of a passage from Eliot’s *Mill on the Floss*, first published in 1860 (“Mrs Glegg . . . had inherited from her grandmother . . . a brocaded gown that would stand up empty, like a suit of armor”), in a letter Dickinson wrote to Samuel Bowles in 1862 (“your memory . . . can stand alone, like the best Brocade”).<sup>58</sup> Recognizing such connections helps disabuse us of the conception of Dickinson as an isolated, mystical genius. She becomes, instead, decidedly human, a product of her distinct time and place.<sup>59</sup>

One of the last novels Dickinson read was Hugh Conway’s *Called Back* (1883). The book, which was given to her as a gift and which she discusses admiringly in a letter to her cousins, demonstrates how such objects could circulate in the late nineteenth-century United States. It accrues even further meaning, meaning that reverberates well beyond Dickinson alone, when one considers the place it assumed in the final days of her life. These two weeks (April 30 to May 16, 1886) are documented in two pages of *The Years and Hours of Emily Dickinson*, wherein Leyda marshals material ranging from Dickinson’s letters (one, addressed to T. W. Higginson, reproduced in her hand, the other transcribed by Leyda) to a doctor’s prescription to diary entries to reports from local newspapers.<sup>60</sup> At play are a variety of styles, including the uncanniness of Dickinson’s nearly indecipherable handwriting working in concert with its prophetic undertone (“ . . . does he live now? My friend—does he breathe?”) and the hyperbolic language of the diary entries (writes Mabel Loomis Todd, Dickinson’s brother “is terribly oppressed”). Five successive documents read as follows:

EARLY MAY? ED sends a message to Louise and Frances Norcross:

Little Cousins,  
 “Called back.”  
 Emily.

MAY 12. *In the Record*: Prof. Todd is still searching for the trans-Neptunian planet, being convince that he has found the spot in the heavens where the planet will sometime be discovered as a star of the thirteenth magnitude.

MAY 13, THURSDAY. *Austin Dickinson's diary*: . . . Emily seemed to go off into a stark unconscious state toward ten—and at this writing 6 P.M. has not come out of it. Dr Bigelow has been with her most of the afternoon

*Dr. Bigelow prescribes, for convulsions:*

Chloroform

Olive Oil

*In the Republican, May 17:* Miss Emily Dickinson, daughter of the late Edward Dickinson of Amherst, was stricken with apoplexy Thursday morning, and her condition is believed to be hopeless.

These five entries are mysterious, even unsettling. Was Dickinson “called back” by Conway’s novel or by the trans-Neptunian planet David Peck Todd of Amherst College Observatory thought he had found? When on Thursday did Dickinson leave her “stark unconscious state” and begin to go into convulsions? When did Dickinson know she was going to die (as the letter to her cousins suggests she did), and what are we to make of the fact that the *Republican* was reporting on her still being alive (albeit apoplectic) two days after she had died? Why chloroform? Why *olive oil*? Austin Dickinson’s diary then recounts the day of her death:

MAY 15, SATURDAY. *Austin Dickinson's diary*:

It was settled before morning broke that Emily would not wake again this side. The day was awful She ceased to breathe that terrible breathing just before the whistles sounded for six.

Mrs Montague and Mrs. Jameson were sitting with Vin.

I was near by.

Did the whistles’ sounding take up her last “terrible” breath? Which “side” was Austin “near by”—“this” side or the side to which Dickinson has crossed?

Lingering over Austin’s words and returning to the documents above and below them, as the organization of text allows one to do, gives way to surprising motifs and unexpected tensions: Mrs. Todd’s “terribly” is echoed in Austin’s “terrible”; Prof. Todd scans the heavens just days before his wife would recount Dickinson’s dying day; Dickinson scrawls “breathe” while on the facing page her brother uses the same word. The sense of hopelessness and resignation that emerges in the relationship between these documents could not be achieved by reading the matter-of-fact *Republican* news report alone. More importantly, these documents realize the major goal of Leyda’s project: to expose just how deeply rooted Dickinson’s work was “in national and community life, in family crises, and in her daily reading.” “To ignore this,” he warns, “is to divorce Emily Dickinson from her real, tangible surroundings.”<sup>61</sup> In an earlier essay on Dickinson’s relationship with her

domestic worker Margaret Maher, parts of which he would adapt for the preface of *The Years and Hours of Emily Dickinson*, he admonishes:

One of the several harmfully false aspects of the “Emily legend” is that she lived and worked alone. The more one looks into the reality of the matter, the larger grows her circle of friends, acquaintances, correspondents—the more continuous her exchange with other minds and other temperaments. . . . Everyone who established any degree of contact with the poet writing there requires investigation. The people who worked for the family, [for] example—should they do no more than slide along the backdrop of this drama, carrying their dish and pitchfork?<sup>62</sup>

With this attention to the everyday domestic labor that is so often forgotten or neglected, Leyda’s biography quite clearly provides a model for how to approach the cultural document: as the crystal of the total event.

It also explains, perhaps, why Leyda often fails to emphasize the expressive elements of the documents he transcribed and collated. He was a major collector of Dickinson’s original manuscripts (he donated his collection, which he enumerated and catalogued, to Amherst College Library in 1956), and consequently could not help but be intimately familiar with the aspects of Dickinson’s poems that have so fascinated many of her scholars: her handwriting, which changed drastically over the years; her choice of pen and paper; her peculiar lineation, punctuation, and capitalization. It is these characteristics, effaced in typographical renditions of her poetry, to which much of the scholarship of the past thirty years has attended. Before Thomas Johnson’s *The Poems of Emily Dickinson* appeared in 1955, the public knew only versions of her poems stripped of their stranger stylistic decisions, such as the frequent dashes. Johnson details at length the transformations Dickinson’s handwriting underwent over the course of her lifetime. It was only with the publication of R. W. Franklin’s *The Manuscript Books of Emily Dickinson* (1981), however, that general readers were brought face-to-face with facsimiles of her poems in their original state. Dickinson had bound many of her poems into small groups, called “fascicles,” but these were disassembled and scattered by her later editors. By painstakingly examining the manuscripts, Franklin was able to reconstruct their original order. “The primary evidence is from the manuscripts themselves,” he writes—evidence he could not have gathered from photographic reproductions, as he then makes clear with the following description of his process:

Soiling on first and last pages usually identifies the first and last sheets of a group, and the various links afforded by stain offsets, matching smudge patterns, pin impressions, and manufacturing defects like paper wrinkles place one sheet ahead or behind another. Puncture patterns, where the needle pierced the paper for binding, and stress effects, caused by the pressure of opening a fascicle against the tension of the stabbed binding, vary within fascicles, with initial sheets differing from subsequent ones in amount of curvature along the fold edge and in the direction and extent of damage to the binding holes.<sup>63</sup>

For many, the resultant *Manuscript Books* were revelatory. They inspired Susan Howe, for one, to argue that Dickinson's "calligraphy influences her meaning," and Jerome McGann, for another, to the claim their "handcrafted textual condition . . . urge us to treat all her scriptural forms as potentially significant *at the aesthetic or expressive level*."<sup>64</sup>

Leyda, of course, was not privy to these debates (which in part reflect a broader scholarly turn toward the materiality of the book), but he would, I suspect, be more than sympathetic to those scholars who now wish to treat Dickinson's manuscript holographs as they have Stéphane Mallarmé's plans for "Un Coup de Dés" or Mikhail Larionov and Natalia Goncharova's folk- or "lubok"-inspired graphic experiments—not as text, but as material documents. Per his promise that "in transcribing these documents no silent changes have been made," he repeatedly accommodates curiosities or mistakes in the originals—thus Albert Norcross writes to his cousin Emily Dickinson, "I visit your Fathers family almost every day and stay some nights."<sup>65</sup> When preparing Dickinson's manuscripts for the collection at Amherst College, he took extensive notes on the quality and condition of the paper the poet used, from watermarks and embossing to creases and tears.<sup>66</sup> Leyda was even in close communication about these matters with Joseph Cornell, who dedicated eight of his boxes to Dickinson. In a letter dated October 7, 1953, Leyda informs Cornell that Dickinson routinely clipped ads from newspapers, wood engravings from children's magazines, comics from *Harper's*, and illustrations from *Scribner's*—"all used, of course, with a significance far beyond the intentions of their artists."<sup>67</sup> *The Years and Hours of Emily Dickinson*, for its own part, includes some reproductions of Dickinson's handwriting. Had it been published two decades later, one can imagine Leyda devoting substantially more space to these reproductions. After all, his later documentary portrait of Eisenstein, *Eisenstein at Work* (1982), consists primarily of photographs and photographic reproductions of Eisenstein's manuscripts.<sup>68</sup>

But his interest does not reside in any one document and its attendant aesthetic or expressive elements. Leyda strives to piece together a larger historical truth—a bigger mosaic in which each document is but a single tile. When he contacts the granddaughter of Tom Kelley, a laborer employed by Dickinson's father and the brother-in-law of Margaret Maher, about a document she may have her possession, he seems as excited by the new network of associations this discovery will reveal as by its particular (and peculiar) material properties:

Here is a big hope inspired by your books: for many of her poems Emily used scraps of paper, & in at least two instances these were the fly-leaves of books. One of these is inscribed "Edward Dickinson 1824" and *may* have been cut from your Vol II of Irving's Sketch Book! At some future time I hope you will consent to lend these books to Harvard so that all may be examined with this in mind. It did not occur to me at all at first that the torn-out pages could have been torn by herself!<sup>69</sup>



In spite of his dogged quest to amass every last scrap and “chance remnant”<sup>70</sup> of Dickinson’s life, though, there remain limitations to Leyda’s documentary method. He values the incongruous juxtaposition, the relationship between and among documents, the discontinuous image; not all traces are valuable to him. The case of Mark Hofmann makes the sort of traces Leyda’s biographies overlook apparent.<sup>71</sup> Hofmann forged hundreds of documents in the 1970s and 1980s. Some, like his forgery of Stephen Daye’s 1639 broadside printing of “The Oath of a Free Man,” were based on genuine historical documents. Others, like the manuscripts he created in order to undermine the theology of the Church of Jesus Christ of Latter-day Saints, were his own creation. In the latter category fell a poem by Emily Dickinson, which eventually wound up on the auction block at Sotheby’s several years after Hofmann had been sent to prison for theft by deception and the murder of two people. While Hofmann’s story is particularly salacious, it also speaks to the limits of Leyda’s project—and the limits, too, of the knowledge afforded by technological reproduction.

Hofmann, like Leyda, attended to the details of documents, details he then attempted to duplicate. He matched the chemical composition of his materials to the chemical composition of the materials available during Dickinson’s life. He became adept, with the aid of Franklin’s *The Manuscript Books of Emily Dickinson*, at copying her handwriting. He wrote the forged poem on a sheet of Congress paper, which had an embossed image of the Capitol building as letterhead—Dickinson was known to have used such paper in 1871 and 1874. He then folded the paper in thirds, just as Dickinson did. A scholar interested in the document’s aesthetic or expressive levels might look at Hofmann’s forgery as Martha Nell Smith looks at Dickinson in her 1996 essay “The Poet as Cartoonist,” in which she marvels at a doodle Dickinson drew on a sheet of Congress paper: “The poet draws around the diminutive embossed likeness of the U.S. Capitol building, adding a smokestack to its dome and, on its left, a little stick figure shuffling along.”<sup>72</sup> Or, if one is charged with conducting a forensic analysis of the document, one might deploy a whole other interpretive arsenal: “Scanning Auger Microscopy Dating (SAMD),” for instance, which “measures ion diffusion of inks in paper and determines the age of a document with an accuracy of  $15 \pm$  years for inks made with a heavy metal,”<sup>73</sup> or “x-ray fluorescence spectrometry,” or “fourier transformspectrometry,” or “comparisons of color macrophotographs of the typography,” or an examination of “the presence of zinc and manganese, which are not ordinarily found in modern papers.”<sup>74</sup>

Or, if one were Leyda, one would not be concerned with the status of any single document—for any document, regardless of what aesthetic or forensic analysis might yield, would not be meaningful alone. “A ‘document’ should be distrusted as much as a photograph,” he writes in the introduction to *The Melville Log*, “for documents are as fallible as their human authors.”<sup>75</sup> Leyda did not adhere to the procedure followed by Franklin in his reconstruction of Dickinson’s fascicles, nor

did he submit the scraps he assembled to any of the rigorous rounds of testing performed by the Library of Congress Preservation Office in their investigation of Hofmann. His analysis uses no X-rays and matches no smudge patterns. Instead, he regarded each one as “a seed that has to be packed into a compost of old newspapers and clipped magazines, the dust of neighbors’ attics, the grime of birth, marriage, and contractual records, the diaries and tombstones of dead friends—the mould of Amherst, in fact—in order . . . to flower again.”<sup>76</sup>

A favorite source for Leyda were collectors of postmarks, who, he remarks, “guarded some of the documents here that otherwise would have long since vanished on the village dump.”<sup>77</sup> These collectors were, too, valuable to Hofmann in his own research. In order to forge letters related to the early history of the Mormon Church, Hofmann expertly duplicated the postmark used in Palmyra, New York, between 1829 and 1834.<sup>78</sup> These two men, however distinct their ultimate aims, become the mysterious figure described by Benjamin in “One-Way Street”: “The pursuer of postmarks must, like a detective, possess information on the most notorious post offices, like an archaeologist the art of reconstructing the torsos of the most foreign place-names, and like a cabbalist an inventory of dates for an entire century.”<sup>79</sup> Leyda’s interest in postmarks was not primarily aesthetic, as it is for Jen Bervin and Marta Werner, the editors of a collection of the poems Dickinson jotted down on the fronts, backs, and flaps of envelopes.<sup>80</sup> He is closer, in fact, to law enforcement agencies that monitor mail, in that his interest resides in the networks of associations these letters can reveal.<sup>81</sup> But law enforcement reads that archive from above. Leyda reads his from below.

#### THE TINIEST AUTHENTIC FRAGMENT

In his discussion of those detectives, archaeologists, and cabbalists who are collectors of postmarks, Benjamin provides a variation on the mosaic metaphor of *The Origin of German Tragic Drama*. “Stamps bristle with tiny numbers, minute letters, diminutive leaves and eyes,” he writes in “One-Way Street.” “They are graphic cellular tissue. All this swarms about and, like lower animals, lives on even when mutilated. This is why such powerful pictures can be made of pieces of stamps stuck together.” It is important to remember that Benjamin by no means privileges an object’s function as a document over its status as art. Instead, he sees this as a dialectical relationship, which allows him to analyze documents like stamps as if they were art, and in so doing illuminate their deeper documentary value. The postmark is thus, to him, “the occult part of the stamp.” But the esoteric meaning he sees the postmark as bestowing on the stamp resonates well beyond the stamp itself: “There are ceremonious ones that place a halo about the head of Queen Victoria, and prophetic ones that give Humbert a martyr’s crown. But no sadistic fantasy can equal the black practice that covers faces with weals, and cleaves the land of entire continents like an earthquake.”<sup>82</sup> Of course, Benjamin reads not only

documents as art, but art as documents. In a famous 1934 address at the Paris Institute for the Study of Fascism, he reflected on the “revolutionary strength of Dadaism,” which he saw as operating in accordance with “the procedure of montage,” whereby, as I noted in the first part of this chapter, “the superimposed element disrupts the context in which it is inserted.”<sup>83</sup> His *Arcades Project* marks his attempt to fulfill the promise of Dadaism by mastering “the art of citing without quotation marks”—hence every entry, every scrap, would disrupt the context into which it was inserted, as is the very nature of quotation.<sup>84</sup> It was to be structured by interruption.<sup>85</sup>

Benjamin’s theory of collage, montage, and quotation is useful for interpreting the animated cartoon, particularly cartoons that incorporate preexisting print sources into the graphic composition. This common practice, implemented in order to save time and labor, most often takes the form of an insert of a newspaper composed of a fake headline (which serves to provide narrative exposition) atop columns of text clipped from a genuine newspaper or periodical. In order for the viewer to be able to read the headline, the newspaper is held on-screen for several seconds, effectively interrupting the flow of the animation in the manner of an intertitle or establishing shot. While this serves a specific narrative function, it nonetheless ruptures the animation as such, offering stillness in place of motion.

Such collages appear in countless shorts: Otto Messmer’s *Felix Doubles for Darwin* (Pat Sullivan, 1924) and *The Non-Stop Fright* (Pat Sullivan, 1927), Tex Avery’s *Gold Diggers of ’49* (Warner Bros., 1935), Frank Tashlin’s *Dog Meets Dog* (Columbia, 1942), Dick Lundy’s *Wacky-Bye Baby* (Universal, 1948), and Izzy Sparber’s *Ghost of the Town* (Paramount, 1952), to name but a few. Sometimes the combination of graphic elements results in absurdist juxtaposition, as is the case with a newspaper in Jack King’s *Donald’s Dilemma* (Disney, 1947): the image of an especially dashing Donald Duck, captioned “Donald Duck Spends Week End in Newport,” stands astride a headline that begins “Sausage Ceilings.” Others summon tabloid stories of bygone eras, such as the remarkable birth of the Dionne Quintuplets in 1934 (“Dionne Quins ‘Doing Fine’; Eat Solid Food,” reports the *Daily Record* in Bob Clampett’s *Porky’s Movie Mystery* [Warner Bros., 1939]) or the “Black Widow” Louise Peete’s execution in a California gas chamber in 1947 (“Death is an indelicate subject,” she tells the *Daily Snooze*, which makes an appearance in Chuck Jones’s *Haredevil Hare* [Warner Bros., 1948]). Still others, such as Max Fleischer’s *Now You’re Talking* (Fleischer Studios, 1927), Burt Gillett’s *Lonesome Ghosts* (Walt Disney, 1937), and Friz Freleng’s *By Word of Mouse* (Warner Bros., 1954), by clipping from phone books or classifieds, entice the modern-day viewer to dial phone numbers long since disconnected or apply for jobs long since outsourced (fig. 1.3).

This trope is significant for several reasons. First, like the flicker sequences described earlier, it presents an alternative to the sequential logic of animation. Second, it aligns the practice of cel animation with another medium: microfilm.



FIGURE 1.3. Selected pages from newspapers and telephone books, as preserved in animated cartoons.

After all, both microform periodicals and celluloid animation were produced in similar ways—through the labor-intensive process of photographing single-page documents one at a time. In addition, these documents were, more often than not, ephemera. For example, the cartoon figures painted onto transparent celluloid sheets were frequently washed off once they had been photographed, so that the cels could be reused in subsequent productions. And, in order to photograph bound volumes onto microfilm, individual pages had to be ripped from their spines, rendering the act of preservation also an act of destruction. In both cases, the final film stands as the only record of a work's existence.

Take Bob Clampett's *Tortoise Wins by a Hare* (Warner Bros.), which was released in theaters on February 20, 1943. Early in the film, an issue of the *Chicago Sunday Tribunk* [sic] announces the event that will serve as the film's narrative: "Hare Races Tortoise Today." Bugs Bunny and his foe, an amiable tortoise, are pictured below the headline. But the remainder of the frame directs our attention elsewhere, away from the cartoon. The source newspaper is the November 1, 1942, issue of the *Chicago Sunday Tribune*, which was also photographed onto microfilm and later scanned as part of ProQuest Historical Newspapers' online database.<sup>86</sup> Both Clampett's film and the copy preserve other headlines from that day: "Party Victory and Large Vote in Seen in Illinois"; "Praise Lord: Navy Chaplain Finally Found"; "10 Short Wave Radio Stations Leased by U.S."; "Jap Cruiser Is Blown Up." This small smattering of news items gives one a sense of the world of which *Tortoise Wins by a Hare* is a part: Election Day is around the corner, and the United States is deeply embroiled in World War II, attacking Japanese ships, broadcasting propaganda, and mounting rescue operations.

But the version of the *Tribune* that appears in *Tortoise Wins by a Hare* contains one other curiosity, apart from the elements pertaining to the cartoon: a tiny joke headline inserted just above the fold. It reads, "Adolph [sic] Hitler Commits Suicide." We know this to be a joke: because Hitler was still alive in November 1942, not to mention February 1943; because it does not appear in the source material; because Hitler's first name is misspelled; because we can make out the borders of the piece of paper on which this fake headline was written, and so on. Yet even this joke seems urgent. Whose idea was it? Who wrote it? How could they possibly know that Hitler *would*, eventually, commit suicide? What is all the more fascinating is that Clampett would then reuse this mock newspaper at least two more times—first in *Fighting Tools* (Warner Bros.), released October 13, 1943, and again in *What's Cookin', Doc?* (Warner Bros.), released January 8, 1944—each time altering the name of the newspaper, as well as the major headline and accompanying illustration, but never removing the reference to Hitler's suicide (fig. 1.4). The mock newspaper created for *Tortoise Wins by a Hare* thus becomes a historical document in its own right, with a life wholly apart from its source material. Yet the news reported by the *Chicago Sunday Tribune* on November 2, 1942, continues to reassert itself; that "Jap cruiser" is blown up again and again, that Navy chaplain is forever being found. The year 1942 exists alongside 1943, 1943 is nested within 1944; each new collage contains telling fragments of what came before it.

Similarly, Clampett's newsreel parody *Meet John Doughboy* (Warner Bros., 1941), like Winsor McCay's *The Sinking of the Lusitania* before it, is twice a documentary: first in its appropriation (here to comic ends) of documentary rhetoric, and second in how it provides a photographic record of ephemeral documents. Partway through the cartoon there appears an issue of the phony *Los Angeles Newsprint*, published on April 2, 1941, with a fake headline announcing, "President Orders 'All Out' Test of Defense Strength." The *Newsprint* is, in fact, an altered version of

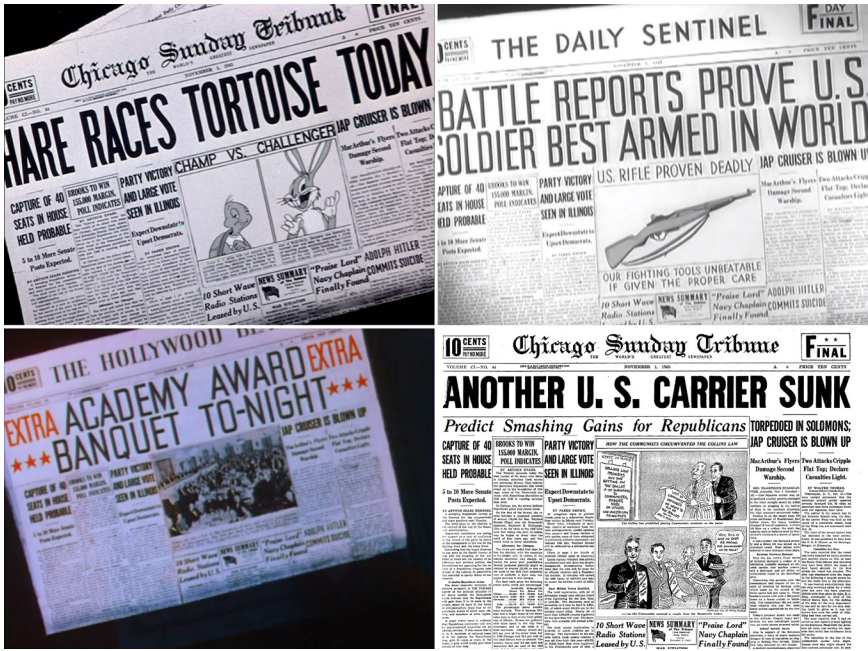


FIGURE 1.4. “Adolph Hitler Commits Suicide” headline as it appears in Bob Clampett’s *Tortoise Wins by a Hare* (Warner Bros., 1943) (top left), *Fighting Tools* (Warner Bros., 1943) (top right), and *What’s Cookin’, Doc?* (Warner Bros., 1944) (bottom left), and the actual November 1, 1942, issue of the *Chicago Sunday Tribune* (bottom right).

*Los Angeles Examiner*, as their similar logos makes clear. Yet if one compares the April 2, 1941, issue of the *Los Angeles Examiner* as it is reproduced in *Meet John Doughboy* to the April 2, 1941, issue reproduced in the microfilm published by the University of California, Los Angeles, subtle differences emerge: the latter hosts the headline “20,000 Strike at Ford’s Huge River Rouge Plant,” where the former reads, “Sitdown Starts Big Ford Strike at Dearborn Plant.” In short, the altered version of the *Examiner* that made its way into the cartoon is from an edition—the “9 A.M. Extra,” presumably—that has not been preserved on microfilm. Consequently, it could very well be the case that the cover of this particular edition of the April 2, 1941, issue of the *Los Angeles Examiner* has been preserved for posterity thanks solely to *Meet John Doughboy* (fig. 1.5).

But there is even more to the story: “Just as the bloody fingerprint of a murderer on the page of a book says more than the text,” Benjamin told his Parisian audience in 1934, “the tiniest authentic fragment of daily life says more than painting.”<sup>87</sup> The fragment of daily life that here says the most is that article about the strike at the Ford River Rouge plant in Dearborn, Michigan, which would last until April 11 and ultimately involved forty thousand automobile workers. *Meet John Doughboy*,

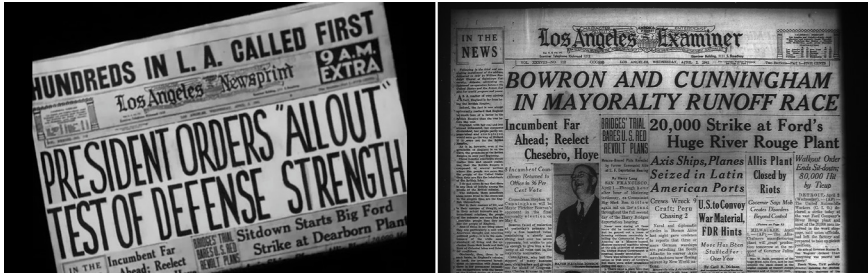


FIGURE 1.5. Newspaper in Bob Clampett's *Meet John Doughboy* (Warner Bros., 1941) (left) and the actual April 2, 1941, issue of the *Los Angeles Examiner* (right).

meanwhile, premiered on July 2, 1941. What happened in the three months between the walkout by workers at Ford and the theatrical release of *Meet John Doughboy* is invisible to those watching the film, but it is nonetheless an irreducible component of the network of relationships that bear on the film's making: on May 19, after being notified that the inkers were planning to strike, Warner Bros. producer Leon Schlesinger locked his animators out of the studio.<sup>88</sup> A little more than a week later, the animators at Disney Studios went on strike, and Warner Bros. directors, including Chuck Jones—who was once a lowly cel washer—joined their picket line in solidarity. “Michelangelo, Raphael, Titian, Rubens, Da Vinci and Rembrandt all belonged to guilds!” claimed one of the signs carried by an animator walking the Disney picket line, while a pro-union comic strip, published in *PM* magazine, asserted that they were “striking for the same things steel workers, coal miners, and machinists strike for.”<sup>89</sup> The dialectic between art and labor, between the aesthetic object and the historical document, is articulated in this three-month interstice.

#### EYESTRAIN

A page of a newspaper preserved on microfilm isn't the same as a page of a newspaper preserved in a cartoon. The two serve very different functions. One is a document. The other is art. Likewise, the photographic reproduction of an animator's sketch in an auction catalogue isn't the same as a photographic reproduction of that sketch in a flicker sequence in an animated cartoon. But what I have aimed to do in this chapter is to look at animated cartoons, in conjunction with their constitutive documents, with the same “sheer anachronistic perversity” Thomas Elsaesser has ascribed to certain experimental filmmakers: I watch cartoons “through avant-garde eyes,” resisting the thrust of their narratives and the momentum of their characters.<sup>90</sup> Seen in this way, the work of art becomes a document, the document a work of art. Consider Jonas Mekas's description of the visual assault propagated by *Blazes*:

People have told me, after seeing Robert Breer's film *Blazes* or after Stan Brakhage films, that they have headaches. Which is very possible. Others among us, those who have been watching these films more often, feel that the movements are too slow—we could take so much more. Our eye has expanded, our eye reactions have quickened. We have learned to see a little bit better.<sup>91</sup>

The headaches induced by Breer's work are similar, if not identical, to the distinct physiological effects produced by another body of films: as early as 1938, a survey conducted by the *Journal of Documentary Reproduction* found "eye fatigue" to be the most common complaint expressed by the microform users. This is a persistent criticism. For example, the librarian Herman H. Fussler, writing in 1954, acknowledged that researchers frequently experienced "eye strain" when viewing microfilm. And Richard Abel, writing in a recent issue of *Film History*, qualified his "nostalgic fondness for running through microfilm reels of newspapers" with the acknowledgement that such research was fundamentally "challenging to one's eyes and posture."<sup>92</sup>

This is especially true of Breer's *Jamestown Baloos* (1957), a tripartite six-minute film that combines live-action cinematography, stop-motion cutout animation, and single-frame photography. Several passages in the film, in which each frame corresponds to a page or portion of a page of an unidentifiable journal, explicitly signal its indebtedness to what one might call a "microfilm aesthetic." The speed with which these pages flash by renders them unintelligible. The flood of text, none of it decipherable, is overwhelming—a dizzying cascade of illegible images, like the effect of scrolling through microfilm. When one examines *Jamestown Baloos* frame by frame, as one would a microform periodical, the relationship between the two media becomes even clearer. One frame, for instance, features an advertisement for University Microfilms, and another promises "grafts for failing eyes" that are "available whenever needed"—needed after watching *Jamestown Baloos*, perhaps, or after reviewing University Microfilms' latest publications (fig. 1.6). A later section of the film moves from another cascade of journal pages to a series of landscape photographs to a back-and-forth whip-pan, which retroactively invites us to consider the earlier succession of journal pages as itself a sort of whip-pan. Indeed, so fast does the camera whip to and fro that its subject is little more than a blur, a blur familiar to any microform user. *Jamestown Baloos* recasts the experience of viewing microform as an *aesthetic* experience (fig. 1.7).

A little more than a decade later, Ken Jacobs would exploit the homologous "eye fatigue" engendered by *Jamestown Baloos* and microfilm alike in an extended section of *Tom, Tom, the Piper's Son* (1969). In this "aggressive passage," as P. Adams Sitney calls it, the image jumps "in the projector gate to the point of indecipherability by vertical distortion [fig. 1.8]. Audiences seeing this for the first time do not know if the projectionist has misthreaded or if what they are seeing is part of the film itself. . . . As the jumping continues (and it continues for a very long





FIGURE 1.6. “University Microfilms” and “Grafts for Failing Eyes” ads in Robert Breer, *Jamestown Balloos* (1957).

time, seeming as if it were about to rectify itself only to jump again) it becomes evident that the strategy is deliberate.<sup>93</sup> The vertical blur, like the whip-pan in *Jamestown Balloos*, evokes the swift movement of microfilm through the reader: the image skids, slips, slides. In addition, the brief instances in which the image seems “as if it were about to rectify itself” resemble the appearance of microfilm as the researcher settles on a particular page, thinking that perhaps this is the article she is in search of, only to realize that she has not scrolled far enough through the reel’s contents.

Here Jacobs reminds the viewer of the origins of his film’s source material, a paper print of Billy Bitzer’s *Tom, Tom, the Piper’s Son* (1905). Such paper prints were created to conform to contemporary copyright law, which allowed only for still photographs to be copyrighted. In order to copyright a motion picture like Bitzer’s film, American Mutoscope and Biograph Company rephotographed it frame by frame onto huge rolls of paper.<sup>94</sup> In other words, Jacobs is working from



FIGURE 1.7. Four-frame sequence from Robert Breer, *Jamestown Baloos* (1957).

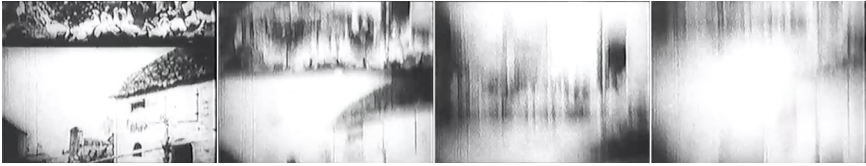


FIGURE 1.8. Four-frame sequence from Ken Jacobs, *Tom, Tom, the Piper's Son* (1969).

“a photographic record of documents”—documents that just so happen to have originally been frames of a motion picture. The paper print is but a large-scale microfilm reel.

Breer's *Jamestown Baloos* and Jacobs's *Tom, Tom, the Piper's Son* show us how we might watch a microform periodical as if it were an animated film, and *A Gruesome Twosome*, *\$21 a Day (Once a Month)*, *Tortoise Wins by a Hare*, and *Meet John Doughboy* show us how we might read a celluloid cartoon as if each frame reproduced a unique historical document. The latter way of looking lets us see the labor that cinematic motion obscures, while the former reinvents the eyestrain engendered by scrolling through reels of microfilm as a vertiginous aesthetic experience—modes of viewership that are ultimately united within the avant-gardist's perverse gaze. Meanwhile, the order of randomness and cross-referencing suggested by Breer's *Blazes* reveals underlying, overlooked connections between disparate documents, and the literary montage of Jay Leyda's *The Years and Hours of Emily Dickinson* teaches us how to read the archive from below. By straining our eyes, we can understand animated cartoons dialectically, as historical documents *and* aesthetic objects, not just one or the other. In the chapters that follow, I aim to provide an account of the visual aesthetics of cel animation that synthesizes these two approaches.

# A View of the World

## *Toward a Photographic Theory of Cel Animation*

*The art of photography has been persistently haunted by the image of human labor.*

—ALLAN SEKULA<sup>1</sup>

*I like to think of each image—whether it contains accidents or not—as a view of the world. They reveal traces of the humans and technology that produced them.*

—ANDREW NORMAN WILSON<sup>2</sup>

### THE ART OF PHOTOGRAPHY

For most of the twentieth century, to animate was to photograph—and to photograph *a lot*. A theatrical split-reel short produced by an animation studio might involve five to ten thousand separate frames. Like most photographic archives, from microform periodicals to crime galleries to geographical surveys to digitized books, works of cel animation were produced under tightly regulated conditions. Following frame-by-frame instructions enumerated on exposure sheets, camera technicians took picture after picture after picture, and as has been routinely acknowledged, their task was uniquely “tedious,” “mechanical,” “monotonous,” “enervating,” “exact-ing,” and “exhausting.”<sup>3</sup> The operator of the animation camera was a “proletarian of creation,” Bernard Edelman’s term for the nineteenth-century photographer who, responsible for “merely deploy[ing] an apparatus,” had no authorial or legal claim to the images he produced.<sup>4</sup> He adhered to the sort of “strictly determined routine of distance, camera angle, lighting, and type of lens and apparatus” familiar to police photographers: which cels to add, which to remove, how to position the camera relative to the background, and so on.<sup>5</sup>

The mechanization of the labor process by which animation’s constitutive frames were photographed has led to a curious and perhaps paradoxical

phenomenon: the complete disavowal of cel animation as *photographic cinema*. As Shamus Culhane, who worked with many of the major studios, explained to the trade journal *Sponsor* in 1955, “the camera plays a relatively small role” in animation. The task of the camera operator was enormous and often daunting, but the creative force he exerted on the final film (even though it would not be a film without his intervention) was artistically negligible: “Unlike the camera in live-action which actually creates, the animation camera merely records what has already been created.”<sup>6</sup> Culhane’s remarks anticipated a commonplace—indeed, foundational—assumption in film theory: an ontological divide between animation and photography.

Dudley Andrew, for instance, regards the photographic process as more or less incidental to animation, a mere stopgap between the flip-books and phenakistoscopes of yesteryear and the computer-generated imagery of today: “Cel animation has always amounted to a camera-less cinema.”<sup>7</sup> This is a very curious claim. For instance, rayographs and photograms are, by definition, camera-less, which makes them more “truly” indexical than traditional photographs. Besides, even handmade films and works of direct animation, such as Len Lye’s *A Color Box* (1935) and Stan Brakhage’s *Mothlight* (1963), circulate in the form of prints; although made without a camera, they nonetheless rely on photochemical and photomechanical technology for the purposes of distribution and exhibition.<sup>8</sup> “Camera-less” cinema, in all its forms, thus troubles ontological assertions about photographic indexicality.

But photography, of course, is many things. As Hollis Frampton has outlined, it is an industry, a craft, a technology, a tool, a science, a trade, a racket, a hobby, a national pastime, and only rarely an art. It is an instrument of state control and sells lipstick and preserves moments we would rather forget.<sup>9</sup> The automated, large-scale photographic practice I have detailed above could perhaps lead one to place animation in the same category as archival and disciplinary photography, which is inflected with what John Tagg has called the rhetoric of documentation, the rhetoric “of precision, measurement, calculation and proof, separating out its objects of knowledge, shunning emotional appeal and dramatization, and hanging its status on technical rules and protocols whose institutionalization [has] to be negotiated.”<sup>10</sup> But in calling attention to the photographic processes undergirding cel animation, I wish instead to place animated cartoons within the discourses that have long dominated film theory. The basic, undeniable fact that cel animation *was* a photographic process is almost always treated as an orthogonal concern, if it is acknowledged at all.<sup>11</sup>

The most influential (and perhaps most misunderstood) such theory derives from André Bazin’s “Ontology of the Photographic Image” (1945), which has served as the basis for countless claims about cinema being a *photographic* medium first and foremost. Of course, Bazin equivocates on just what photography is—a snowflake? a fingerprint?—but one thing is clear: cinematic realism is, as he puts it

elsewhere, irresistible.<sup>12</sup> Anchored in “the irresistible realism of the photographic image,” cinema gives us a tantalizing vision of everyday reality.<sup>13</sup> It makes sense that animated cartoons should be excluded from this account of cinema, and indeed I cannot pretend I might convince Bazin otherwise. Nevertheless, I wish to take a governing premise of Bazin’s film theory—that “the realism of the cinema follows directly from its photographic nature”—and apply it literally, almost pedantically, to the thoroughly unreal worlds inhabited by the likes of Popeye, Daffy Duck, and Mickey Mouse.<sup>14</sup> While graphic in origin, these worlds are only visible to us because their constitutive elements (glass, cels, ink, paint, paper) have been photographed.

D. N. Rodowick and Mary Ann Doane are among the rare theorists to acknowledge the role of the camera in the production of animation. Rodowick notes that cartoons “obviously have a strong indexical quality,” for “here, as in all other cases, the camera records and documents a past process that took place in the physical world.” Doane, similarly, observes that “animation involves photography and a ‘that has been’ of the graphic image in front of the lens.”<sup>15</sup> What is evident from these remarks, however, is that both Rodowick and Doane are invested first and foremost in the putative indexicality of the cinematic image. Animation, for them, is but a parenthesis, and in this case one that happens to shore up—not test—the boundaries of photographic possibility. Neither goes so far as to find out what happens if one were actually to *watch* an animated cartoon as a photographic record of graphic images.

This chapter picks up where Rodowick and Doane leave off. The previous chapter, by contrast, took for granted photography’s objectivity—which is to say, its transparency—struggling only to pass through the spatial and temporal barriers erected by the medium. Thanks to photography, hundreds of thousands of images that would otherwise be lost has been preserved. In this chapter, however, my effort to situate animation within photographic theories of film forces me to reckon with the medium as such: as a barrier, as something that comes between the viewer and the world it discloses. Such a reckoning is necessary due to the nature of the objects that have been photographed. As it turns out, it is not always easy, and it’s sometimes impossible, to sort out what has been produced graphically (and then reproduced photographically) and what has been produced by the camera—that is, photographically. The fiber of the background watercolor paper intertwines with the grain of the film; what looks at first to be specks of dust that have adhered to the cel might in fact be cartoon raindrops or scratches in the film emulsion. A hair in the gate is often indistinguishable from a squiggly line of ink; what seems to be an explosion of dynamite in the upper-right corner of the frame could just as easily be a cue for the projectionist to change the reel. In the case of Shamus Culhane’s *The Painter and the Pointer* (Universal, 1944), a faint greenish ring is burned onto a frame in which a spider, having been set in motion by a companion’s slap, is depicted as little more than a black-and-white circular blur. In

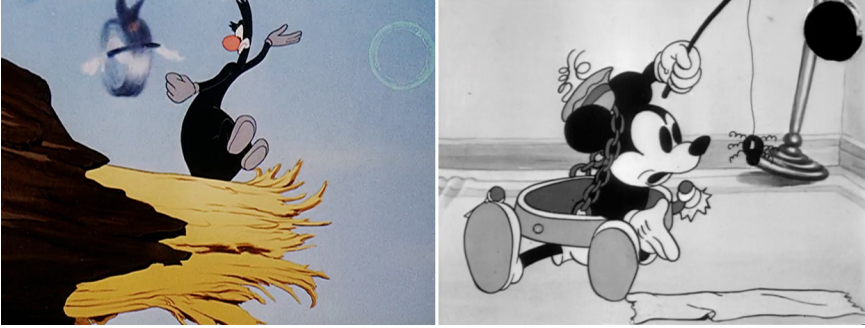


FIGURE 2.1. Frames from *The Painter and the Pointer* (Universal, 1944) and *Gulliver Mickey* (Walt Disney, 1934).

Burt Gillett's *Gulliver Mickey* (Walt Disney, 1934), meanwhile, the black circles that are Mickey's ears are just about the same size, shape, and color as the hole punched into the frame (fig. 2.1).

The epistemological concerns that emerge (for instance, is what I am seeing on the cel, on the camera lens, in or in front of the projector, on the film emulsion, a digital artifact, on the screen?) become a site of aesthetic inquiry. Thus we move away from the complaints of microfilm reviewers like Lawrence Cummings, who, you will recall, bemoaned his inability to distinguish between Sir Walter Raleigh's handwriting and "an interesting pattern of wrinkles."<sup>16</sup> Insofar as they destabilize our sense of cause and effect and prevent us from seeing what the photograph is supposed to represent, these flaws would normally impede the value of the photograph as evidence. But the anxiety they engender can also be productive: it can mobilize an inquisitive gaze that plays with and within the image. Rather than worry that we cannot ever know what it is that we are looking at, we delight in the masquerade. Forensic investigation becomes a game.

Consider some of the common criticisms of microform: for instance, that the photographers were working from uncut bound volumes, resulting in "distortions, blurring, curling, and loss of text," or that they had neglected to clean the camera lens properly, as evidenced by "the identically shaped blobs, splotches, and squiggles which show up constantly from frame to frame."<sup>17</sup> These criticisms privilege the legibility of the source document: the medium should be transparent. But one could instead embrace the uncertainty. Instead of resolving the tug-of-war between the photograph's own materiality and the material object it represents, between the world of the image and the world that has made the image come into being, we enter *into* the image.

In what follows, I will analyze the visual aesthetics of animated cartoons as if the constitutive frames were each a photograph in one of the family albums

famously described by Bazin: “No matter how fuzzy, distorted, or discolored, no matter how lacking in documentary value the image may be, it shares, by virtue of the very process of its becoming, the being of the model of which it is the reproduction; it *is* the model.”<sup>18</sup> Yet this chapter also takes instances of fuzziness, distortion, and discoloration not as barriers through which we pass in order to satisfy our need for the material object, but as part and parcel of photography’s own materiality. I begin with Bazin, oriented toward a view of the reproduced object, and I end up embedded in the material substrate of the film itself. A realist theory of cinema, when applied to animation, results in something closer to a structural and materialist theory of cinema.<sup>19</sup>

### TRACES OF THE WORLD

Animation is phantasmagoric, in the sense advanced by Karl Marx in *Capital* and developed by Theodor Adorno in his writings on Richard Wagner: animated cartoons seem to be self-producing. For Adorno, Wagner’s operas are characterized by an “occultation of production”; they “make us forget that they have been made.” Their closest analogue, he continues, is “the consumer goods of the 19th-century which knew no greater ambition than to conceal every sign of the work that went into them, perhaps because such traces reminded people too vehemently of the appropriation of the labor of others, of an injustice that could still be felt.”<sup>20</sup> Adorno’s suspicions about the relationship between the work of art and the commodity are confirmed by a passage in Honoré de Balzac’s *Modeste Mignon* (1844): “You, under the arbor of clematis where you dream over poetry, cannot smell the stale cigar smoke which depoetizes the manuscript, just as when you go to a ball, dressed in the dazzling products of the jeweler’s skill, you never think of the sinewy arms, the toilers in their shirt-sleeves, the wretched workshops whence spring these radiant flowers of handicraft.”<sup>21</sup>

We see this same phantasmagoric impulse guide how we immediately, naturally, physiologically respond to the animated cartoons produced by an industry repeatedly roiled by labor strife. Such is the power of movement and, hence, of animation—or, as Sergei Eisenstein famously phrases it, “*If it moves, then it’s alive*; i.e., moved by an innate, independent, volitional impulse.” So potent is this sensation that it overwhelms our ability to see animated cartoons as human- and machine-made, as animated by anything but themselves:

*We know* that they are . . . drawings, and not living beings.

*We know* that they are . . . projections of drawings on a screen.

*We know* that they are . . . “miracles” and tricks of technology, that such beings don’t really exist.

But at the same time:

*We sense* them as alive.

*We sense* them as moving, as active.

*We sense* them as existing and even thinking!<sup>22</sup>

To *remember* that animation is photography is not enough, for memory cannot compete with the present tense of the animated cartoon. Eisenstein is attracted to animation because it returns the viewer to a pre-logical state in which thought and movement are undifferentiated. Because it moves, it thinks. Because it thinks, it moves. It doesn't need outside intervention.

The world of the animated cartoon is not *the* world, is not *our* world. While a photograph is both indexical (insofar as it is the direct product of a past process) and iconic (insofar as we can recognize what it represents), an animated cartoon is merely iconic. Its caricatured figures can bear a physical *resemblance* to real people, animals, and things, but not their physical *traces*. Thus, while an animated cartoon may be produced photographically, it is not photographic.

Sean Cubitt, for one, treats animation as a conceptual paradigm distinct from photography: "Photographic frames reproduce, but animated frames produce." This is an outgrowth of Lev Manovich's observation that animation's "visual language is more aligned to the graphic than to the photographic."<sup>23</sup> And Stanley Cavell puts it bluntly: "Cartoons are not movies." Cavell allows that animated cartoons create a world, but what is most important for him is that their world is not *the* world. In this respect, an animated cartoon is like a painting, in that it "*is* a world," not a photograph, which is, Cavell emphasizes, "*of* the world."<sup>24</sup> The frame of a painting is centripetal, pulling us inward, toward a world found only within its borders; the photograph, by contrast, is centrifugal, pushing us outward, beyond its bounds: a window. Thus live-action cinema offers us one thing, a view of *the* world, and cel animation offers us something different, *a* world governed by a physics all its own, a plasmatic and limitless world where bodies never bruise and anvils are always falling from the sky.

We should not mistake what little the two forms share—a mode of exhibition, for instance—for an ontological equivalence. We should no more confuse them than we should opera and ballet (which share the stage) or a print advertisement and a muckraking exposé (which share the page). Yuri Lotman's brief essay "On the Language of Animated Cartoons" (1981) offers a concise account of the relationship between animation and live-action cinematography: cartoons do not offer "some image of the outside world," as a photograph does, "but rather an image of the outside world expressed in the idiom of a children's drawing."<sup>25</sup> Indeed, the two forms seem to speak different languages: animation deals in "signs of signs," as Lotman puts it, and hence, according to Fredric Jameson, constitutes "the first great school to teach the reading of material signifiers."<sup>26</sup> For Lotman and Jameson, as for Benjamin and Eisenstein, animation's great power is its ability to offer a world unconstrained by the outside world. "We who have suffered since birth from an incessant pull at our coat-tails by centripetal forces, who tiptoe through life avoiding evilly-set obstacles," writes the artist Jean Charlot, "rejoice when flung into the world of animation where our moves impose their own elbow room over all creation."<sup>27</sup> But for other theorists, this is exactly animation's shortcoming. Its only referent is itself.



For this reason, Dudley Andrew excludes animated cartoons from participating in “the enterprise of cinema *in toto*,” which is to take the viewer on “voyages of discovery,” voyages impossible in a world as regulated and controlled—down to the last frame—as that of a cartoon. If animation were to be considered cinema, it would have to be the kind that “lies and agitates,” not the kind that aims “to discover, to encounter, to confront, and to reveal.”<sup>28</sup> For Andrew, animation resides in the same category as a film like Jean-Pierre Jeunet’s *Amélie* (2001), a key sequence of which Andrew describes:

In the film’s prologue, *Amélie* plays up to us, describing herself as a film spectator with a prehensile eye: “I like noticing details that no one else does . . .” she whispers from her seat in a movie theater. And to prove it she isolates an accident visible in a famous shot from Truffaut’s *Jules and Jim* (*Jules et Jim*, 1962), an insect that somehow made it on camera, crawling on a glass in the rear plane of the shot seemingly right toward Jeanne Moreau’s sensuous mouth as it opens to receive Jim’s tender kiss.<sup>29</sup>

Yet, as Andrew then notes, *Amélie* is itself incapable of offering its spectators any such pleasure, no matter how roving one’s eye, for “Jeunet has digitally erased every unsightly or merely incongruous element, frame after frame. That insect that *Amélie* delighted to spot in *Jules and Jim* would not have survived Jeunet’s image scrubbing.”<sup>30</sup> It is for this reason that *Amélie*, according to Andrew, is not cinema: it denies its viewer the chance to experience the very cinephilic moments its main character loves. Andrew’s critique of works like *Amélie* and his preference for works like *Jules and Jim* is indebted to the division Bazin draws between “those directors who put their faith in the image [e.g., Jeunet] and those who put their faith in reality [e.g., Truffaut].”<sup>31</sup> And reality, replete with unsightly insects, has no place in the animated cartoon, either.

How Andrew understands film’s powers and potentialities, particularly vis-à-vis his critique of *Amélie*, becomes clearer through an examination of Howard Hawks’s *Twentieth Century* (1934). At first glance, Hawks might seem to lack faith in reality. He is a paradigmatic auteur, to be sure, but what, exactly, is cinematic about *Twentieth Century*? What separates Hawks’s realization of the script from the theatrical staging of the play from which the film was adapted? A stage production, true, could never give us Carole Lombard’s luminous face in close-up, but such shot scale is the exception in a film dominated by medium and long shots. Yet this very simplicity, this very rigor, is what emboldens Andrew Sarris, in his appraisal of Hawks, to call the director’s films “good, clean, direct, functional cinema”—the last qualifier an echo, perhaps, of Jacques Rivette’s assessment six years earlier: “There seems to be a law behind Hawks’s action and editing, but it is a *biological* law like that governing any living being: each shot has a functional beauty, like a neck or an ankle.”<sup>32</sup> For Sarris, Hawks’s straightforward style is “endowed with a human intimacy,” while, according to Rivette, “Hawks first of

all concentrates on the smell and feel of reality.”<sup>33</sup> Still, one could easily level the opposite criticism: the close contact Hawks seems to give the viewer is instead as artificial and flimsy as his sets. The compartments on the New York-bound train that give the film its name are intimate, granted, but also small is the camera’s depth of field. As a consequence, the action of the scene is staged entirely on one lateral plane, and how very staged it is! A case might be made, over Sarris’s and Rivette’s earnest protestations, that *Twentieth Century* amounts to little more than canned theater. What is there to discover here?

Even the most skeptical critic would come face-to-face with reality in a scene near the film’s conclusion. Under the tutelage of theater producer Oscar Jaffe, played by John Barrymore, Lombard’s Mildred Plotka has blossomed into Lily Garland, star of the Great White Way. In their first rehearsal together, Jaffe, frustrated with her incompetence, charts with a chunk of chalk every step Garland née Plotka should take over the course of the scene. The resulting tangle of white lines against the black floor provides, then, a map of her movement across the stage. At once the spontaneous expression of Jaffe’s mania and the prescribed path from which Garland is not to deviate, the map offers, too, a potent symbol for one of the film’s central themes: the opposition, as Gerald Mast writes, between “acting and living, playing scenes and feeling emotion, the theatrical and the real.”<sup>34</sup> These tensions are articulated in the film’s final act, in which Garland and Jaffe hash out the ups and downs of their relationship: “We’re only real between curtains,” Garland says at one point. The scene, which lasts more than seven minutes, is set within a train compartment and consists primarily of medium two-shots, some of which are thirty seconds or longer. Like Hawks’s *Rio Bravo* (1959) a quarter century later, *Twentieth Century* was shot almost entirely in a studio, which is quite apparent from the fact that we only ever see three of the train compartment’s walls. All of the shots in the entire seven-minute stretch are static, save for one, when the camera dollies laterally in order to capture Jaffe, overcome by pique, as he strides away from Garland. His mouth and hands contort in an imitation of a masticating camel, one of the hundred he hopes to wrangle onstage in the Passion play that will be his and Garland’s comeback show. When Jaffe turns back to Garland, the camera again travels along with him. The extremes to which Barrymore takes his performance—the speed, for instance, with which he suddenly transforms into a camel and then snaps back to his old self—makes the camera’s parallel movements seem spontaneous, as if Barrymore were given free rein to improvise, yet the fluidity with which the camera is able to follow him indicates that his every gesture has been rehearsed in advance.

Five minutes into the scene, the emotions are running high. “You’re crazy!” shouts Garland at Jaffe, waving her hands in disbelief. Suddenly the frame is punctuated by one small, quite nearly invisible detail: set off against the white of the back wall, a fly zigzags across the screen, flitting from one side of Jaffe to the

other, and back again. No amount of chalk on the floor could dictate the path the fly takes—first it is here, and then it is there, and then it is gone. It serves no narrative purpose. Garland does not use its abrupt appearance as proof of her former lover’s worthlessness. Barrymore does not pause in his performance to brush it away. It is no more and no less than a fly that has happened to flit onto the set.

This brief disruption is a perfect example of what Christian Keathley calls “those fortuitous, chance encounters that are regularly *captured* by the camera in spite of the operator’s intentions.”<sup>35</sup> Although these “encounters” often fall under the category of “goof” or “error,” I follow Keathley and Andrew in arguing that they do not detract from the viewing experience. Instead, they are the sorts of details that give heft to the reality of the world both inside and outside the film. To see that fly is to *discover* that fly. The film suddenly contains artifacts to be unearthed and histories to be reconstructed: the fly is one of those “secondary’ details,” identified by Bazin, that are “apparently aesthetically at odds with the rest of the work,” but “give it its truly cinematic quality.”<sup>36</sup>

#### THE INDEX OF THE ARTIST

As it so happens, animated cartoons contain countless such secondary details. How could they not? Consisting of thousands upon thousands of individual photographs, cartoons cannot help but reveal *the* world. Or, as the artist Andrew Norman Wilson puts it in the epigraph to this chapter: “They reveal traces of the humans and technology that produced them.” Dust accrues on the cels; a stray thumbprint leaves a lasting impression; paint is applied inconsistently from one cel to the next. “In many ways, the one behind the camera has to be the most patient person in the studio,” Shamus Culhane acknowledges. “Animators scribble illegible numbers in the exposure sheets; checkers stack cels out of sequence; at one in the morning, a cel is found to be missing—the list of possible mishaps is endless.”<sup>37</sup> Some of these mishaps, when they escape the camera operator’s notice and are recorded for posterity on film, betray the photographic origins of cel animation: they are made visible after the photographic apparatus brings them literally to light. Others only become apparent in the succession of frames, in the difference between images: a portion of a cel goes unpainted, creating a strange pulsation of white or black; several frames in a walk cycle are dropped, producing a barely perceptible stutter in a character’s movements; the differences in illumination between cel layers is unaccounted for, such that characters change shades of gray from one frame to the next; cels are mislayered before the camera. Of course, these examples never succeed in fully “breaking” the spell of the cartoon’s world. Rather, they are tiny intrusions that divert our gaze for a split-second, if that—pinpricks in an otherwise vacuum-sealed world.

The incongruous insects of animation are the mistakes attributable to the studio's inkers, painters, camera operators, and other below-the-line workers—an index of their presence.

Due to industrial controls, the actual hand of the photographer never makes its way into works of cel animation. But animated cartoons produced by more artisanal methods, such as Raoul Barré's slash-and-tear system, are here and there marred by an errant hand. Because he did not have to take the step of lowering and cleaning a glass platen, a tired or rushed camera operator could easily neglect to remove his hand from the frame before taking a photograph. Many 1920s cartoons thus accidentally test what Donald Crafton calls the trope of "self-figuration," or "the tendency of the filmmaker to interject himself into his film," often through the deliberate inclusion of the putative hand of the animator in the image. As Crafton has argued, installments in Max and Dave Fleischer's *Out of the Inkwell* series and Walter Lantz and J. R. Bray's *Dinky Doodle* series, as well as variations on the "lightning sketch" routine showcased in James Stuart Blackton's *Humorous Phases of Funny Faces* (1906), offer "the exhilarating sensation that life is somehow being created before the spectator's eyes."<sup>38</sup> But sometimes a hand appears when and where it should not. The camera operator's hand is captured in several frames throughout the Fleischers' *Jumping Beans* (1922, fig. 2.2), for instance, while in *Animated Hair Cartoon No. 18* (Red Seal Pictures, 1925, fig. 2.3), distributed by the Fleischers' Red Seal Pictures, another such hand is photographed in the midst of the stop-motion transformation of a portrait of George Bernard Shaw into that of the baseball commissioner Kenesaw Mountain Landis. Each instance alerts us to the inefficiencies and irregularities that made slash-and-tear uneconomical for large-scale production and to the flatness and graphic clarity and purity of these early cartoons, against which the volumetric, gray-toned, and inconsistently lit human hand resembles a bas-relief. For a split-second, the hand of the worker appears on-screen; for a split-second, an icon of the worker's labor becomes visible.

Importantly, these moments hold out an *aesthetic* interest—and that is what makes them more than mere continuity errors. They pull against the space of the frame, directing our attention outward, centrifugally. But they also push inward, in that they make the peripheral detail the central axis of the screen. Robert Breer's *Fuji* (1974) provides an example of how this aesthetic possibility erupts. While *Fuji* is a work of experimental animation, not an animated cartoon, it can be considered a limit case that differs only in degree from *Jumping Beans*. *Fuji* is a study of flatness and depth, of movement and stillness. Most of the film consists of footage Breer first shot with a Super-8 camera while traveling by train in Japan and then rotoscoped (traced frame by frame) onto index cards using pencils and markers. As the footage unfolds, the film tests the iconicity of Mount Fuji: what does it take for it to be identifiable? As it turns out, just a tiny black triangle can

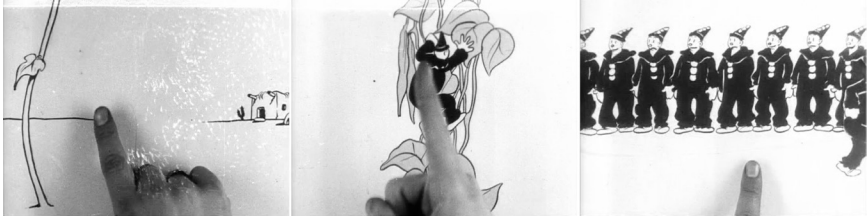


FIGURE 2.2. Anomalous fingers in *Jumping Beans* (Fleischer Studios, 1922).

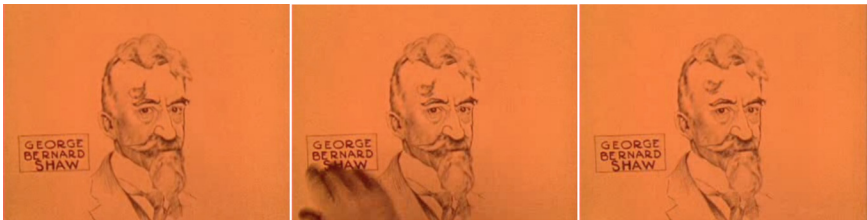


FIGURE 2.3. Three successive frames from *Animated Hair Cartoon No. 18* (Red Seal Pictures, 1925).

be enough, or even an upside-down V. Around the time Breer was working on *Fuji*, Roland Barthes found himself looking at his own index card collection and musing on this very question:

In the blue lining of an envelope that [by] chance, after detaching it from its backing, outlines against a partition in one of my boxes, I suddenly see the silhouette of Fujiyama; and so, playfully, on top of the crater I place a faint cloud inside which I write—since this is the function of my box—“to be filed.”<sup>39</sup>

In Breer’s film, this experiment in gestalt plays out on the surface of the screen, and we understand Yuri Lotman’s argument that the language of the animated film is the idiom of the children’s drawing. At the same time, that the footage has been rotoscoped gives us the sensation that something has been covered up and now lurks just below the surface of the image. At the outset of the film, Breer provides glimpses of the source footage, but these then recede beneath the layers of index cards and ink. Only one frame breaks both the rhythm of the film and the dynamic tension between the photographic Mount Fuji and the graphic Mount Fuji—a frame in which Breer’s hand comes from *above*, having been captured in the moment of reorganizing the cards in front of the camera lens. The dramatic shift in the scale and depth of the image momentarily points outward, while affirming the dynamism of the drawings Breer is fingering (fig. 2.4).

The hand is a convenient heuristic by which to measure labor. For this reason, as Allan Sekula notes, it often stands as a synecdoche for the “working body”

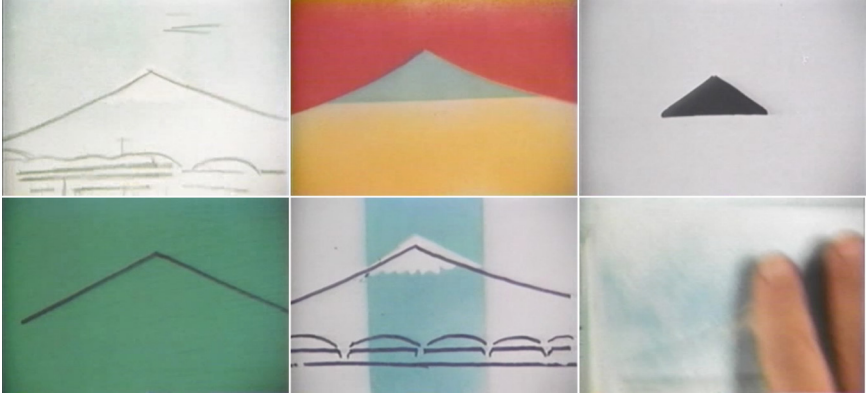


FIGURE 2.4. Five views of Mount Fuji and one view of the artist's hand in Robert Breer, *Fuji* (1974).

in modernist photography (as in László Moholy-Nagy's photograms, in which negative silhouettes of his hands figure prominently).<sup>40</sup> But these examples I have cited are exceptions. Rare is the animated cartoon that shows us exactly what we want to see. More often than not, the photograph seems untouched. We must look for what isn't there. Or, rather, we must look at and into what *is* there: the photograph itself.

#### TRACES OF PRODUCTION

A six-second sequence in Friz Freleng's *Hare Force* (Warner Bros., 1944), an otherwise inauspicious installment in the *Merrie Melodies* series, is rife with all sorts of marginal and often unintentional details—mishaps, accidents, mistakes, errors, clues. A dog, engaged in a heated rivalry with Bugs Bunny, visualizes the ways Bugs could meet his demise: by stabbing, by cannon blast, by being hacked to bits. The cel setup is relatively simple. The dog is painted to simulate a medium close-up. Although his torso barely moves throughout the sequence, subtle variations in its outer contours and the folds of his shoulder from frame to frame indicate that his head and upper body were painted on a single cel—not, as is often the case, on separate cels, which would have allowed animators, inkers, and painters to redraw and repaint only his face. While time-consuming, painting the entirety of his body on a single cel did afford an advantage. Acetate cels are not completely transparent, so when additional cels are overlaid, the colors of the cels below darken. Even a stack of two cels would have required the painters to “compensate” for this minute difference in tones by mixing separate tones for each cel—also time-consuming, and sometimes an impossible task in its own right. (In another sequence later in the film, the body has been painted on a lower cel and remains unchanged

while the head contorts wildly. Each layer was painted the same color, but the body appears brown, the head closer to burnt orange.) Meanwhile, the dog's vengeful reveries appear above his head in the form of thought bubbles, which are rendered in white ink on cels that overlay the one on which the dog is painted. Each one is held on-screen for approximately two seconds, enough time for the audience to register the sheer cruelty of the fantasies and then marvel at the shifts in the dog's facial expressions—the quirk of an eyebrow as his ideas begin to tickle his fancy, the lips pulling back in a malicious grin. Against the black background, the white sketches read like chalkboard drawings. The line has a rare hastiness and urgency for cartoons of this period.

But it is the black background of the scene that ultimately provides the greatest fascination. Large dark areas in the image field were notoriously difficult for camera operators to light properly. As Disney layout designer Ken O'Connor once noted, the lights “tended to grey out the black,” and, in addition, “the black background paper was excellent for bringing out any dust specks,”<sup>41</sup> a point made clear in a later sequence in *Hare Force*: Bugs, isolated in medium shot, is orbited by a tiny, ever-shifting galaxy of white spots. Furthermore, intervening between the black background and the camera were several layers of transparent cels, onto which sweat and oil could easily rub, and a glass platen, which was used to secure the cels and background but also made the task of lighting the image consistently all the more difficult. And, sure enough, in the photographs of the dog, a faint orange glow is visible on the left side of the frame. Almost the same hue as the dog's fur, it has been produced not with a paintbrush but by the lights of the animation camera. Halfway through the sequence, when the dog imagines Bugs facing down cannon fire, four or five blue streaks also appear just above the orange glow. These streaks are arranged like the fingers and thumb of a hand—and, indeed, they are most likely the result of the cel having been handled by one of the anonymous workers on the animation assembly line (perhaps an inker, perhaps the camera operator). A black background, rather than evacuating depth from the image, in fact gestures to the world outside (above and before) it. This single sequence illuminates both the dog's brutal fantasy world and the material facts of its production.

*Hare Force* is but one installment in the *Merrie Melodies* and *Looney Tunes* series, which number more than a thousand and are joined by the thousands of other works of cel animation produced by major US studios. The accidents *Hare Force* discloses are by no means exceptional—nor is the fact that it discloses these accidents at all. Of course, it is easy to watch *Hare Force* without ever noticing what I have described. My ability to understand what I am seeing is informed by my knowledge of the production process. Yet that knowledge only goes so far. I will never gain access to the exact conditions under which the film was produced. What I have identified as dust might be dandruff; what is visible on DVD and 35mm might be concealed in a reddened 16mm print; what I read as the prints of five separate fingers might all be the residue of a single thumb. I can stop the

film, look and stare, and still be uncertain. I do not have full knowledge of the world the photograph reproduces. Instead, it is my imagination that it is activated. Consider Oliver Wendell Holmes's analysis of the "lesser details" and "incidental truths" of stereograph cards. "The more evidently accidental their introduction, the more trivial they are in themselves, the more they take hold of the imagination," he writes. Whether examining two successive frames of an animated cartoon as if they were "twin pictures" in a stereograph or watching the film at twenty-four frames per second, one can surrender to the glimpses, the hints, of the lives and worlds that these images offer us. To Holmes, an out-of-focus figure in the corner of a photograph writes "a hundred biographies in our imagination," and so too can one hypothesize—fantasize—about what human fallibilities gave way to the imperfections enumerated above. What "longings, passions, experiences, possibilities" yielded what we see?<sup>42</sup> Boredom? exhaustion? frustration?

When the film is projected at proper speed, some of the mistakes barely register—blink and you'll miss them. But even a mistake in a single frame can quake the world of the film. *Did I just see that?* Other anomalies operate on an aesthetic register apart from the world of the film, reshaping our perception of an entire scene. Many of these are the result of mistakes made earlier in the production process. Inkers and painters, for example, encountered difficulties in translating animators' sketches onto cels. Try as they might, they could not always control the consistency with which they applied colors. As a result, the dresses worn by Mama Bear in Tex Avery's *The Bear's Tale* (Warner Bros., 1940) and Witch Hazel in Chuck Jones's *Broom-Stick Bunny* (Warner Bros., 1956) churn and shudder within the contours carefully delineated by the Ink Department; their streaks of brown and blue appear to move of their own accord, performing serpentine dances of lighter and darker swirls. (A similar effect is achieved in stop-motion animation: the manipulation of fur, fabric, or clay of a figure from frame to frame produces an effect known as "boiling.") Frequently, cels were painted the wrong color or not at all. As Snow White tends to the well in Walt Disney's *Snow White and the Seven Dwarfs* (1937), a patch on her skirt moves around and changes from light blue to purple; in Bob Clampett's *Falling Hare* (Warner Bros., 1943), the gray and white of first Bugs Bunny's tail and then his leg switch places; in Freleng's *She Was an Acrobat's Daughter* (Warner Bros., 1937), the polka dots on a woman's dress come and go. Struck by the lacuna that is animation's absence from film theory, Tom Gunning has pressed for a returned attention to the *motion* of motion pictures. As he argues, following Eisenstein, this motion "need not be realistic to have a 'realistic' effect, that is, to invite the empathic participation, both imaginative and physiological, of viewers."<sup>43</sup> When a patch on Snow White's dress changes color or position from frame to frame, we perceive these mistakes as movement—as, indeed, animation. That tiny rectangle is suddenly endowed with a life of its own, a life apart from either Snow White or *Snow White*. It is like fire or smoke or water, like a billowing curtain or trembling leaves.



It was not the camera operator's job to catch such mistakes—after all, cartoon bodies routinely mutate, so how could he be expected to know what, indeed, was unintended? But the camera, regardless, captured them unblinkingly. Other common mistakes, meanwhile, might very well be the fault of a tired or harried camera operator not following directions: uniformity breeds monotony, monotony breeds boredom, boredom breeds carelessness. Rudy Ising, an animator who worked as a cameraman for Walt Disney before starting his own studio with Hugh Harman, recalled frequently falling asleep between exposures.<sup>44</sup> The affinities between animation and microfilm photography are here apparent. For instance, a 1957 essay titled “The Case against Microfilming” highlights the many difficulties of transferring an office's records onto microfilm: “When you have a variety of materials to photograph, including papers of different reflective qualities, different colored inks or the like, the operator must make constant simple adjustments that slow down the operation until the operator gets bored and suddenly the filming speeds up. The result is no joke.”<sup>45</sup> The results for animation, meanwhile, are often quite funny. Cels, if stacked in the wrong order, can reveal imperfect or impossible bodies. In Dave Fleischer's *Popeye Presents Eugene the Jeep* (Paramount, 1940), Popeye spends most of a scene behind a table before exiting screen right. In one frame, however, one sees a portion of his body that was supposed to be covered by the tablecloth: his leg is inked but unpainted, and someone has crossed it out (most likely as a signal to the Paint Department to forgo that half of his body) (fig. 2.5).

As a scene unfolds, a cel might be forgotten, if it made it to the Camera Department at all, and a character will disappear for a split-second. In Avery's *Gold Diggers of '49* (Warner Bros., 1935), a cowboy hippopotamus jumps onto a horse that, for one frame, isn't there to catch him, while a gurgling baby loses a leg in Freleng's *Foney Fables* (Warner Bros., 1942). In a sequence in Jones's *Hair-Raising Hare* (Warner Bros., 1946), Bugs Bunny attempts to keep the fearsome monster Gossamer from barreling through a door. He arches every part of his body—his feet, his back, and even his ears—to hold closed the bending door. “Is there a doctor in the house?” he calls out to the audience in desperation, his head turning toward the fourth wall. A split-second before a silhouetted figure leaps up to answer his cry, Bugs's head disappears for a single frame (fig. 2.6). The rest of his body remains, retaining its contorted pose. Just like that, we realize he has been painted in sections, his head on one cel and his body on another, and we see both the total coherence of Bugs's graphic design (insofar as every part of him is reacting in some way to Gossamer's physical threat) and the completely fragmented labor process that necessitated dividing him across several cels.

Very rarely, a cel might be accidentally placed before the lens with its verso side facing up. A character's outlines were inked on the front of the cel and then sent to the Paint Department, the women of which opaqued the back of the cel in order to preserve the integrity of the inked contour. A view of the verso side reveals the painter's brushstrokes, particularly where she did or did not trespass



FIGURE 2.5. Popeye's leg crossed out in a frame from *Popeye Presents Eugene the Jeep* (Paramount, 1940).

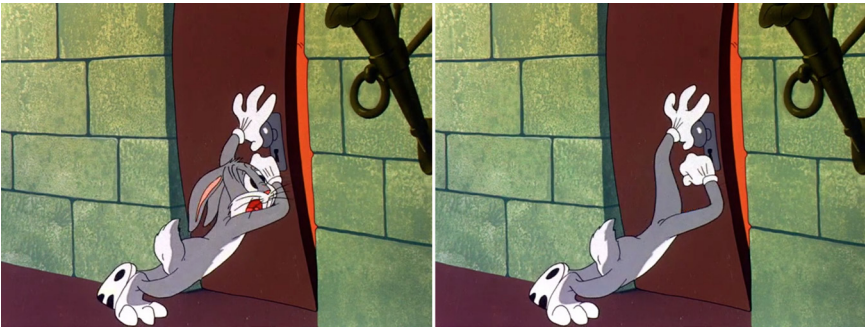


FIGURE 2.6. Bugs Bunny loses his head in *Hair-Raising Hare* (Warner Bros., 1946).

the inker's borders. In Freleng's *Hare Do* (Warner Bros., 1949), the verso side is *deliberately* photographed (fig. 2.7). A mass of anonymous characters repeatedly rushes in and out of a theater; the same set of cels is reused in each instance, but is flipped whenever the crowd moves left to right. Given the number of characters in the scene and the relative brevity of their appearance on-screen, the choice to save time on the inking and painting end made sense. But in Frank Tashlin's *Porky*

*Pig's Feat* (Warner Bros., 1943), for example, we are not meant to see Daffy Duck's gloppy underside, in which his bill lacks details like lips and nostrils and his hands distinct fingers. Porky Pig, standing at the left of the frame, is painted on a separate cel, the correct side of which has been photographed: his face has carefully delineated cheeks, eyebrows, and wrinkles. By the next frame, the camera operator has righted Daffy's cel, but Porky, meanwhile, remains exactly as he was in the previous cel setup, slightly aghast at his friend's grandstanding (fig. 2.8). For an all-too-brief moment, though, we have been made privy to just what was in front of us all along, if hidden from view.

These examples, culled primarily from Warner Bros. shorts but typical of all animated cartoons of the period, do by accident what animation historian Michael Frierson would claim the films of United Productions of America, a studio that formed in the wake of the 1941 animators' strike at Disney, did on purpose: "lay bare the cel process." Frierson was describing one of the signature visual tropes of UPA cartoons like Robert Cannon's *Gerald McBoing-Boing* (1950) and *Madeline* (1952), namely, shot transitions in which the cel setup remains static as the background changes. These transitions, he writes, "are a visible reference to their mode of production, a pointed demystification of the cel process, revealing the foreground overlay and thereby detaching the character from the diegesis." Yet Frierson's argument hinges on the declaration that "cartoons are creations of the graphic arts as much as they are creations of the motion picture arts."<sup>46</sup> One could therefore say that mispainted or misplaced cels speak not to animation's photographic nature but rather to the form's rootedness in the graphic, or what Bazin calls simply "the image."<sup>47</sup> But these micromovements only become visible after one admits that the animated cartoon could have a place in a photographic theory of cinema. That is, in recognizing that cel animation was *never* camera-less, even if it (arguably) aspired to be so, one begins to see how its individual frames offer us a unique view of physical reality.

Furthermore, many of the typical mistakes were themselves invisible to the naked eye. One would have to hold each cel up to a light to see that the paint had been inconsistently applied. The taking of the photograph is a moment of exposure, of illumination. The stack of cels before the camera is a palimpsest of opacity and transparency. Light is diffused, reflected, absorbed.<sup>48</sup> According to Donald Crafton, there could be up to a "25 percent difference in illumination between the top and bottom cels in a four-layer stack."<sup>49</sup> The difference between layers of nitrate cels, which were used for the early black-and-white shorts, was even starker. In Hugh Harman's *Ride Him, Bosko!* (Warner Bros., 1932), for instance, the figures have all been painted in black and white but those on lower cels appear on-screen in shades of gray. Even if this difference in illumination was taken into account, the cels might still betray their material properties before the camera. And so, too, might even the camera, as evidenced in several Warner Bros. cartoons of the 1930s. The reflection of the camera lens hovers over the bodies of elephants in both *I Love*

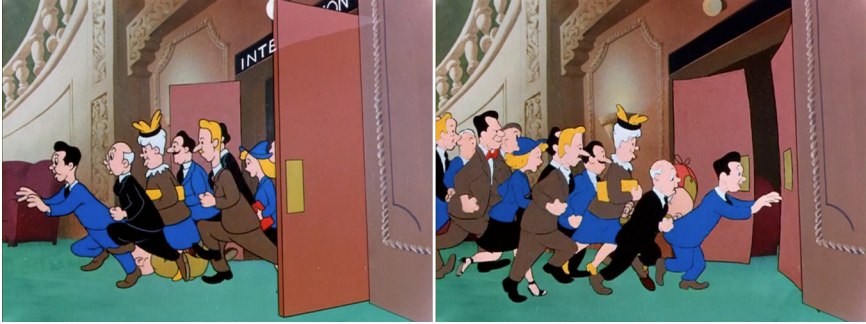


FIGURE 2.7. A cel's recto and verso sides in *Hare Do* (Warner Bros., 1949).

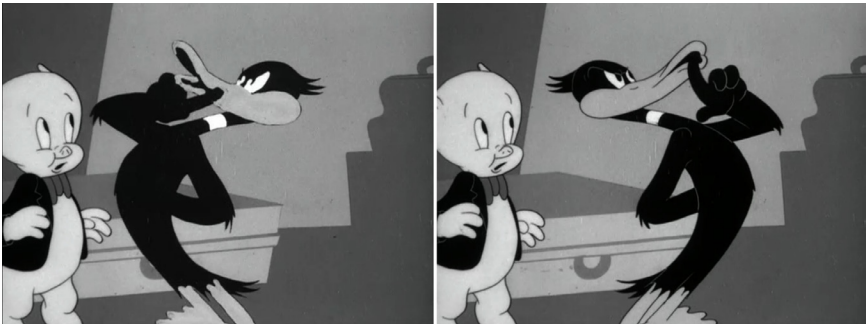


FIGURE 2.8. Successive frames from *Porky Pig's Feat* (Warner Bros., 1943).

*a Parade* (Rudolf Ising, 1932) and *Buddy's Circus* (Jack King, 1934) and, according to Crafton, in the panning shots of *Little Beau Porky* (Frank Tashlin, 1936).<sup>50</sup>

It is the photographic apparatus that not only records and reveals many of these particular mistakes but also, in fact, creates them. Before taking the photograph, the camera operator would secure the background and cels under the glass platen. If too little pressure was applied to the platen, however, the opaque, painted areas of a cel might cast a sliver of a shadow against the background, creating what Earl Hurd called in one of the first cel animation patents a “poster effect.”<sup>51</sup> Too *much* pressure, on the other hand, could result in a series of concentric bands called Newton's rings, an optical interference pattern that also appears on the surfaces of oil slicks and soap bubbles. But here animation's status as photography reactivates that fundamental epistemological problem, one that dovetails with aesthetic inquiry: What are we seeing? The material properties of the photographed and the material properties of the photograph cannot always be disentangled. For instance, it is often impossible to tell whether the Newton's rings were produced in front of the camera, by pressure from the platen, or still later in the production process, by a contact printer.<sup>52</sup> In other words, imperfections like Newton's

rings signify another sort of close contact—the intimate connection between, or even collapsing together of, the filmed and the film. Where does one begin and the other end? Was that celluloid fiber wriggling at the side of the frame stuck in the gate of the camera in the animation studio or in the gate of the projector used for optical printing? (In Tex Avery's *Magical Maestro* [MGM, 1952], much to the audience's surprise, a character "plucks" just such a hair from the bottom of the screen—a graphic image can look an awful lot like a photographic one.)

Or consider, once more, the reflections from the overhead camera lights that frequently lick at the edges of the frame. These are especially prevalent in those cartoons that use nitrate instead of acetate cels. On occasion, the reflections look like (or are even indistinguishable from) the warping and bubbling of nitrate film stock, serving as a reminder that the photographed object and the film itself are, at base, one and the same: celluloid and celluloid. Like the film stock, the nitrate cels were highly combustible, and inkers and painters had to make sure the cels they were working on did not catch fire from their desk lamps. After nitrate cels had been photographed, almost all were then incinerated to clear up storage space—just as many silent films were. Cels (no matter what fantastic image they might display) were always subject to the physical and chemical laws of our world and affirm animation's double role as the photographic record of ephemeral documents—a record that is all too ephemeral in its own right, as the devastating storage vault fires at Fox in 1937 and MGM in 1967 demonstrated.

Dust specks, too, confound our ability to tell the photographed and the photograph apart. Well aware that what might go overlooked in production would be magnified thousands of times in the projected film, studios took multiple measures to keep dust and dirt from making their way into the final image. These precautions, however, were never quite enough. Barbara Baldwin, who worked as an airbrusher at Disney, recalled in a 1995 oral history that she and the other women once bought the few male employees in the Ink and Paint Departments hairnets to prevent dandruff from getting on the cels.<sup>53</sup> This may have been a practical joke intended to further emasculate men performing what was already considered women's work, but it also reflected a real anxiety about the many ways in which a cel might be sullied. According to a 1947 article in *American Cinematographer*, the Camera Department at Disney's studio at Burbank housed a special cel-cleaning room, where cels were treated to discharge static electricity.<sup>54</sup> Most camera operators were also responsible for cleaning the glass platen with an air hose between each shot. In an episode of the *Woody Woodpecker Show* from the 1950s, Walter Lantz offers a behind-the-scenes look at this part of the process. "If he didn't do this, every speck of dust would show up on the screen," Lantz narrates. A dust- and hair-covered image is shown. "We call it a snowstorm, and we certainly don't want this on our films."<sup>55</sup> The term "snowstorm" recalls the "rain effect" described by Yuri Tsivian in his work on the reception of early film in Russia. He quotes a 1916 technical manual on the effect:

Since . . . a scratch mark in the corner of the picture is rapidly followed by one in the middle or at the top, it looks as though they are dancing all over the place, sometimes in dense clusters, sometimes scattered all around the image. If there are a lot of these defects the screen will appear to be covered with a fine veil of flickering white specks, or a shower of “rain.”<sup>56</sup>

What distinguishes “snow” from “rain” is that the former has an existence before the camera lens, while the latter is a mark on the body of the film itself.<sup>57</sup> One is embedded *in* the surface of the image, the other is *on* its surface. Yet they have attributes in common: in their dispersal across the screen, in their flickering dance, in their veiling of the screen. For example, in an early scene in Bill Roberts’s *Brave Little Tailor* (Disney, 1938), Mickey Mouse fends off a swarm of cartoon flies while all around him also flit what are obviously specks of dust—he may be oblivious to them, but we are not (fig. 2.9).

Dust, in all the epistemological and ontological instability it presents (and represents), is thus an especially redolent detail. It evokes Theodor Adorno’s characterization of the method guiding Walter Benjamin’s *Arcades Project* as a “technique of enlargement,” in which “small or shabby objects like dust and plush” are set into motion; plush, Benjamin writes, is “the material in which traces are left especially easily.”<sup>58</sup> Dust returns us to Dai Vaughan’s observation that early film audiences were most impressed with “what would now be considered the incidentals of scenes: smokes from a forge, steam from a locomotive, brick dust from a demolished wall.”<sup>59</sup> It conjures up the physical object that animation photographically reproduces, and reminds us of what is lost in photographic reproduction. What could that dust tell us if we could see it, touch it, even inhale it?<sup>60</sup> If “the étuis, dust covers, sheaths with which the bourgeois household of the preceding century encased its utensils were so many measures taken to capture and preserve traces,” as Benjamin writes, then nitrate and acetate celluloid sheets are the plush of animated cartoons, capturing the traces of what touches them.<sup>61</sup>

Indeed, acetate is commonly used to “lift” fingerprints from crime scenes. “It is astonishing that we have so much oil in the skin of our fingers,” Culhane remarks, “but even more astonishing is the ease with which it is transferred to cels.”<sup>62</sup> Like dust, fingerprints become visible only when the cel is photographed, when the light hits it in just the right way. One marks the beginning of Bob Clampett’s *Goofy Groceries* (Warner Bros., 1941), and two oily smears drift over the Salvador Dalí-inspired world of Freleng’s *Dough for the Do-Do* (Warner Bros., 1949). These indexical traces slipped through despite the many precautions taken by inkers and painters to avoid touching the cels with their hands, such as wearing white cotton gloves. Auril Thompson, a former painter at several studios, describes in a telling anecdote the lengths to which she went to shield her handiwork from the very hands that had worked it. A cutaway diagram of a Lockheed plane had been xerographically fixed to a four-foot-long cel, and it was her task to fill in the entire plane—the wings, the wheels, the ailerons, the cockpit, “even the little pieces of



FIGURE 2.9. Dust and flies swarm around Mickey Mouse in *Brave Little Tailor* (Disney, 1938).

cloth that went over the seats,” each with its own color. The paints she had at her disposal did not properly adhere to the cel, so she had to dilute each of the fifty different colors with soap. The one cel took her a week to finish, at which point she tried to show it to the other women in her studio. She held it up, she remembers, balancing it between her palms, so as “not to get fingerprints in it.” So heavy was the cel from the paint, however, that it slipped out of her hands and, upon landing on the floor, cracked in half.<sup>63</sup>

It takes human errors such as these for animation’s mechanical nature to be remembered. Each and every frame then seems haunted, not by the ethereal but by the corporeal. At any point, we sense, the world will intrude and, in the words of Siegfried Kracauer, take its “revenge upon those who dare to desert it.”<sup>64</sup>

#### “WE’RE ALL A PART OF IT”

To locate the world in the animated cartoon is to identify the convergence of two distinct theories of cinema. The first of these is Bazinian. The second, meanwhile, positions itself as directly opposed to Bazin’s putative realism. The experimental filmmaker Peter Tscherkassky offers a passionate summary of this second strand:

The iconoclasm of the avant-garde does not direct itself towards the image as such, but rather against the notion of cinematographic image being a representation of reality. The axiom of the “film as a window to the world,” as it was formulated by André Bazin, defines a position opposite to that of the avant-garde. The transparent window divests the image of its essence, and it is precisely this essence which is addressed by the avant-garde: upon closer inspection, the apparent iconoclasm is

therefore revealed as a paradoxical turning towards the image itself, whose own intrinsic reality is to be maintained. What is stressed is the character of the *created object*, of the *produced* in contrast to the apparent simplicity in the relationship between the reproduction and the reproduced.<sup>65</sup>

But the epistemological questions raised by animation—its status as both graphic and photographic, producing a world and reproducing the world—trouble the hard boundaries Tscherkassky erects between avant-garde aesthetics and realism. To better understand how these two seemingly opposed theories of cinema might ever come together, I turn now to the work of the contemporary artist Andrew Norman Wilson, whose photographic series *ScanOps* (2012) consists of inkjet prints of pages from books digitized by Google subcontractors. The pages selected by Wilson are all marked by what he calls “anomalies,” such as text warped by software glitches, illustrations rendered as black blobs by high-contrast scans, or the hands of workers subcontracted by Google—images evocative of the examples I have culled from animated cartoons.

Wilson’s *Workers Leaving the Googleplex* (2011), a video he covertly shot while himself a Google employee, expands the frame to include the whole of which these hands are part: the men and women, predominantly of color, who spend their days scanning page after page in a building adjacent to the storied Google “campus” in Mountain View, California. They are not, however, granted access to Google’s on-site swimming pools, massage parlors, and medical care. They and their work are meant to be invisible, but Wilson’s photographs disclose “the disturbances in what is supposed to be a seamless interface.”<sup>66</sup> Although their fingers are often gloved so as not to leave any telltale prints on the book they’re propping open, they nonetheless make an impression of a different kind. “Simon Newcomb—49,” a photograph in the *ScanOps* series, looks at first to be a monochromatic print, a rectangle of dark red. But in the lower left there appears a small pink ovoid spot—the tip of a finger, its loose latex covering ever so slightly wrinkled. Wilson’s photograph is at once abstract, a play of color, shape, and scale, and mimetic, insofar as it is a physical reproduction of the forty-ninth page of Google’s downloadable PDF of the December 4, 1909, proceedings of the Philosophical Society of Washington. Originally published as a slim volume bound in a lightweight auburn jacket, the proceedings were digitized on March 9, 2009.<sup>67</sup> The resolution of the PDF is detailed enough to reveal the matte texture of the paper and even a faint “Harvard University Library” stamped in relief on the cover’s recto side, or the sixth page of the PDF (it is also legible as a backward embossment on its verso, the seventh page of the PDF). Markings in pencil are distinguishable from those committed in ink, and no one would take the “Digitized by Google” watermark in the lower-right corner to be part of the source document. Another page from the PDF is included in the *ScanOps* series, but Wilson frames the two separately. Stripped of context, they become Surrealist found objects, which Wilson then recontextualizes as



“part of the photographic apparatus, which in a broad sense includes not only the machinery but the social systems in which photography operates”—a system that comprises, as Wilson enumerates, “the anonymous workers, Google founders Sergey Brin and Larry Page, the pink ‘finger condoms,’ infrared cameras, the auto-correction software, the capital required to fund the project, the ink on my rag-paper prints, me—we’re all part of it.”<sup>68</sup>

The unprecedented scope of the Google Books project makes such anomalies or disturbances inevitable. Wilson is not the only artist whose work draws attention to mistakes that punctuate this vast digital archive. For instance, Benjamin Shaykin’s *Google Hands* (2009) is a 140-page “collection of problem pages found in Google Books,” and, since 2011, Krissy Wilson has maintained a blog called *The Art of Google Books*, which showcases the library stamps, bookplates, inscriptions, circulation slips, and marginalia (as well as the hands) accidentally preserved in the online database.<sup>69</sup> What sets *ScanOps* apart, however, is Wilson’s insistence on calling what he does *photography*:

I’m more interested in printing the images than posting my finds online. I prefer to call what I’m collecting photographs as opposed to scans. Mass market books can be sliced open and fed into scanners, but the books I’m looking at come from library collections and need to be photographed from above. . . . They’re both indexical and medium-specific. Their processes, digital manipulations, and material supports are folded within them.<sup>70</sup>

In calling them indexical, he means to stress how they are the effect of a specific physical cause. Some of his examples also bear an iconic resemblance to their external referent (that is, we can recognize a finger propping open a page as a finger propping open a page), but others, such as the whirlpools of text that result from a glitch in the scanning software, look as much like their source as feces does a hunted fox or a column of mercury does a fever. In either case, however, the photographs qua photography testify to the existence of the world outside them. Wilson’s understanding of photography is informed by the strains of art and film criticism that speak in the same breath of Bazin’s “Ontology of the Photographic Image” and Roland Barthes’s *Camera Lucida* (1980). One example is Rosalind Krauss’s 1977 “Notes on the Index,” a two-part essay on photography and abstract art, which declares, “It is the order of the natural world that imprints itself on the photographic emulsion and subsequently on the photographic print. This quality of transfer or trace gives to the photograph its documentary status, its undeniable veracity.”<sup>71</sup> Understood as photographs, then, the pages of Google Books function as documents of the labor and technology that made them—these processes are their salient *that has been*.

By “medium-specific,” meanwhile, Wilson wishes to draw attention not to what the photograph represents but rather to what the photograph is made of—its material specificity. For a digital photograph, this is its ones and zeros, its vectors or rasters. The physical reality to which the photograph thereby bears witness is

itself: it says, *I am here*. Thus an out-of-focus or pixelated photograph has not failed to show us what we want to see but, in fact, tells us about the very *stuff* of the photographic apparatus, from the camera lens to the editing software. In this respect, Wilson aligns his project with the sort of modernist conception of photography articulated by Tscherkassky and other structural and experimental filmmakers, such as Peter Gidal, or Annette Michelson in her critiques of Bazin's film theory.<sup>72</sup> As Daniel Morgan has observed, "Where Bazin and others focused on the *content* of the medium, on what the film showed—often phrased in terms of 'reality' or 'world'—by [the 1970s] the debate had shifted to concerns over the *matter* of the medium, namely the physical fact of the celluloid itself."<sup>73</sup> Ultimately, the two sides of the debate—Bazin's and Barthes's realism(s) on the one hand, Michelson's modernism on the other—intersect in Wilson's work. What matters to him is the photograph's status as evidence. The photograph is a fragment of the world.<sup>74</sup>

#### TRACING TRACES

Wilson's project helps clarify what is at stake in seeking out mistakes in animated cartoons. To see animation as photography is, as I have argued, to see the labor that went into the film's making. Each and every animated cartoon is a photographic archive, and each and every one of its constitutive frames doubles as a visual catalogue of imperfections, anomalies, and disturbances, all of which conform to Marx's "knife that fails to cut" and the "piece of thread which keeps on snapping." These mistakes "forcibly [remind] us of Mr. A, the cutler, or Mr. B, the spinner," and thereby "bring to our attention their character of being the products of past labor."<sup>75</sup> In the cases of both animated cartoons and Google Books, that past labor includes the labor of photography. And to see the labor of photography is to puncture the phantasmagoric spell of animated cartoons.

Of course, many animated cartoons seemed already to gesture to the world that made them. Animation has long been regarded as uniquely self-reflexive. For instance, Lev Manovich has cast "animation" against "cinema" as follows:

Animation foregrounds its artificial character, openly admitting that its images are mere representations. . . . In contrast, cinema works hard to erase any traces of its own production process, including any indication that the images which we see could have been constructed rather than recorded.<sup>76</sup>

Decades before Barry Spinello's *Soundtrack* (1969) attempted to let the viewer "literally see what he hears," the optical soundtrack was making cameo appearances in *Fantasia* (Disney, 1940), *Three Caballeros* (Disney, 1944), and Dun Roman's *The Herring Murder Mystery* (Columbia, 1943).<sup>77</sup> Dave Fleischer's *Goonland* (Paramount, 1938) and Chuck Jones's *My Favorite Duck* (Warner Bros., 1942) showed us the filmstrip's hitherto repressed sprocket holes, just as George Landow's *Film in Which There Appear Edge Lettering, Sprocket Holes, Dirt Particles, Etc.* (1965) would a generation later. Or consider Chuck Jones's *Duck Amuck*

(Warner Bros., 1953), a cartoon lauded for its skewering of cinematic conventions. Throughout the film, Daffy Duck is tormented by the pencil and paintbrush of an animator who, at the film's conclusion, is revealed to be none other than Bugs Bunny. ("Ain't I a stinker?" he gloats to the audience, his right hand still clasping the pencil.) Robert Stam, for one, has claimed that *Duck Amuck* "anticipates *Persona* [1966, dir. Ingmar Bergman] by incorporating projection mishaps into the film itself."<sup>78</sup>

But, as Dana Polan has argued, *Duck Amuck* in fact amounts to a closed loop, a self-generated phantasmagoria in which cartoon characters create themselves. The world of *Duck Amuck* makes no allowances for *our* world. Its narrative elides the actual human labor that went into its making. By foregrounding its artifice, the cartoon paradoxically "erases any traces of its own production process."<sup>79</sup> The obvious artifice may be what frees it to make a joke out of "the awkward material contingency of film," but the success of such a joke depends on the film *not* bursting into flames.<sup>80</sup> As the structural filmmaker Peter Gidal insists, "Optical effects *are* photographic inscriptions." Thus a shadow, a sprocket hole, or a splice mark "is an image, a reproduction, a photographic image, as is every cinematic device given through projection of film through a projector. This is not an ontological inference but rather a description, an effect, a determinate effect of a photochemical process."<sup>81</sup> An animator's hands can only intervene in *Goonland* to piece the broken film back together if the actual film has not, in fact, broken. (And, tellingly, we can see reflections of his hands in the cels on which the images of the broken filmstrip have been painted.)

To open the loop, to restore these traces, one must watch the cartoon in the way Wilson studies Google Books—not for its putative content but for its form, the photographic medium. If understood in this way, one can learn to recognize the constructed-ness of *Duck Amuck* and other films in which scenes and characters appear to be painted before our eyes, such as Jones's *Rabbit Rampage* (Warner Bros., 1955) and Disney's *Aquarela do Brasil* (1942) and *All the Cats Join In* (1946). These films deploy what is called a "wipe-off" technique: the sequence is shot in reverse as the completed image is progressively wiped away, exposure by exposure. What this means is that we are witnessing not the painting process, as in Henri Clouzot's *The Mystery of Picasso* (1956), but rather the *erasing* process. In many instances the paint is not fully wiped off, and leaves a slight, ghostly impression on the cel. A frame from *Duck Amuck* is thus like a photograph of Robert Rauschenberg's *Erased De Kooning Drawing* (1953). A white picket fence is there but not there, the faintest of smudges. More noticeable is the difference between the cel painting that is still wet, to make the wipe-off procedure cleaner, and the cel painting that is dried. When the putative film frame collapses on Daffy's head, Bugs helpfully paints him a stick to help prop it back up. As it is being painted (or, rather, erased), the stick is yellowish brown, closer to tan. Once it has been fully painted, it takes on a hue closer to raw umber (fig. 2.10).

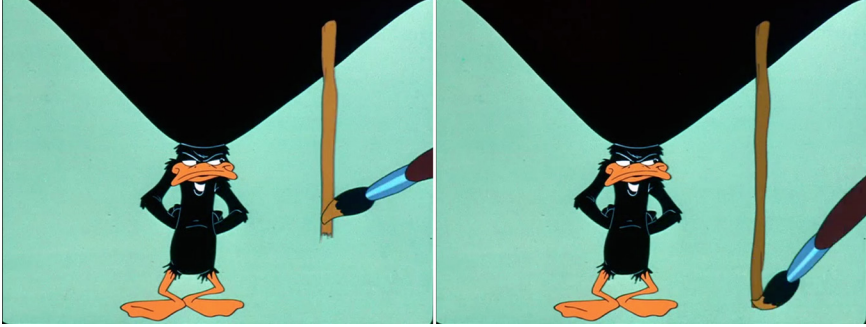


FIGURE 2.10. Successive frames in *Duck Amuck* (Warner Bros., 1953).

In *Rabbit Rampage*, it is Bugs Bunny who is tormented and Elmer Fudd who is doing the tormenting. Fudd paints hat after hat after hat on Bugs's head, each one more elaborate than the last. Because both the ink and the paint had to be wiped off, they were applied to the same side of the cel. As a result, the paint sometimes covers the inked outlines and detailing. In one frame, the paint on Bugs's hat is still wet, and its ribbons, flowers, and other embellishments lack clear, strong outlines. In the next frame, the cel has been inked and painted in the usual fashion, and the colors are darker and their boundaries more decisively delineated. *Rabbit Rampage* showcases many of the other mistakes endemic to the cel animation technique: when Fudd paints Bugs in triplicate, each copy is on a separate cel layer and, as a consequence, is of a slightly different shade of white and gray; the yellow tail Fudd gives Bugs is accidentally painted its usual gray for two frames; for a tenth of a second Bugs loses and then regains an arm.

I am here tracing traces—traces that intersect, overlap, disappear. They do not, however, loop back on themselves. The trail we follow leads not to a singular artist, to Bugs Bunny or to Chuck Jones, but to the whole system of markings, of traces—fingerprints pointing every which way. One is reminded of Benjamin's account of "the world" offered to children by the illustrations on their books: "The objects do not come to meet the picturing child from the pages of the book; instead, the gazing child enters into those pages, becomes suffused, like a cloud, with the riotous colors of the world of pictures."<sup>82</sup> These cartoons—their brushstrokes, their inked lines, their erasure marks, their transparencies, their opacities—are not closed compositions. They show and they hide. They are difficult, demanding, and dense—centrifugal *and* centripetal.

#### ENTERING THE PHOTOGRAPH

In *What Cinema Is!* (2005), a wistful monograph on the current state of cinematographic realism, Dudley Andrew describes an encounter with the ghost of Bazin.

The ghost takes the shape of markings in Bazin's personal copy of Jean-Paul Sartre's *L'Imaginaire* (1940). "Examining it page by page (except for those pages—very important—that he did not read: I know because they are uncut)," Andrew writes, "I found his penciled underlinings, and some marginalia."<sup>83</sup> Andrew observes that Bazin bracketed an entire passage that he would soon repurpose for "Ontology of the Photographic Image." Then, in a description that alludes to the opening of that very essay, Andrew writes of discovering a "mummy" nestled between the pages: snatched from the flow of time, stowed away neatly at page 38, is a sheet of notes on which Bazin had typed a list of terms from Sartre's work.<sup>84</sup>

Would this encounter have seemed as haunted if Andrew had been examining the book page by page on microfilm? That he is handling a physical object—touching what Bazin has touched, retracing the lines traced by Bazin's pencil—seems especially poignant, linked as it is to the "psychology of relics and souvenirs" that owe their power to the "transference of reality."<sup>85</sup> Moreover, marginalia has the loose, uninhibited quality of an artist's sketch, which Christian Keathley in turn likens to the immediate power of the photograph. The sketch, Keathley claims, "gives the impression that it has been composed automatically, instantaneously, out of a desire to register the image as near as possible to the moment of its existence." This is in contrast to classical painting, which conceals its own making. Keathley then compares two works by Leonardo da Vinci in order to articulate their distinct powers: "Upon seeing the Mona Lisa, one may appreciate the extraordinarily composed image, but upon seeing Leonardo's sketchbooks in a museum case, one cannot help but also marvel, 'He touched this!'"<sup>86</sup> But if the sketch has the power of a photograph, what about a *photograph* of a sketch? Could a photographic reproduction of Bazin's personal copy of *L'Imaginaire* ever possibly give way to something akin to the awe felt by Roland Barthes upon looking at a photograph of Jérôme Bonaparte from 1852: "I realized then, with an amazement I have not been able to lessen since: 'I am looking at eyes that looked at the Emperor'"?<sup>87</sup> Could a photograph of *L'Imaginaire* ever move Andrew to say, "I am looking at pages that were looked at by Bazin"?

Perhaps, however, a photographic reproduction would have led Andrew to think that Bazin's jottings were in pen and ink, not pencil, or caused him to worry that he could not distinguish between a line in the margins and a hair in the gate of the contact printer. In "tracing Bazin's traces," Andrew undoubtedly experiences the aura of this particular copy of *L'Imaginaire*, at least as Walter Benjamin defines the term in "On Some Motifs in Baudelaire" (1939). He invests the inanimate object "with the ability to look back" at him, to examine him just as he examines it.<sup>88</sup> For Benjamin, as for anyone who seeks but cannot find in a photographic image the fullness of a returned gaze, the technological reproduction seems impoverished. It may compel us to look, to stare, to search, but even that which is magnified or slowed by photography remains forever at an unattainable remove.

Adorno, upon reading a draft of Benjamin's essay on Baudelaire, sent his friend a letter inquiring about the phenomenon of the aura. "Is this concept not an indication of that moment upon which I grounded the construction of phantasmagoria in my Wagner study, namely, the moment of human *labor*?" he asked. "Is not the aura invariably a trace of a forgotten human moment in the thing, and is it not directly connected, precisely by virtue of this forgetting, with what you call experience?"<sup>89</sup> Benjamin disagreed. The aura can arise even from organic objects untouched by human hands. Yet Adorno's question remains vital. Certainly the reemergence of a forgotten human moment is what pricks us in Andrew Norman Wilson's photographs. Likewise, it is what reminds us that the animated cartoon offers not a reality *sui generis* but in fact a view of our own world.

The photograph itself is an object with an aura. Whether projected on a screen, displayed on a computer monitor, reproduced as a halftone print, or glued to the pages of a scrapbook, a given photograph is as material as what it represents. One might, therefore, expect of a photograph the same response one would expect from a man or woman—or, as Benjamin argues, any object, organic or inorganic—namely, that it will return one's gaze. It is this materiality on which Wilson's *ScanOps* series is predicated. The hundreds of thousands of scanned images that comprise Google Books cannot be treated as pure text, as pure information. In printing and framing selected scans, Wilson foregrounds the material procedures and networks that constitute photography. This is not simply a matter of *representing* the human labor of the photograph's iconic resemblance to the world. The photographs need not be "legible" to seize us—indeed, they are often fuzzy, distorted, discolored, their putative content obscured by a software glitch or a Newton's ring. These obstructions are part of them. In fact, such interferences make us sensitive to the medium of photography itself: we only remember we are wearing glasses when they are smudged.

One thinks of Virginia Woolf's response to a screening of Robert Wiene's *Cabinet of Dr. Caligari* (1920). For Bazin, this was exactly the kind of film that put its "faith in the image" instead of in reality. What Woolf sees, however, is something overwhelmingly, frighteningly real:

At a performance of *Dr. Caligari* the other day, a shadow shaped like a tadpole suddenly appeared at one corner of the screen. It swelled to an immense size, quivered, bulged, and sank back again into nonentity. For a moment it seemed to embody some monstrous, diseased imagination of the lunatic's brain. For a moment it seemed as if thought could be conveyed by shape more effectively than by words. The monstrous, quivering tadpole seemed to be fear itself, and not the statement, "I am afraid." In fact, the shadow was accidental, and the effect unintentional.<sup>90</sup>

Woolf is (most likely) describing an obstruction in the projector's beam, an obstruction that was particular to the "performance" of *The Cabinet of Dr. Caligari* she happened to attend. The accident she describes is not a marginal

detail captured by the camera. But her attention to this kind of disturbance reflects her sensitivity to the medium of cinema.<sup>91</sup> One could imagine her being just as taken with the slight shiver in the branches that frame the face of the film's narrator in the opening scene, or with a downpour of scratches on the film print. Ultimately, in the final projected image, the difference between what is photographed and the cinematic apparatus collapses. Watching Walt Disney's *All Wet* (1927) on DVD has a similar effect (fig. 2.11). While Oswald the Lucky Rabbit whispers in the ear of a canine lifeguard, a jagged, black form, larger than one of Oswald's hands, appears in the corner of the screen, where it rises, falls, and then retreats. How and when did this form make its way into (or onto) the film? Its power derives from its movement, which gives it life, a life that threatens to grab Oswald and his companion.

Andrew's study of Bazin's marginalia and Woolf's fascination with this shadow are both concerned with what lies at the edge of things. Investing meaning in the peripheral, they are haunted by what others might think of as noise. Woolf in particular pushes "reality" to its limit, whereby its transient material literally overshadows its life. We might recast her suggestive commentary as the manifesto of a proto-structural filmmaker. According to Juan Suárez, structural film "acted as an un-indexing medium. It questioned and interrupted the transparency of photographic representation at every turn or, differently put, it showed that the photographic image was full of *noise*." The textures of certain structural films, for instance, "drew attention to the effect of time exposures and film stocks while simultaneously suggesting that photographic representation is, after all, a matter of dots dancing on an empty field."<sup>92</sup> Woolf's monstrous, quivering tadpole presages those dancing dots. This is the *stuff* of cinema, its true "material density and multiplicity."<sup>93</sup>

Cinema is by its very nature an expanding universe, whether of grain or of pixels. Even the cosmos of an animated cartoon, seemingly so ordered, so controlled, so finite, is abuzz.

In animated cartoons, silver halide particles twirl in tandem with all sorts of other visual noise, from paint splatters to dirt smudges to greasy fingerprints. And dance they do, for no two film frames are alike: "The grain is different in each picture—even if it shows the same object, it is not the same picture," Werner Nekes has argued. "This becomes obvious if you just take a tiny corner of a frame and blow it up to huge proportions, you'll see the movement of the grain, which is the carrier, the material the information is transported on."<sup>94</sup> Digital "restorations" both enable one to see *more* of the image and yet deepen the sense that the closer one peers, the harder it is to discern just what separates the photographic from the graphic: Is that a rippling pond, or the warping of a film print, or the swim of pixels?

To look at animation as photography is to find the world that has been cropped out of the frame. This is the Bazinian axiom of the "film as a window to the world."<sup>95</sup> But it is also to find the world *within* the image, to study the windowpane as well

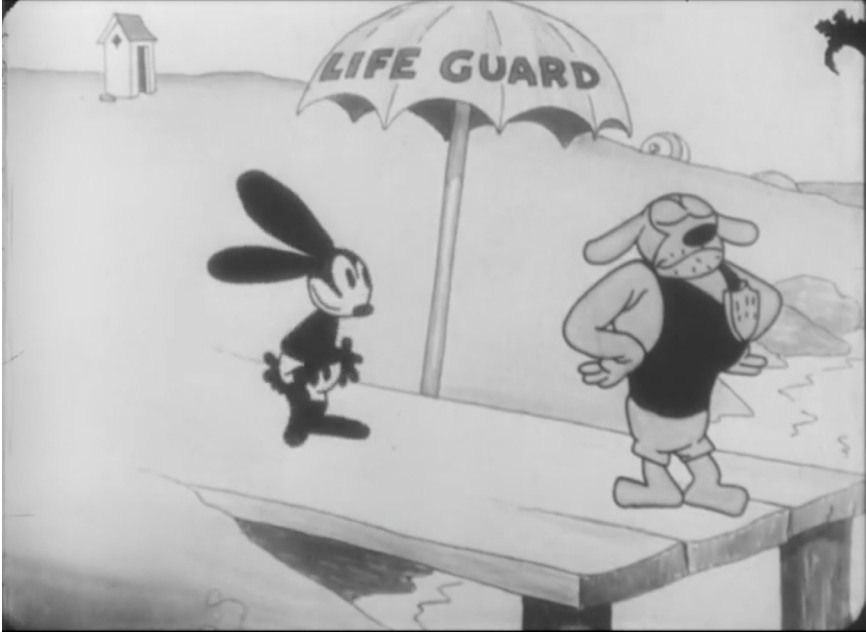


FIGURE 2.11. An obstruction in the film gate looms in the periphery of *All Wet* (Disney, 1927).

as the view beyond it. A cartoon documents and dramatizes India ink, watercolor paints, paper, glass, and stacks of transparent cellulose nitrate or acetate sheets; particles of dust traverse half the screen and fleeting, spectral reflections are cast by the animation stand's overhead lights; Newton's rings knit together. And yet animation betrays the graphic of the photographic. A line might be a gesture of ink, a particle of dust on the cel, a hair in the gate of the camera or the contact printer or the projector; the camera lens becomes an element to be photographed, inseparable from the other transparent plates and sheets before it; the image assimilates the various physical and chemical agents that can affect a filmstrip. The disturbing presence of scratches, stains, and grain—or are they pen strokes, paint splotches, dust specks?—do not occlude the object but instead reveal the nexus of social, technological, and economic practices that is the photographic apparatus. To penetrate the animated cartoon, one must learn to navigate the corridors of images made labyrinthine by their low resolution and to look past the dense fog of film emulsion. Through this obscurity the world comes into view.



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## Pars Pro Toto

### *Character Animation and the Work of the Anonymous Artist*

*Everyone does his or her task on the conveyor belt, performing a partial function without grasping the totality.*

—SIEGFRIED KRACAUER<sup>1</sup>

*The single frame is the basic unit of film just as bricks are the basic unit of brick houses.*

—ROBERT BREER<sup>2</sup>

#### DELIBERATE MISTAKES

In late March 1937, in order to meet the booming demand for Popeye cartoons, the management at Fleischer Studios called for the production process to be sped up. In-betweeners, the animators tasked with drawing the stages of movement that come in between key poses, were expected to double their daily output, from twenty sketches per day to forty.<sup>3</sup> But tensions between management and labor at the studio were running high, and the in-betweeners did not comply. Instead, they countered with a “slowdown” strike, which meant, effectively, continuing to produce drawings at the regular rate.<sup>4</sup> In the month that followed, fifteen animators were fired for participating in the slowdown, and on May 6 the Commercial Artists and Designers Union authorized a full walkout of the studio.

The story of what happened next has already been told, as have the stories of other labor conflicts in the US animation industry—most notably, the 1941 strike at Walt Disney Studios.<sup>5</sup> But I want to focus on what *didn't* happen. By this I do not mean a counterfactual history, at least not in the traditional sense of the term. Rather, I wish to imagine what is left unsaid in these narratives, which tell us only what went on behind the scenes. How did in-betweeners contribute to the visual style of cel animation? How, if at all, would their absence have been

felt? What would be the *aesthetic implications* of the slowing down or stoppage of work?

Let's pretend, for instance, that management had simply ignored the in-betweeners' act of resistance and gone ahead with producing Popeye cartoons with only every other drawing completed. What would such a film *look* like? The difference, in truth, would be subtle. Popeye and Olive Oyl would still move—they would still be animated and hence animate. But they would move less fluidly. With the transitions from one key pose to the next abbreviated, the key poses would have to shoulder the burden of conveying the dynamism of each character. If before, little gestures and secondary actions—whether a detail of personality, such as Popeye pushing up a shirtsleeve as he prepares to throw a punch, or a detail of physicality, such as the fabric of his sleeve wrinkling at the elbow—helped give weight to these ink-and-paint figures, a cartoon with fewer in-betweens would instead have to make the most of its individual static compositions. We wouldn't see Popeye wind up his arm, lift his leg for leverage, and then shoot his fist forward to make contact with his opponent's face, every step of the action working in tandem to communicate his presence and power. Instead, it would be the very lacuna in the action—such that we witness only Popeye *before* and *after* the punch—that would serve to underscore the forcefulness and speed of the elided swing.

What I am envisioning is something like “limited” animation, a technique that would come to dominate US animation in the 1950s, thanks largely to the influence of the upstart studio United Productions of America (UPA). Unlike “full” animation, in which there are twenty-four unique drawings per second, or even animation done “on twos” or “on threes” (which use, respectively, twelve or eight unique drawings per second), limited animation forgoes most in-betweens by relying heavily on “holds,” in which characters do not move. If a character turns his head, we are given only profile and frontal views of his face—no intermediate position is offered. The movement is staccato, and the character is sapped of mass and volume. But the abruptness of the animation and the flatness of the characters have their own aesthetic appeal, insofar as they flaunt “the graphic, non-perspectival possibilities of the medium” of animation.<sup>6</sup> Noting these possibilities, a contemporary critic praised the UPA style for its “emphasis is on line rather than modeling, line used for stringently expressive drawing.” UPA cartoons are but “the distillate of an image,”<sup>7</sup> much like the work of Pablo Picasso, Henri Matisse, Saul Steinberg, and Amedeo Modigliani. Thus limited animation reduces labor costs, but not at the expense of creative expression.

An early example of limited animation, which predates the foundation of UPA, is *Dover Boys at Pimento University*, or *The Rivals of Roquefort Hall*, a 1942 Warner Bros. short directed by Chuck Jones. Throughout, characters freeze dramatically in place, holding their positions for several seconds at a time. When they finally continue on their way, they are not animated in a succession of poses. Instead, several discrete movements are welded into a single image, creating bizarre



FIGURE 3.1. Smears in *Dover Boys at Pimento University, or The Rivals of Roquefort Hall* (Warner Bros., 1942).

“smears”—heads that arc like rainbows, noses that stretch across the screen (fig. 3.1). The effect produced, as an animator writing for a contemporary art journal remarked, is “an expressive pattern integral to the picture.”<sup>8</sup> Indeed, the result is comic, strange, and often beautiful—and wholly unlike the animation of contemporary films by even Jones himself. Animators delighted in testing limited animation’s temporal and spatial rhythms. As Ward Kimball, a Disney animator who exploited the technique in such films as *Toot, Whistle, Plunk and Boom* (1953), explains, “My contention was there were certain types of comedy staging that were best done with limited animation. A *lack* of movement would put over the gag.”<sup>9</sup>

We might, then, briefly entertain the notion that labor unrest at Fleischer Studios could have been averted had management simply embraced the in-betweeners’ slowdown, regarding it not as a threat to their commercial productivity but rather as a fresh opportunity to expand the expressive possibilities of limited animation. Well, we can dream, at least. What is more likely (or, of course, not likely at all, given that we are still in the realm of the counterfactual) is that the animation would have looked awkward, stilted, not quite right—but then again *not quite wrong*, either. For this scenario, we have at our disposal extant Popeye cartoons, namely the colorized frame-by-frame remakes produced by Turner Broadcasting in the mid-1980s. Turner delegated the task of converting of 120 Popeye shorts to color for television broadcast to Entercolor Technologies, whose head, Fred Ladd, had pioneered the colorization of black-and-white cartoons in the late 1960s. Among his earliest projects was the entire Betty Boop catalogue. The actual colorization of the shorts was undertaken at a studio in Korea, where technicians went frame by frame through 35mm prints, extracting the foreground elements of the still image (those parts that had originally been painted on cels a half century earlier) from the background and then enlarging each element separately. After color was applied to the separated elements, the

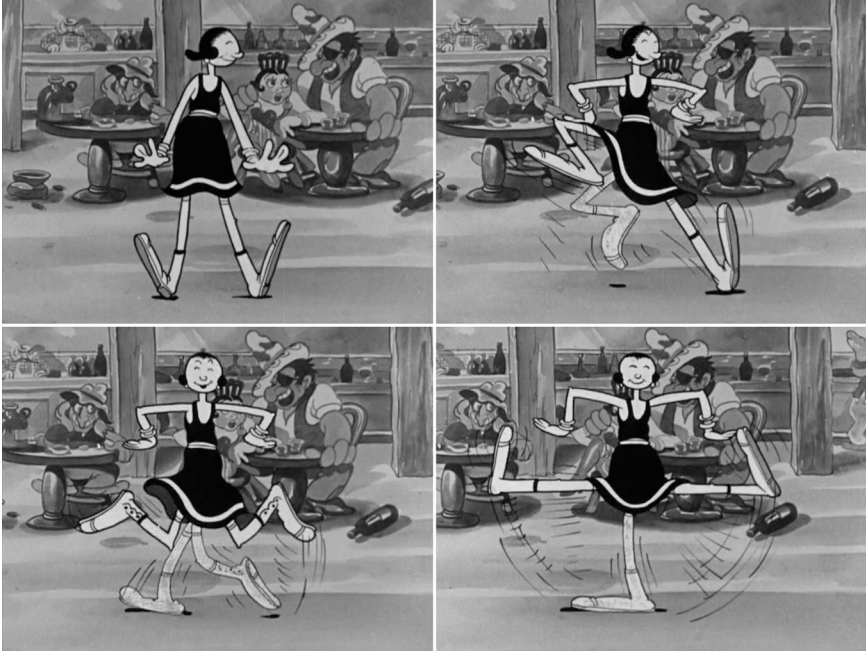


FIGURE 3.2. Frames from Olive Oyl's dance in *Blow Me Down!* (Paramount, 1933).

final image was reassembled under a camera. The head of operations in Korea had come to colorization from the publishing industry, and he focused most of his attention on the precise registration and calibration of colors. Ladd would later characterize the method as the “fusion of two disciplines that ordinarily do not meet each other in the light of day—animation and printing.”<sup>10</sup> But shortcuts were taken. Fleischer cartoons were usually animated on twos, so the Korean technicians typically colorized every other frame, which could then be photographed twice to preserve the original frame rate. This meant, however, that those instances in which the animation was done on ones—instances in which animators wished to achieve especially rapid and/or fluid motion of characters or props—were, when colorized on twos, drained of their original pacing, specificity, humor, and even causal logic.<sup>11</sup>

A frame-by-frame comparison between a dance performed by Olive Oyl in the black-and-white *Blow Me Down!*, first released by Paramount in 1933 (fig. 3.2), and the same dance as it appears in its remake from 1985 illustrates just what was lost in the colorization process. In the original cartoon, Olive holds a pose—her arms and legs straight and her hands and feet lifted upward—for seven frames (just under a third of a second) while the background is incrementally moved behind her. The contrast between her taut limbs and the way in which she appears to float effortlessly down the dance floor is comical. In the next frame, her knees bend toward

each other and her arms lift at the elbows. Out of her right knee she sprouts a third leg. This is what is known as a “multiple,” and, like the smears in *Dover Boys* described above, is another means by which animators simulate motion blur. The actions that follow are animated on ones: (1) her elbows and knees bend at right angles (her third leg still protruding downward); (2) her entire body lifts upward, two of her three heels nearly touching her hips; (3) she does a split in midair; (4) two of her three legs return to the ground while her left leg remains bent; (5) her right leg and its multiple lifts up while her left leg hits the ground; (6) she grows four legs, two bent upward, near her hips, and two as if mid-stride on the floor; (7) three of her four legs are pulled straight, her fourth bends at the knee; and so on. This series of dramatic poses continues for another full second. Some are recycled, but each frame is distinct from the one before it. After more than thirty such contortions, Olive resumes the pose she held at the start of the sequence—before once again launching into her paroxysmal dance. The dance achieves a perfect rhythm, milking the tension between the calm of her stillness and the unhinged antics of her angular legs. The remake, by contrast, lacks any such control of time. While the blue of Olive’s dress, the tan of her skin, and the brown of her shoes may be precisely calibrated to the contours laid down fifty years before, her movements are helter-skelter. She holds her pose for only four frames, and then moves her legs wildly for a mere three frames, before once again assuming her held pose. The eighth of a second in which her limbs are akimbo barely registers as “dance.” Instead, it reads as nothing more and nothing less than a spasmodic twitch.

The difference between the two possibilities I have sketched above, in which the number of unique drawings between key poses is significantly reduced, seems to reside in *intention*. The stylized, limited animation of a UPA short or *Dover Boys* is artistically successful because of a top-down, coordinated effort both to exploit the comic possibilities of stillness and to ramp up the speed of the intervening movements. Labor might be saved along the way, but it is in service of a grander creative vision, one that marries form and function. The colorized Popeye shorts are unsuccessful because the work performed is ad hoc, with no sense of the film as a whole: the technicians’ only task was to colorize as efficiently as possible, and in their frame-by-frame reviewing of the cartoon at hand they neglected to see the forest for the trees. The aesthetic consequences of this method are unintended; they are imperfections, mistakes, disturbances, and anomalies of the same category as those I detailed in the previous chapter.

What I wish to draw out of this quasi-counterfactual exercise is a larger claim about the importance of noncreative labor, such as in-betweening, to the visual aesthetics of cel animation. To be sure, in the hierarchy of most animation studios, in-betweeners were of higher rank than the inkers and painters—it was their animation sketches that inkers traced and painters opaqued. But their primary job was to adhere to the designs dictated by the directors and

head animators. They were selected not for their artistry per se—that is, if we understand artistry as personal expression—but for their ability to copy the style of another. And the work, like that of the camera technicians and the inkers and painters, was repetitive. “That, to me, was like an assembly line,” former in-betweener Walt Peregoy recalls.<sup>12</sup> “Where is the creativity in obsessively crouching over light boards, tracing and flipping, flipping and tracing, all day, every week?” asks the animation historian John Canemaker, reporting on the production of Richard Williams’s *Raggedy Ann & Andy: A Musical Adventure* (1977). Canemaker observes that the in-betweener Sheldon Cohen “occasionally resorts to caricature to relieve the ennui,” which provides him a necessary release from “mindlessly tracing somebody else’s spontaneous drawings until all the life is gone from them and nothing remains but an impersonal, inert sketch.”<sup>13</sup> Yet as taxing and tedious as this work might be, it nonetheless has a significant impact on the final film—hence the effectiveness of the slowdown strike initiated by in-betweeners at Fleischer Studios, hence the salient stylistic differences between works of full animation of the 1930s and 1940s and limited animation of the 1950s.

On the one hand, the division between creative and noncreative labor in animation production is obvious. There is some circularity to the logic undergirding this division, of course (to wit: above-the-line workers are paid more and are credited for their work, which is how we know they are above-the-line workers), but that doesn’t mean there aren’t qualitative differences in skill and talent between a head animator and an in-betweener, or even between an in-betweener and an inker. On the other hand, it is only through the efforts of tens, if not hundreds, of noncreative workers that the creative vision of the singular director can be realized. Moreover, it is *their* work that makes it on-screen: the anonymous camera technician took that photograph of that stack of cels, each of which was painted by an anonymous painter, working from a sketch by an anonymous assistant animator or in-betweener.

“Somebody built the pyramids,” Mike LeFevre, a steelworker, tells the journalist Studs Terkel in a famous interview. He continues:

Pyramids, Empire State Building—these things just don’t happen. There’s hard work behind it. I would like to see a building, say, the Empire State, I would like to see on one side of it a foot-wide strip from top to bottom with the name of every bricklayer, the name of every electrician, with all the names. So when a guy walked by, he could take his son and say, “See, that’s me over there on the forty-fifth floor. I put the steel beam in.” Picasso can point to a painting. What can I point to? A writer can point to a book. Everybody should have something to point to.

What can an inker point to? What can an in-betweener point to? Did they ever have the desire to stop the film and say, “That’s me”? The frame-by-frame method of looking at animated cartoons gives the viewer, at least, something to point to. But

what is the aesthetic status of the single frame? “Sometimes, out of pure meanness, when I make something, I put a little dent in it,” LeFevre confesses to Terkel:

I deliberately fuck it up to see if it'll get by, just so I can say I did it. . . . A mistake, *mine*. Let's say the whole building is nothing but red bricks. I'd like to have just the black one or the white one or the purple one.<sup>14</sup>

I have not, in all my viewing, found anything that I can recognize as a deliberate mistake on the part of, say, the inkers or painters.<sup>15</sup> Take the work of the animator Al Eugster, who started as a painter for Pat Sullivan Studios in the 1920s. “That was a mean job,” he recalled. “But it was part of cartoons, so I accepted it.” To break up the monotony, he would sometimes “furtively draw tiny cartoons of his own devising inside Felix [the Cat]’s lines before blackening them in.”<sup>16</sup> But blacken them in he ultimately did. No vestigial Eugster originals are preserved on film, although the twists of the paths broken by his brush might be visible on the reverse side of the original sheets of paper, were they still to survive.<sup>17</sup> Yet the *potential* exists.

Part of the issue is that mistakes are, by definition, unintentional—inevitable, perhaps, but accidental nonetheless. But a “deliberate mistake” is more than an oxymoron. It poses an epistemological quandary: When is a mistake not a mistake? Is everything in the image potentially meaningful? Perhaps among the imperfections I catalogued in the second chapter are traces we were supposed to find. Moreover, the very possibility that a mistake might, in fact, have been made on purpose strikes at the supposedly rigid boundary between creative and noncreative labor. Once again, the epistemological uncertainty engendered by our spatial and temporal remove from the film’s production dovetails with our experience of its aesthetic effects. In this case, however, it is not the uncertainty itself that becomes a site of aesthetic pleasure, as it was in the previous chapter. Rather, it stands as evidence of the difficulty, if not the impossibility, of determining intention after the fact.

We might, then, link this conundrum to the Marxist dream that there will one day be no division between creative and noncreative labor. “In a communist society,” claim Karl Marx and Friedrich Engels in *The German Ideology*, “there are no painters but at most people who engage in painting among other activities.”<sup>18</sup> Needless to say, US animated cartoons were not produced in a communist society—but we might still think of animation as masonry, bricklayers as animators. That is, the question of artistic intention—the “creativity” of the laborer—as determining the aesthetic merits of the final artwork can be put aside. Conversely, the fact that a steelworker like LeFevre hungers for the recognition of his singular contribution invites us to do the same with the work of below-the-line laborers at animation studios. Work is work, no qualification necessary. “We declare that architects, sculptors, and painters are workers of the same kind as engineers, metal workers, textile workers, wood workers,” the Russian avant-garde artist and critic Osip Brik proclaimed in 1921. “There is no basis for the designation of their labor

as creative in contrast with other noncreative sorts.”<sup>19</sup> It matters not how any given inker or painter might respond to Brik’s agenda. Even if she didn’t think of her work as creative, we still can—and vice versa. For every Sadie Bodin, an inker at Van Beuren Studios who was the first person in the industry to be fired for unionization activities, there is a Charlotte Darling Adams, a “friendly” witness to the House Un-American Activities Committee. Adams testified that, in all her time at Warner Bros., she “was never at any time a creative artist.”<sup>20</sup> We cannot know why some painters joined the 1941 animators’ strike at Disney (read one sign, “Girls who fink, don’t think!”) and others snuck into the studio through a storm drain (leading those walking the picket line to call them “sewer rats”).<sup>21</sup> What we do know, however, is that not one of these women worked under the conditions envisioned by Brik: “We want each worker to know why he renders an object in a particular form and a particular color,” he writes. “We want the worker to cease being an executor of some plan unknown to him.”<sup>22</sup> The fact remains that these women were separated from the creative process, even as what they produced was intrinsic to the final product. It is *their* work that fetches high prices as special auctions. It is the traces of *their* hands that we see on-screen.

Yet still we speak of Walt Disney, of Dave Fleischer, of Chuck Jones, of Ward Kimball, of Richard Williams, of Fred Ladd—partly because these names can function synecdochically for the entire production apparatus, human and machine alike, behind the cartoons that bear their authorial stamp, but partly because it is just *easier* to analyze an artwork if we think it coheres, if we take it to be the full expression of a creative imagination powerful enough to override the mechanization of the production process. But animated cartoons are inherently fragmented. This fragmentation is built into the cel animation technique in both its production and its form. It is manifested in the bodies of the workers in the animation studio, their hands separated from their minds, and in the bodies of the cartoon characters, their limbs painted on one cel, their torsos on another: thus a bored camera technician might get lost in thought and Bugs Bunny might lose his head for a single frame. The animated cartoon comprises thousands of individual frames, each corresponding to an individual photograph of an ephemeral composition, each consisting of multiple cels, each painted by a separate member of the production process. Can we analyze not just the single frame, as I have done in the first two chapters, but the single cel? And what would that mean for an aesthetic account of the cartoon as a whole—indeed, for animation *per se*?

It is with these questions in mind that this chapter will trace what Thomas Elsaesser has opted to call a “possibilist history,” whereby one thinks “into history all those histories that might have been, or might still be.”<sup>23</sup> Consider the memories of Jeanne Lee Keil, a former Disney inker: “I hated Mickey Mouse because I couldn’t do the ears in one stroke with my pen.”<sup>24</sup> But *what if*, on just one frame out of an entire film, she’d put down only a single stroke and then moved on? One frame. One twenty-fourth of a second. No one would be able to tell. Mickey



Mouse would still move. But in that single frame—that single cel—one discovers, as Tom Gunning has said of early cinema more broadly, “the shards of a future discarded or disavowed,” a future rich with untapped potential.<sup>25</sup> In that one cel, would Mickey Mouse still be Mickey Mouse?

This chapter approaches this question in three ways. First, it examines how the two thinkers pivotal to this book, Walter Benjamin and Sergei Eisenstein, understood the relationship between the art and the labor of collective production, that is, the work of the anonymous artist. It then focuses on the genealogy of women’s work to which painters belong, offering a means by which we might offer a critical account of their art. Particularly potent are those cels that, while not mistakes, nonetheless stand out like black bricks in a wall of red. These are the cels in which motion blur is simulated, in which characters are distorted beyond all recognition, in which they are but a mere streak of paint, in which they are defamiliarized by an extreme close-up, in which they are electrocuted, in which they explode—in which representation falls apart. There lurks in these moments of glorious abstraction the threat that every frame could have looked this way, had the painters only organized. Instead of slowing down their work, as the in-betweeners at Fleischer Studios did, they might have collectively decided that each of them should express her individuality. But what would such a cartoon look like? And what would it mean for a creature at once as plasmatic and as resilient as Mickey Mouse?

#### THE HANDS OF THE COLLECTIVE

On April 2, 1944, Eisenstein wrote a note to himself in English: “Emphasize the importance of the fact that Mickey is a self-portraiture of Disney.”<sup>26</sup> Like so many of Eisenstein’s fragmentary comments on Disney, which were never published in his lifetime, this remark is cryptic and incomplete, hinting at many possible meanings. (What he *doesn’t* mean is perhaps clearest: he is not suggesting that there is a physical resemblance between the two icons.) It resonates with several of Eisenstein’s preoccupations, particularly a claim he made three years earlier: “What Disney does is connected with one of the deepest traits of man’s early psyche,” namely, his propensity for animism.<sup>27</sup> In the animistic imagination, every object has a double existence—as itself and as something else. Neither trumps the other, nor do the two alternate. Rather, they are at once unified and yet discrete. Animism thus exhibits “the principle of internal contradiction” that Eisenstein saw wherever he looked—in dialectical montage, in the drawings of Honoré Daumier, in puns—a principle in which, as Yuri Tsivian explains, “the smallest indivisible unit always consists of two things, not one.”<sup>28</sup> Animated drawings, by bringing to life “that which is known to be lifeless,” are animism’s “most direct manifestation.”<sup>29</sup> But Mickey Mouse is animistic not only because he exists both as a drawing

as such and as a living creature. He is also both mouse and man. In him, subject (that is, man, the artist, Walt Disney) and the object (a mouse) cohere.

Thus Mickey Mouse, understood as Disney's self-portrait, returns Eisenstein to the origins of artistic representation itself. Mickey, as the fusion of subject and object, man and mouse, evokes the preconscious state of our prehistoric ancestors—and even our prenatal selves—in which there is a total unity of thought and action. To see—to mimetically trace the contours of an object with one's eyes—was already to represent, and the hand followed along without question. Eisenstein grounds his theory, which has its own double existence as history, in everything from Chinese philosophy to Soviet neuropsychology to Marxist theory, from memories of an illness to Engels's *Dialectics of Nature* (1883) to William Hogarth's *Analysis of Beauty* (1753):

The contours of drawings in Altamira or Lascaux are not quite “abstracted lines,” but simply the reproduction of the very first response to vision: *the trace of the eye's movement around the contour of the object.*

There is *not yet a differentiation* between the movement of the eye and the movement of the hand as it draws.

(See the complex reaction of the infant in the womb, which, when irritated, reacts by retracting its entire body. Our experiments with [Alexander] Luria. See also the lack of differentiation between *thought and action*—*thought is movement and movement is the manifestation of thought*—my post-delirium state in Batumi in 1932.) . . .

*The movement of the object itself and the movement of the eye around the outline of the object do not yet have any fundamental distinction! The subjective is equal to the objective!*<sup>30</sup>

In this preconscious period, when man saw no difference between himself and the world around him, all art was necessarily self-portraiture. That Mickey Mouse could be Disney's self-portrait was, for Eisenstein, an indication that it was still possible for artists to recover that earlier state.

With Mickey Mouse, Disney had managed to achieve what Eisenstein long dreamed of doing with his own filmmaking: unifying subject and object. In Eisenstein's case, he wanted the spectator, the viewing subject, to become one with the object of their vision, his films. A work of art should, he writes, force the viewer “to follow the same creative path that the author followed when creating that image” and hence experience “the dynamic process of the emergence and formation of the image in the same way the author experienced it.”<sup>31</sup> But Eisenstein is by no means saying that he wants the viewer to experience the *labor* that went into the film's making. He maintains that art, be it a single drawing or a work of celluloid animation, is ultimately the creative expression of a singular genius—thus Mickey Mouse is Walt Disney's self-portrait and thus Mickey Mouse cartoons,

while collaboratively produced “by the dozens of hands of [Disney’s] collective,” are ultimately the fruits of Disney’s imagination alone.<sup>32</sup>

It is easy to dismiss Eisenstein’s view as naive or uninformed. After all, he visited the studio in 1930, when it was still a relatively small operation—a far cry from what it would become in the months leading up to the release of *Snow White and the Seven Dwarfs* (1937), with its staff of more than twelve hundred, many of whom were contracted from rival studios.<sup>33</sup> He cherished a panel from the March 7, 1930, installment of the Mickey Mouse comic, which Disney had autographed for him (“To my friend Sergei Eisenstein”). The strip’s actual artist, Win Smith, went uncredited.<sup>34</sup> And then there’s the oft-repeated fact that Disney could not draw Mickey Mouse, even if he tried, dirt that Richard Schickel dishes with relish in *The Disney Version* (1968):

Disney was continually, if mildly, irked because he could not draw Mickey or Donald or Pluto. He never could. Even Mickey Mouse was designed by someone else, namely Ub Iwerks, an old friend from Disney’s pre-Hollywood days. Iwerks actually received screen credit for so doing on the first Mouse cartoons. In later years Disney was known to apply to his animators for hints on how to render a quick sketch of Mickey in order to oblige autograph hunters who request it to accompany his signature. Even more embarrassingly, he could not accurately duplicate the familiar “Walt Disney” signature that appeared as a trademark on all his products.<sup>35</sup>

Incidentally, following the theories of the graphologist Raphael Schermann, Eisenstein believed that one’s signature functioned as a “graphic self-portrait.”<sup>36</sup> What would he have made of the fact that Disney’s trademark signature was pure artifice?

In Eisenstein’s defense, his investment in Disney’s original and final authorship is absolutely in keeping with the dominant contemporary discourse on the man.<sup>37</sup> An article published in 1938 in *American Cinematographer* is perhaps most exemplary of this tendency. Although the studio is figured as a plant “where over three hundred men and women labor enthusiastically to transform fantasy into tangible Technicolor that can be viewed on the world’s screens,” the article stresses that, “above all, each of the three hundred workers functions like an extension of Walt’s hands and mind. For despite this huge force, the Disney studio is essentially a one-man organization.”<sup>38</sup> A few years earlier, the left-wing critic Mack Schwab had openly praised the “uniquely communalistic method” in place at Disney Studios: “It is doubtful whether (even in Soviet Russia, where group effort is paramount) there is any form of artistic activity comparable to that in the Disney studio,” he wrote in the pages of *Cinema Quarterly*, “in which heterogeneity of effort achieves so successfully homogeneity in its accomplishment.” But in spite of the studio’s commendable cooperative model, Schwab still asserted that it was Disney’s “sensitive and imaginative spirit” that permeated the production process through and through—Disney deserved all the credit he received.<sup>39</sup> Indeed, as labor tensions at

the studio were coming to a head, journalists continued to assert Disney's creative authority. "Disney needs to spend no nights lying awake worrying about star salaries," Paul Hollister reported in his hagiographic profile of Disney, published in December 1940, "for Disney's stars are in his head, and in his eyes."<sup>40</sup>

At the same time, there were notable detractors from this rhetoric, even in the 1930s. These critics included the playwright William Kozlenko, who reasoned that "the final creation of every cartoon is the result, not of one man—Walt Disney—but of the collective efforts of more than a hundred men who work with him." This argument was also taken up by the painter Jean Charlot: "The drawings are manipulated by so many hands from the birth of the plot to the inking of the line that they are propelled into being more by the communal machinery that grinds them out than by any single human being." Alberto Cavalcanti, the director of *Rien que les heures* (1926), was even blunter: "Any one who still has the idea that Disney is an isolated, individual genius should forget it. . . . There is so much work in a cartoon that it would be absurd to attribute it all to one man."<sup>41</sup>

An especially fierce critic of Disney was Eisenstein's compatriot and colleague, the film director Mikhail Kalatozov. Kalatozov traveled to the United States as a representative of the Soviet Union in 1943, during which time he met with the former Disney animator David Hilberman, a cofounder of UPA.<sup>42</sup> In an account of his visit written for a popular audience, Kalatozov related the causes and effects of the 1941 animators' strike—as filtered through Hilberman:

In essence Disney was never an artist. It was just all-powerful marketing that made him one. Disney had talent only as a businessman. At the start of his work, he gathered a group of talented artists and enchanted them with his bold views on art and life. They believed in the sincerity of the progressive statements made by this huckster of cinema, and Disney became the soul of their creative community. These artists had talent and faith in the future. They did not have money. They sought to create a community of free artists with the aspiration that their art would serve higher ideals. Disney convinced them that he wanted this, too.<sup>43</sup>

Once Disney's true (read: capitalist) motives were revealed, however, the real source of his studio's success left in droves. This, at least, is the story Kalatozov relates. The films released in the wake of the strike suffered as a consequence. "After these events his studio has not developed a single great film," Kalatozov concludes. "Now Disney spends colossal sums of money in order to attract new artists, thinks up technical innovations of all kinds, but does not think to mention that it was the talent behind his films that had created 'Walt Disney' Studios."<sup>44</sup>

The quotation marks Kalatozov places around Disney's name offers one way of discussing the studio's output: they gesture at the anonymous collective that is concealed behind the imprimatur of another.

But Kalatozov's appraisal of Disney's post-1941 films, while more or less in keeping with the critical consensus of the time, fails to acknowledge that they,

too, were made by anonymous workers, even if the collectivist energy of the pre-strike era had flagged. These films have their own aesthetic appeals that still warrant attention. Moreover, not all of studio's employees were ever considered "talented" or "free" artists, and it is with their work that this chapter is concerned. Completely lost in these debates are the contributions made by the workers at the bottom of the studio hierarchy, the anonymous women of the Ink and Paint Departments. Inkers were responsible for tracing the cleaned-up pencil drawings of animators, assistant animators, and in-betweeners onto the cels. These inked cels were then sent to the Paint Department, where painters would apply uniform strokes of gouache on the reverse side of the cel. This practice kept the contours intact, as well as helped to conceal the individual brushstrokes (hence the "goopiness" of the exposed underside of the cel on which Daffy Duck is painted in *Porky Pig's Feat* [Warner Bros., 1943], discussed in the previous chapter). The colors the women used were prescribed by what was known as a "color key" or "color chart," which also dictated the exact amount of time it should take to paint the corresponding cel.<sup>45</sup> Unlike women in related industries, such as textile manufacturing, painters were not paid a piece rate, but they were expected to reach a certain quota per day. While inkers were considered more skilled than painters, both were distinctly below-the-line laborers. None was ever credited on a film of the classical era; Mickey Mouse would never have been understood as the self-portrait of an inker like Jeanne Lee Keil.

In the past two decades, film historians have made notable efforts to give voice to these women. The late Martha Goldman Sigall, who worked in the industry for more than fifty years, published a memoir and provided voice-over commentary for several *Looney Tunes* DVDs. The fifteen (and counting) volumes of Didier Ghez's self-published *Walt's People: Talking Disney with the Artists Who Knew Him* has included interviews with inkers like Joyce Carlson, Grace Turner, and Evelyn Coats, and painters like Retta Davidson, Becky Fallberg, and Carla Fallberg. And a recent feature in *Vanity Fair* drew on the accounts of such hitherto forgotten Disney staffers as Reidun Medbey, Marcellite Garner, and Yuba Pillet O'Brien to provide an alternative history of the studio's golden years.<sup>46</sup> These popular efforts are complemented by the ongoing research of the film scholar Kirsten Moana Thompson, whose work has even explored the material history of the paints devised by Disney Studios.<sup>47</sup>

And, to be sure, the women of Ink and Paint were never ignored in "official" studio histories. Sections about their work appear in Robert D. Feild's *The Art of Walt Disney* (1942), Bob Thomas's *Walt Disney: The Art of Animation* (1958), and Ollie Johnston and Frank Thomas's *Disney Animation: The Illusion of Life* (1981). But these discussions ultimately serve to push the studio's female employees further to the margins. Their work, Feild informs us, "is an essential part of production." Nonetheless, it "cannot be considered creative in the generally accepted use of the word." The later histories are no better. "The Ink and Paint Building at

Disney's is a cool feminine oasis," Bob Thomas reports, while Ollie Johnston and Frank Thomas, both former animators, helpfully remark, "We loved those girls."<sup>48</sup> Most infamously, Robert Benchley flirts with some of the women of the "Rainbow Room" in the Disney-sponsored film *The Reluctant Dragon* (1941), a "behind-the-scenes" look at the studio's Burbank operations. Benchley's tour serves to highlight the state-of-the-art facilities and the seemingly porous boundaries between labor and play that come with animating cartoons. In one revealing sequence, Benchley quite literally stumbles into a life drawing class, where artists are struggling to capture the essence of their model—an elephant. "She's the only model we have the boys don't ask out for dinner," the instructor explains, as a befuddled Benchley weaves his way through the easels. "Does their boss know that all this is going on?" Benchley asks. "Oh, sure, this is no picnic," the instructor replies. "It's all part of their work."

Benchley is shocked: "*Work?!*" Indeed. Released in the midst of the animators' strike, the film was met by protests and coordinated boycotts. Animators walked the picket line carrying signs that read, "Who's Reluctant? I'm Mad!" and navigated a giant dragon through the streets of Los Angeles. Some observers were shocked. "Most people would give away their right arms just to get to work with Mickey Mouse and Donald Duck," an editorial in the *Los Angeles Times* opined.<sup>49</sup> But the irony was not lost on all critics. As a *Variety* reviewer of *The Reluctant Dragon* noted, "Dr. Goebbels couldn't do a better propaganda job to show the workers in Disney's pen-and-ink factory a happy and contented lot doing their daily chores midst idyllic surroundings."<sup>50</sup>

Some of the inkers and painters were happier and more contented than others, certainly—but that is not the point. The puzzle they present is how to integrate the sheer fact of their labor, such as it was, into an account of the visual aesthetics of cel animation. Kirsten Moana Thompson's study of the scenes of spectacular color in *The Reluctant Dragon* and *Snow White* offers one model, and is in keeping with the current efflorescence of scholarly literature on aesthetics of color in general and of color film in particular.<sup>51</sup> Donald Crafton provides another possibility, one that revises his identification of the trope of the animator's self-figuration in early animation. He suggests that we might begin an investigation of anonymous labor by looking at "all those cartoon assembly lines showing synchronized communities producing useful things" on the grounds that "those tireless toon workers figure the women's tedious, repetitive work, where the job is making films about laborers who whistle while they work at their tedious, repetitive jobs."<sup>52</sup> Crafton's suggestion is useful, particularly insofar as it points at a homology between cultural epiphenomena (cartoons that feature assembly-line manufacturing) and the underlying social structures this visual motif makes manifest (assembly-line manufacturing per se). We could, then, conceive of these cartoon assembly lines as another iteration of the "mass ornaments" famously diagnosed by Siegfried Kracauer: they are "surface-level expressions" that "provide unmediated access

to the fundamental substance of the state of things.”<sup>53</sup> Like the elaborate patterns made out of the bodies of the Tiller Girls, they make conscious the hitherto repressed labor of a female collective.

One possibility, then, would be to treat the inkers and painters as a *collective*. Their individual anonymity is necessary for the success of the whole. We might align their work with that of the Soviet Productivists Varvara Stepanova and Lyubov Popova, fashion and textile designers whose commitment to the principles of mechanized industrial manufacturing led them, as Christina Kiaer has detailed, to forswear “the individual touch of painting and craft.”<sup>54</sup> The female members of the Bauhaus Weaving Workshop, contemporaries of Stepanova and Popova, likewise turned away from the sensuality of one-of-a-kind handicraft in favor of large-scale manufacturing.<sup>55</sup> These examples from the Soviet and German avant-garde allow, too, for the potential reclamation of marginalized crafts (namely, textile work) as *art*, to be theorized and debated as rigorously as painting, photography, and sculpture—and cinema. A clear genealogy thus emerges: the women of the Ink and Paint Departments are the heirs not only to the women who painted lantern slides, picture postcards, and ceramics and who hand-colored and stenciled early motion pictures, but also to women of the Triangle Shirtwaist Factory and the cotton mills of Lawrence, Massachusetts—as well as the women long tasked with the weaving of ribbons, the plaiting of straw, and the making of artificial flowers, cigars, gloves, buttons, candy, and lace.<sup>56</sup> Ultimately, however, a turn toward the valorization of collective art as such does not satisfy the “possibilist history” introduced at the beginning of this chapter. For one thing, it defers the question of authorship; by taking in the whole instead of its constitutive parts, it effaces both the individual worker and the single frame. Comparisons to Soviet Productivism and the Bauhaus Weaving Workshop, meanwhile, might help us “elevate” the menial work performed by the women of the Ink and Paint Departments, but that distorts the reality of their jobs, which were, in fact, low-paying, relatively deskilled, and dead-end. It is as if to say their work is only of aesthetic interest if it can be understood as nascent artistic practice.

At the same time, what they worked on *was* art, albeit popular or mass art—and only a tiny portion thereof. Inking and painting therefore share affinities not only with forms of “women’s work,” but with other anonymous arts and crafts more generally. Here the art historian Eduard Fuchs, much admired by Benjamin and Eisenstein alike, provides a useful model. Eisenstein met Fuchs a couple of times, and in September 1929 he paid a visit to Fuchs’s country house, where he marveled at his host’s vast assortment of prints by Honoré Daumier.<sup>57</sup> Their mutual passion for Daumier, as well as the illustrators Paul Gavarni and J. J. Grandville, was just one of their commonalities. Eisenstein used Fuchs’s volumes on erotic art, such as *The Erotic Element in Caricature* (1904) and *The Illustrated History of Manners from the Middle Ages to the Present* (1909–12), as reference materials for his pornographic doodles in the 1930s and 1940s.<sup>58</sup>

But Eisenstein and Fuchs were committed to the serious study of mass art for very different reasons. While Fuchs offers an understanding of culture and history *in toto*, Eisenstein seeks to comprehend the individual artist as the *pars pro toto*. The distinction between Fuchs and Eisenstein becomes clearer when one considers Fuchs's interpretation of a speech Eisenstein gave during his stay in Germany. At one point, Eisenstein declares that *Battleship Potemkin* (1925) was written not by him alone but rather by the entire Russian people. Fuchs took Eisenstein's words as a testament to the lasting power of collective production, as he explains in "The Origins of Creativity," a chapter from his final work, *The Great Masters of the Erotic: A Contribution to the Problem of Creativity in the Arts*.<sup>59</sup> Eisenstein, in turn, was tickled to discover that he had been quoted in such "an altogether unexpected" book—to have his film inducted into Fuchs's catholic canon of popular and folk art, where his words share the page with a painting by Dosso Dossi of a satyr and a nymph locked in an amorous embrace.<sup>60</sup> But while Eisenstein did claim to "believe very strongly in the principle of collectivism in work," his ultimate interest was in the singular genius, in the great man: "What the sound film requires is man with the vision, initiative and courage of Henry Ford," he remarked in an interview given less than year after he spoke in Berlin.<sup>61</sup> However "utterly wrong" it might be "to crush the initiative of any member of the collective," he nonetheless held that there "are sometimes cases where the director's 'rod of iron' is not only legitimate, but necessary."<sup>62</sup> It is thus creative visionaries like Leonardo da Vinci or Rockwell Kent (or Walt Disney) who are primarily responsible for great works of art, and the social context in which each of these figures worked is a secondary concern. Eisenstein does not wish to analyze how the Russian people wrote *Potemkin*, but rather how, say, Vladimir Mayakovsky, that "monumental egocentric exhibitionist," emblemizes the cultural ethos of the post-1917 moment in Russian history.<sup>63</sup> Eisenstein holds a belief quite contrary to that of Marx and Engels, who argue in *The German Ideology* that "the exclusive concentration of artistic talent in particular individuals, and its suppression in the broad mass which is bound up with this, is a consequence of division of labor."<sup>64</sup> For them, and for Fuchs, it is the social context that determines what is considered art. For Eisenstein, Fuchs's turn toward "the face of the collective," as Eisenstein characterizes it, eclipses the face of the creator.

As Benjamin explains his late essay "Eduard Fuchs, Collector and Historian" (1937), Fuchs's numerous books on popular art's varied instantiations—from political caricature and erotic illustration to Roman currency and Chinese roof tiles to Renaissance wares and Japanese masks—"cleared the way for art history to be free from the fetish of the master's signature."<sup>65</sup> Eisenstein, by contrast, fetishized the master's signature—his own, especially. Like Eisenstein, I am not entirely prepared to abandon the fetishized signature. But Fuchs, at least as Benjamin understands him, provides an alternative, one that marries an attention to noncreative labor with a continued investment in art's capacity for creative self-expression.



For Benjamin, this move to devote “such attention to anonymous artists and to objects that have preserved the traces of their hands” holds out utopian potential, offering as it does an alternative to “the cult of the leader.” As to whether the historiographical model provided by Fuchs’s collections of mass art will, in fact, “contribute . . . to humanization of mankind,” Benjamin remains agnostic—yet it remains a provocative question.<sup>66</sup> Even if it cannot be satisfactorily answered, it is at least a challenge worth tackling.

Consider Chuck Jones’s remarks about the background painter Phil DeGuard, who often worked in conjunction with the layout artist Maurice Noble. According to Jones, DeGuard received *too* much credit for the work he did, work that should have been attributed to Noble instead: DeGuard “bears the same relationship to the layout man [Noble], in preparing a picture, that a contractor does to an architect in constructing a building.”<sup>67</sup> But what would an aesthetic appraisal of a building that attends not to the architect but to the contractor look like? Or what about one that examines each and every brick? To look at cartoons brick by brick—or frame by frame—is to acknowledge, as Fuchs said of Chinese turrets, “that they are the product of an anonymous popular art.”<sup>68</sup> And, occasionally, one finds a brick that sticks out—a brick that preserves the traces of the hand that touched it, a brick that bears the signature of an unknown name, a brick that is a self-portrait of an anonymous artist.

#### THE LIMITS OF REPRESENTATION

Mass ornaments, those intricate patterns produced by groups of women moving in unison, Kracauer writes, “are composed of elements that are mere building blocks and nothing more. The construction of the edifice on the size of their stones and their number.” The women are not individuals, but “parts of a mass.”<sup>69</sup> Should any one of these women think of herself as an individual, the edifice crumbles. The same might be said of the frames of a filmstrip. “Animation is a chorus of drawings working in tandem,” Chuck Jones has argued. “If a single drawing, as a drawing, dominates the action, it is probably bad animation, even though it may be a good drawing.”<sup>70</sup>

Yet the frame-by-frame examination of almost any animated cartoon will uncover at least one drawing, one cel, that seems out of place. It may, in the flow of the action, go unnoticed—but in isolation it is too puzzling, too wonderful, and often too abstract to be ignored. Perhaps it is the flurry of brushstrokes that seizes one’s attention, or perhaps one is seduced by its radical minimalism or overwhelmed by its cacophonous colors.

A tornado of feathers whipping through the air in Disney’s *Birds of a Feather* (Burt Gillett, 1931), removed from their context, becomes a dizzying swirl of jet-black droplets against a blank background; a blustery blizzard in *Now That Summer Is Gone* (Frank Tashlin / Warner Bros., 1938) is depicted as a stream of

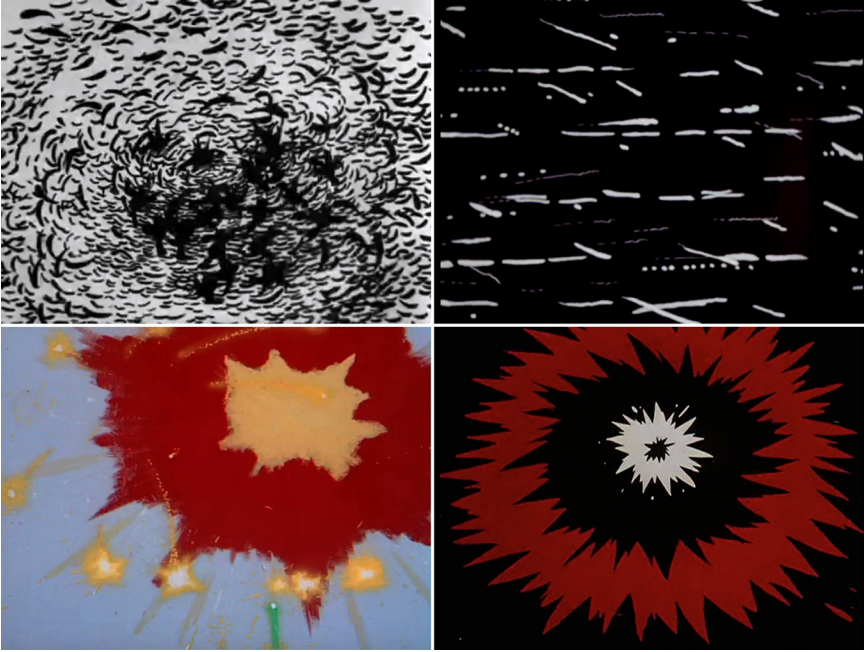


FIGURE 3.3. Clockwise from top left: frames from *Birds of a Feather* (Disney, 1931), *Now That Summer Is Gone* (Warner Bros., 1938), *The Hams That Couldn't Be Cured* (Universal, 1942), *Three Little Pups* (MGM, 1953).

dots and dashes, nonsense lines of Morse code; the bangs with which *Three Little Pups* (Tex Avery / MGM, 1953) and *The Hams That Couldn't Be Cured* (Walter Lantz / Universal, 1942) go out look like they've been pilfered from Robert Breer's *Blazes* (1961) (fig. 3.3). An overflowing bathtub in *Bathing Buddies* (Dick Lundy / Universal, 1946) is rendered in a milky, translucent wash of varying shades of turquoise, while in *Daddy Duck* (Jack Hannah / Disney, 1948) a jet of water gushes toward the putative camera, filling the entire frame with starbursts of blues, whites, and teals (fig. 3.4).

Even more arresting are those cels we know to be representations of bodies, but which, when taken on their own, operate on another aesthetic register altogether. That is, these are not cartoon bodies as we have come to expect them. Perhaps they are too big for the shot's relative scale or are positioned too close to the putative camera, such that too much of them is cropped out of the frame—and all that is visible is pure color and shape. In Disney's *Tall Timber* (1928), for instance, Oswald the Lucky Rabbit falls toward the camera. For a frame, we see his face in extreme close-up: the black point of his widow's peak, the two vertical black ovals that are his eyes, the horizontal black circle that is his nose, and the top half of a giant

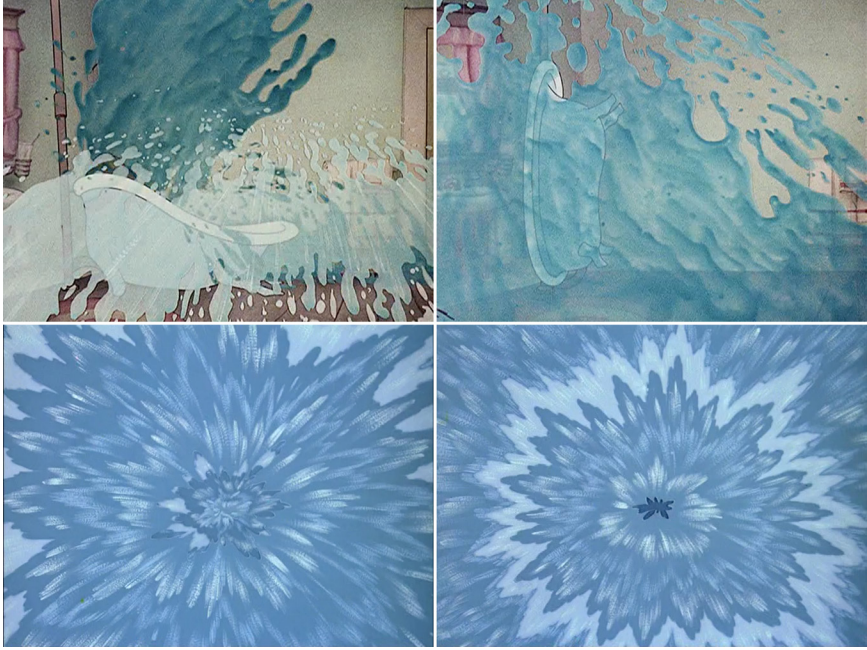


FIGURE 3.4. Frames from *Bathing Buddies* (Universal, 1946) (top) and *Daddy Duck* (Disney, 1948) (bottom).

black oval that is his mouth. The same gag is repeated beat for beat in *The Chain Gang* (Burt Gillett, 1930), only this time with Mickey Mouse—but he, in extreme close-up, is nearly identical to Oswald (fig. 3.5). The faces of these pen-and-ink creations do not afford us the hypnotic, poignant experience of *photogénie*. They are resolutely flat, spare, devoid of detail, cleanly geometrical. But their simplicity provides its own fascination. The face that Oswald and Mickey share looks like a fractal of their bodies, which, we remember, are also made out of nothing more than black ovals. In Disney's *Touchdown Mickey* (Wilfred Jackson, 1932), meanwhile, a cat's tail in close-up is the sole occupant of the frame: a black, jagged crescent that stands in sharp contrast to the background's white expanse. The image is meaningless on its own, yet it assumes new visual power when placed alongside another frame from a later Disney film, *Donald's Camera* (Dick Lundy, 1941), in which Donald Duck, in a burst of anger, turns into a curved bolt of lightning. The two shapes, both bent, both serrated, echo and almost negate one another, the lightning bolt smaller, black on white instead of black on gray (fig. 3.6).

Even though we know, for Béla Balázs tells us, that Felix the Cat and a question mark share the same substance—the graphic line—and that one can become the other at a moment's notice, nothing can prepare us for what a body mid-transformation

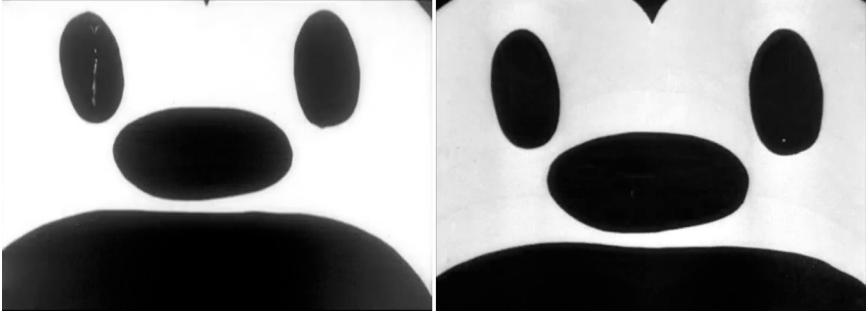


FIGURE 3.5. Oswald the Lucky Rabbit in *Tall Timber* (Disney, 1928) (left) and Mickey Mouse in *The Chain Gang* (Disney, 1930) (right).



FIGURE 3.6. Frames from *Touchdown Mickey* (Disney, 1932) (left) and *Donald's Camera* (Disney, 1941) (right).

will look like.<sup>71</sup> Think of what happens when Mickey Mouse falls directly on his face in *The Plowboy* (Disney, 1929): for six whole frames, one quarter of a second, he is just a black blob—no head, no shoes, no tail, a mere puddle of ink. He cannot stay this way forever, of course. Soon enough, that blob sprouts legs, then arms, and finally a head, out of which Mickey's face comes into view. But something curious happens if we *do* linger over one of those intervening frames, and others like it. The precise shapes Mickey assumes are imperceptible when viewing the film at a normal rate of projection, but that does not mean they do not exist. Uncovering them produces the sort of “aha!” moment of Eadweard Muybridge's photographs of a horse at full gallop. Tom Gunning has argued, “The positions of the horses' legs in Muybridge's images were considered absurd, ungainly, and impossible.”<sup>72</sup> Instantaneous photography yielded positions and postures that disturbed the viewer's sense of bodily integrity. One could not believe what one was seeing. “It was not simply the incredible fact that all four horse's hooves left the ground simultaneously that caused disavowal of Muybridge's images as the absolutely unaccustomed

contours these legs took, crumbled under the horse's belly like the dangling legs of a crushed spider," Gunning writes. "This was a formal position unseen in any previous visual representation, and judged to be frankly ugly."<sup>73</sup> By studying such serial photographs, animators learned how to construct absurd, ungainly, impossible, and ugly bodies, if only for a frame or two. As the film theorist Imamura Taihei claimed in 1941, "The process of "animating" in Disney's films means the [dual] process of decomposing a certain motion into photographs and of translating this observation into pictures. The imagination of this new mode of animation is based on the photographic record of reality."<sup>74</sup>

Animators analyzed the motion studies conducted by Muybridge and Étienne-Jules Marey, as well as created their own, working through them frame by frame on a Moviola or printing them as large photostats. By the mid-1930s, as a result of this work, the principles of "character animation" were codified at Disney Studios: entire bodies react physically to external forces; large movements are preceded by smaller anticipatory movements; all actions come with secondary actions, such as a jowl that lags just behind the swing of a head. By following these principles, animators imbue characters with fixed weight and volume. If their cheeks expand, their chest deflates. If they are hit on the head with an anvil, their entire body crumples. They are also given personality. An action as simple as talking on the phone, as Mickey does in *Lonesome Ghosts* (Burt Gillett, 1937), requires him to puff out his chest in excitement, stomp his foot for emphasis, and purse his lips for long vowels—three seconds of screen time, somewhere around fifty individual cels. The work required mathematical precision. In 1936, Imamura remarked,

For the imaginative energy of the animated sound film to hold our interest it must increasingly be calculated mathematically. Movement and form grow more fantastic the more strictly they are calculated. . . . Making Mickey walk like a human requires an analysis of human walking and movement. Thus, the foundation of animation lies in the scientific observation of real objects.<sup>75</sup>

From their research, animators also learned to generate representation through abstraction. Thus, scattered throughout animated cartoons are instances in which Mickey Mouse becomes something other than Mickey Mouse: in *Wild Waves* (Burt Gillett and Walt Disney, 1929) his outline is replaced with a dotted line, his body with a series of stripes; in *Gulliver Mickey* (Burt Gillett, 1934) he is a mass of jittery black curls that exceed his usual contours; in *Shanghaied* (Burt Gillett, 1934) his feet become a gray spiral; in *The Pointer* (Clyde Geronimi, 1939) he has three legs. Each of these examples is meant to simulate motion blur, the visual effect produced by a body moving faster than the "click" of a camera. These mark animators' various attempts at mimicking the codes of photographic representation. Significantly, conventional cinema reverses the relationship between abstraction and representation. As we saw with Robert Breer's *Jamestown Balloos* (1957) in the first chapter, a rapid whip-pan can make a legible image indecipherable: fast

movement turns photographic representation into graphic abstraction. Were an animator to reconstruct this kind of brisk movement, whether of the camera or of the bodies before it, it would be by way of graphic abstraction—out of which a sense of photographic representation would be produced. By turning Mickey into an array of dots, stripes, curls, or spirals, animators aim to connote the photographic inscription of speed.

Animators spent the better part of the 1930s and 1940s perfecting the extremes of movement. They developed a whole arsenal of techniques that both built on and undermined the principles of character animation, pulling and pushing bodies into positions that went well beyond what should have been their physical limits. One such technique was “staggering,” in which the same image is moved to and fro in succession, producing a movement akin to the vibrations of a plucked bow or the reverberations of sprung-from springboard. A body animated in this way is at once highly mobile and yet comically rigid. Another technique was smearing, that hallmark of Chuck Jones’s films of the early 1940s, in which bodies seem not to *stretch* of their own accord but rather to be *smear*ed by some outside force. Other directors developed their own signature styles. Tex Avery, for one, took extremes to the extreme: eyeballs pop out of sockets, tongues unspool, lips leap across an entire room. The animator Rod Scribner, who worked closely with the director Bob Clampett, perfected a loose style of drawing for key poses. He modeled his penmanship on that of the contemporary illustrator George Lichy, whose inky tangles of lines manage to summon up recognizable forms almost in spite of themselves.<sup>76</sup> And, as Tom Klein has shown, Eisenstein’s theory of montage inspired Shamus Culhane to employ stroboscopic editing patterns, through which he broke apart time while simultaneously dismantling Woody Woodpecker’s body in space.<sup>77</sup>

Yet *knowing* about these techniques is not the same as *seeing* them. When Donald Duck transforms into a horizontal band specked with blue, white, and yellow in *Donald’s Lucky Day* (Jack King / Disney, 1939) or when Woody Woodpecker rockets upward in streaks of red, blue, and white in *Fair Weather Fiends* (Shamus Culhane / Universal, 1946) or when Daffy Duck becomes a black V and a vertical stroke of orange, ringed by a spiral of white, in *Daffy the Commando* (Friz Freleng / Warner Bros., 1943), or when Bugs Bunny dissolves into a spectral spray of gray in *The Case of the Missing Hare* (Chuck Jones / Warner Bros., 1942), we come face-to-face with one of Mike LeFevre’s black or purple bricks (fig. 3.7). These are not deliberate mistakes, but they are startling deixes that declare, *Look at me*. The paint has been applied to the cel in unusual patterns and textures, distilling iconic cartoon characters into pure color. Robert Stam has warned us that cartoon bodies “can be bifurcated and just as easily reunited” and “a fleeing cat reduced to a tail and a vertiginous blur,” but sometimes all we are given is that furcated fragment, that blur, freed from the need to represent anything but itself.<sup>78</sup> Manny Farber was one of the first to praise Tex Avery’s vulgar surrealism for “proving nothing is



FIGURE 3.7. Clockwise from top left: Donald Duck in *Donald's Lucky Day* (Disney, 1939), Woody Woodpecker in *Fair Weather Fiends* (Universal, 1946), Bugs Bunny in *The Case of the Missing Hare* (Warner Bros., 1942), Daffy Duck in *Daffy the Commando* (Warner Bros., 1943).

permanent,” but often that means that what we have before us is impermanence, or, indeed, nothingness itself; Kristin Thompson has noted that the performance of “frantic movements” may require characters to “grow extra hands, feet, or heads,” but such a description does little justice to the bizarre Cerberuses and centipedes that result.<sup>79</sup> These bodies in these moments are more than plasmatic, the term Eisenstein gives to the movement of figures in early Disney cartoons for their “rejection from once-and-forever allotted form, freedom from ossification, [and] ability to dynamically assume any form.”<sup>80</sup> No, these bodies are formless. No single line can bound them. They exceed even what Scott Bukatman has deemed the “nearly infinite pliability” permitted by cartoon physics.<sup>81</sup>

There is narrative justification for the multifaceted Pluto of *Put-Put Troubles* (Riley Thompson / Disney, 1940), the crayon-like rendition of Babbitt in *A Tale of Two Kitties* (Bob Clampett / Warner Bros., 1942), and the reverberating Sylvester of *Tweety Pie* (Friz Freleng / Warner Bros., 1947), but the bold paintings demand that we *look* at them, even as they flit on-screen for only a frame or two (fig. 3.8). Their invocation of movement invites comparison to Giacomo Balla’s *Dynamism of a Dog on a Leash* (1912) or Marcel Duchamp’s *Nude Descending a Staircase, No. 2* (1912), their forceful brushstrokes to Abstract Expressionism. But we do



FIGURE 3.8. From top: Pluto in *Put-Put Troubles* (Disney, 1940), Babbitt in *A Tale of Two Kitties* (Warner Bros., 1942), Sylvester in *Tweety Pie* (Warner Bros., 1947).



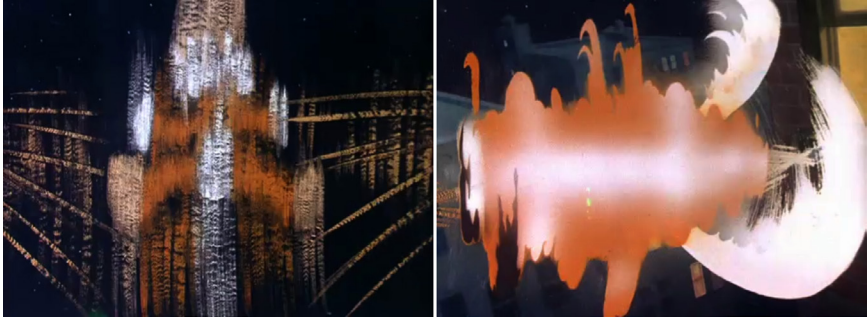


FIGURE 3.9. A dog in *The Hep Cat* (Warner Bros., 1942).

not know who painted them, nor do they exist as paintings per se. They survive only in their photographic reproductions, set against a background painted by another. Someone—some woman—made thick vertical trails with a dry paintbrush in order to suggest a dog flailing on a clothesline in *The Hep Cat* (Bob Clampett / Warner Bros., 1942). And someone—some woman—rendered that same dog, spinning on that same clothesline, in thick, opaque splotches (fig. 3.9). Who? Speed here is, as Karen Beckman has said of similar passages in Disney’s seminal motion study *The Tortoise and the Hare* (Wilfred Jackson, 1935), “visually indexed.”<sup>82</sup> Visually indexed, too, is the anonymous artist. These frames give her something to point to.

And gestured at, in turn, is a possibility: What if every frame looked like one of these frames? What if every brick, every tile, bore the traces of the hands that touched it? Kracauer argues that the mass ornament cannot be assembled out of “those who have withdrawn from the community and consider themselves to be unique personalities with their own individual souls,” on the grounds that the larger pattern would not be able to transcend its constitutive parts.<sup>83</sup> Would the same be true of an animated cartoon that does not cohere around the vision of a single author? Answering this question requires imagining a cartoon that does not exist, one in which figures are not stylistically standardized, in which painters were not provided with a color key, and in which each cel is a self-portrait of the woman who inked it.

The final section of this chapter will broach this “What if?” through an examination of one cartoon character in particular, the most iconic of icons: Mickey Mouse. If, in 1940, Eisenstein praised the animation of Mickey Mouse for testing “the limits of representation,” then what happens when representation turns into total abstraction?<sup>84</sup> If, in 1931, Walter Benjamin wrote, “Mickey Mouse proves that a creature can still survive even when it has thrown off all resemblance to a human being,” then what happens when Mickey Mouse throws off all resemblance to himself?<sup>85</sup> What are the limits of Mickey Mouse?

## WHAT MICKEY MOUSE PROVES

There are many Mickey Mouses. There is the Mickey Mouse of *Orphan's Benefit* (Burt Gillett, 1934), with his white face and black ovals for eyes. There is the Mickey Mouse of *Orphans' Benefit* (Riley Thompson, 1941), with his peach-colored face and white eyes with black pupils. There is the Mickey Mouse of *The Pointer*, with his delicately rouged cheeks, and the Mickey Mouse of *Just Mickey* (Walt Disney, 1930), who grins and grimaces and purses his lips and knits his brow. There is the Mickey Mouse of *Croissant de Triomphe* (Paul Rudish, 2013) and *Get a Horse!* (Lauren MacMullan, 2013): the former a stylized reimagining of Mickey's classic "retro" look, his ears jauntily ovoid, a pie slice cut out of his eyes, the latter a careful imitation of Mickey circa 1929 who then steps out of the putative screen and assumes bold colors and three dimensions. In *The Grocery Boy* (Wilfred Jackson, 1932), he is a grocery boy; in *The Delivery Boy* (Burt Gillett, 1931), he is a delivery boy; he is a jockey and a construction worker and a farmer and a sorcerer's apprentice; in *Mickey's Gala Premier* (Burt Gillett, 1933), he is a movie star. There are all the Mickey Mouses of the cultural imagination: metonym for a multinational corporation and also "one of the best known pejorative adjectives in the English language"<sup>86</sup> and also "the crystalline, concentrated quintessence of that which is peculiarly the motion picture"<sup>87</sup> and also a verb describing the precise synchronization of sound and image.<sup>88</sup> And *then* there are the countless Mickey Mouses in a single Mickey Mouse cartoon, anywhere from twelve to twenty-four distinct Mickey Mouses per second, one for every—or every other—frame of film, which upon projection cohere into a single, unified, moving Mickey Mouse.

Artists as varied as Gary Panter, Lane Smith, William Steig, Claes Oldenburg, Michael Jackson, Andy Warhol, R. Crumb, Keith Haring, and Milton Glaser have all drawn their own versions of Mickey Mouse.<sup>89</sup> In the two-page comic *Luna Toon*, published in the second issue of *Zap Comix* (1968), the graphic artist Victor Moscoso pulls Mickey's face apart, sending inky black bubbles floating through a psychedelic dreamscape formed out of Mickey-shaped portals and protuberances. Moscoso's Mickey is entirely his own, yet it is also unmistakably Mickey. And, in 1935, none other than Sergei Eisenstein drew Mickey Mouse. The sketch appears in a book of signatures collected by Herbert Marshall on his graduation from the All-Russian State University of Cinematography.<sup>90</sup> With a red pencil Eisenstein jotted down a brief note to his former student and, on the facing page, scribbled a quick caricature of his former student, who was known for his curly red hair. Mickey is at Marshall's side, drawn in blue pencil. Eisenstein's doodle is at once Mickey and yet not Mickey. His ears are too big (with their dangling lobes, too human), his snout too pointy (lacking rotund cheeks, not human enough). But his over-size clogs and large hands, suggestive of white gloves, give him away, as does the dynamism of his pose. In the upper left-hand corner, floating above Mickey's head,

intersecting in parts with the swirls of Marshall's hair, is Eisenstein's signature: a large open loop enclosing a three-pronged squiggle. The proximity of drawing and writing, of image and text, reminds one of an anecdote Ivor Montagu relates in *With Eisenstein in Hollywood* (1967):

I had taken Sergei Mikhailovich to cash a cheque made out to him at a bank in Leicester Square. The teller had looked hard at that dome of brow and at the incredible squiggle—it was a sort of Japanese-style pattern he was very fond of—and said:

“Is that your signature, sir?”

Eisenstein could only answer: “Yes.”

“Then, sir, would you mind kindly *drawing* your name.”<sup>91</sup>

The joke here, of course, is that Eisenstein's signature was so baroque, so studied, so mannered, as to render it entirely illegible. His writing was no longer writing—it was drawing. And, conversely, in order to write legibly, Eisenstein would have to draw. So is Eisenstein's Mickey Mouse drawn, or written? Does it function as a self-portrait, or is it a signature in its own right? To what extent is Eisenstein's Mickey Mouse Mickey Mouse, and to what extent is it Eisenstein? These questions push Mickey beyond himself, as if to see how far he can go before he becomes something else entirely.

And yet he endures. For, indeed, in spite of this multiplicity, there is but one Mickey Mouse. He is a fictional character whose characteristics have, in legal terms, been “sufficiently delineated” to protect him under United States copyright. And, thanks to the Sonny Bono Copyright Term Extension Act of 1998, also known as the Mickey Mouse Protection Act, he will not enter the public domain until 2023.<sup>92</sup> Yet all one needs to produce a reasonable likeness is a pair of dimes (for ears) and a quarter (for the head), a testament to Mickey's iconicity. As John Updike has observed, Mickey is like yin and yang, the crucifix, the Star of David.<sup>93</sup> He might bear a striking physical resemblance to earlier cartoon stars, including Felix the Cat and (as we have seen) Disney's own Oswald the Lucky Rabbit, and his signature features (his white gloves, his oversize eyes and mouth, his musicality) might be vestiges of blackface minstrelsy, but he stood apart from his contemporaries almost immediately. While competitors and knockoffs like Foxy and Flip the Frog floundered, Mickey quickly achieved worldwide renown. In 1931, Walt Disney successfully sued a rival cartoon studio, Van Beuren, for deliberately infringing on Mickey and Minnie. As he testified in court, the rodent stars of Van Beuren's *Big Cheese* (1930), *Office Boy* (1930), and *Circus Capers* (1930) “were in all cartoon characteristics the same as Mickey Mouse and Minnie Mouse”—down to the buttons on the trousers—“with the sole exception that the said characters were inartistically and poorly drawn and the animation was jerky and amateurish.” But Disney didn't stop there. “Many of the frames evidence undue haste in draftsmanship,” he asserted, and “the said characters were handled in such a manner as to be ugly, unattractive, and lacking in personality.”<sup>94</sup> Mickey Mouse, we can therefore

infer, is none of those things. He is cute, adorable, and bursting with life, expertly drawn and animated down to the last frame.

The animation of Mickey is virtuosic, and as a result, Mickey can do anything, or even *become* anything. The early Mickey Mouse is particularly immune to the laws of physics. One tug of his tail makes it a rope, another tug a crank. His shoes grow of their own accord. If you pull his head, his neck elongates, and can be plucked like a guitar string. This is a Mickey still clearly indebted to Felix the Cat, who once manufactured chairs made of the typographical transcription of his own laughter. The world through which this Mickey moves is equally pliable and unpredictable—cars are as likely to be anthropomorphized as animals. But even as the “rubber hose” style of animation on display in these early films was superseded by character animation that hewed more closely to the principles of human locomotion, Mickey’s body remained elastic. Given his plasmatic-ness, we might wonder exactly what the limits of Mickey Mouse even are. In his testimony against Van Beuren, the Disney animator Joe D’Igalo described a scene in *The Big Cheese*:

During the continuity of said motion picture a character, drafted so as to create the impression of being a large animal, struck the character resembling Mickey Mouse upon the head, turning, knocking and punching the said mouse character until its head became blackened and flattened so as to resemble a phonograph record. The large animal thereupon picked up the mouse’s tail placing the tip thereof in juxtaposition to said phonograph record, in the same manner as one would place a phonograph needle upon the record. The head of the said mouse was thereupon caused to play a musical tune in such manner.<sup>95</sup>

But is said mouse still a mouse when his head resembles a phonograph record (fig. 3.10)? Or, more pointedly, as E. M. Forster asked in 1934: “But is Mickey a mouse?”<sup>96</sup> Yes, of course. Felix has small pointy ears, Foxy has large pointy ears, Bimbo has short floppy ears, Oswald has long thin ears, and Mickey has large round ears. Q.E.D.! It is disturbing to see Mickey Mouse perform cunnilingus on Minnie Mouse, as he does in the notorious underground comic *Mickey Mouse Meets the Air Pirates* (1971), not only because he is an innocent, sexless figure we associate with childhood, but because it is *unnatural*. For him to have a human penis and testicles is grotesque. Then again, he does wear pants—to cover what, exactly? In *When the Cat’s Away*, released on May 3, 1929, he is approximately mouse-size, but in *The Plowboy*, released the following month, he is large enough to steer a horse through a field and milk a cow. This anthropomorphic Mickey is the most familiar one—somewhere between human and animal, mouse and Everyman (or, as Eisenstein would have it, Walt Disney).

Certain peculiarities are inevitable, however. In *Mickey’s Good Deed* (Burt Gillett, 1932), for instance, he surveys the dilapidated house of an impoverished single mother. A panning point-of-view shot reveals her cupboards to be bare, save for cobwebs and broken china, and overrun with tiny mice that scramble

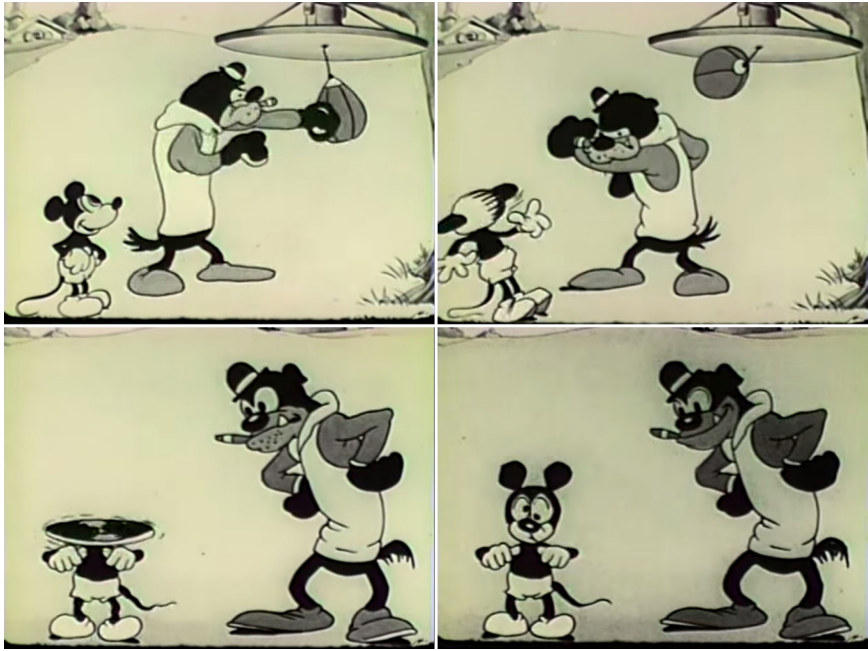


FIGURE 3.10. An ersatz Mickey Mouse turns into a phonograph player in *Big Cheese* (Van Beuren, 1930).

from shelf to shelf. In *The Worm Turns* (Ben Sharpsteen, 1937) he twice briefly shares the frame with another mouse—a *mouse* mouse, with brown fur, whiskers, and an antagonistic relationship with a (much larger) cat. Both instances are staged as if shot with a wide-angle lens, such that both the extreme foreground and extreme background are in focus (fig. 3.11). This simulated depth of field allows Mickey to occupy the plane closest to the putative camera and the mouse another, distinct plane far away from both him and us. While they are side by side in the two-dimensional image, they are a considerable distance apart within the three-dimensional space of the diegesis, making it impossible to judge their respective sizes.

Other Disney shorts of the 1930s, like the *Silly Symphonies* installments *The Flying Mouse* (1934), *The Country Cousin* (1936), and *The Three Blind Mouseketeers* (1936), all directed by David Hand, star mice something closer to proper mice, in that they are small, brown, and bewhiskered. But none of them *move* like mice. Instead, like Mickey, they are bipedal, their movements modeled on human locomotion. For a mouse that scurries, leaps, darts, and shivers like a real mouse, consider the one that runs for cover from the rain in the “April Showers” sequence in *Bambi* (1942). Pausing beneath the cap of a mushroom, he looks this way and that; in just two frames his head swivels from left to right. He then dashes toward

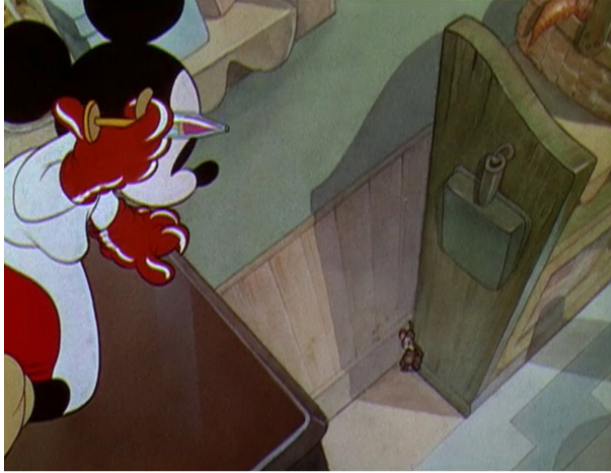


FIGURE 3.11. Mickey Mouse shares the screen with an actual mouse in *The Worm Turns* (Disney, 1937).

a larger mushroom. As he clears a puddle, his body first contracts into a compact ovoid, and then extends from nose to tail into an arch. Across less treacherous terrain, he is able to complete a single run cycle (contraction-extension-contraction) in a mere five frames—that is, until he reaches a slippery spot, at which point his paws flail beneath him, and he can do little more than run in place. There is no doubt that this is an *animated*—that is, a cartoon—mouse, one whose design is necessarily simplified and schematized, but he is most recognizable as a mouse when he is animated. It is movement that imbues him with mousiness.

It is in this respect that Mickey is most obviously *not* a mouse. He dances, trudges, and strolls: he is human. So while he may look at least somewhat like a mouse, he moves more or less like a man. But Mickey's step is bouncier than any human's because he is fundamentally happier than any human. His movements are exaggerated. When a ghost startles Mickey in *Lonesome Ghosts*, his whole body is pulled taut: his back arches, his feet lift off the ground, and his ears reach upward, turning from perfect circles into long ovals. Within a few frames, however, he has snapped back to his usual proportions. This hyperbolic physical reaction is visible on-screen for only a split-second, but it wordlessly communicates Mickey's rapid-fire psychological response to the unexpected.

For this reason, it seems inaccurate, and perhaps even unfair, to analyze just a single frame of an animated cartoon—the character resides not in the instant, but in the *succession* of instants (Gilles Deleuze: “[the cartoon film] does not give us a figure described in a unique moment, but the continuity of the movement which describes the figure”).<sup>97</sup> In *Blue Rhythm* (Burt Gillett, 1931) Mickey Mouse is plunking out a tune on a piano when suddenly the lights of the theater start

to flicker. The on-off-on-off effect is simulated through the insertion of an all-black card between each frame of the animation. When the “lights” turn “on,” we see Mickey in mid-action; when they go off, all we see is black. Yet even though Mickey is only visible in every other frame, we in no way suspect that he is *absent* from those all-black frames. One might initially attribute our intuition that he persists, despite visual evidence to the contrary, to the sequence’s musical accompaniment, which continues unabated even in the moments of black. But the effect is the same when the sequence is played silently: the action has a stroboscopic pulsation, but it does not destroy the sense that Mickey exists across time. Yet it would be dishonest to remove one of the black frames from this context and to claim that it, on its own, represents Mickey Mouse. No. Mickey Mouse is more than the sum of his parts. Thus a poorly drawn Mickey Mouse can still be Mickey Mouse, provided that the Mickeys that come before and after him are animated properly. Johnston and Thomas recall how Mickey’s body, particularly in the early cartoons, posed a difficult problem for novice animators:

The characters were black and white, with no shades of gray to soften the contrast or delineate a form. Mickey’s body was black, his arms and his hands—all black. There was no way to stage an action except in silhouette. How else could there be any clarity? A hand in front of the chest would simply disappear; black shoulders lifted against the black part of the head would negate a shrug, and the big, black ears kept getting tangled up with the rest of the action just when other drawing problems seemed to be resolved. Actually, this limitation was more helpful than we realized: we learned that it is always better to show the action in silhouette.<sup>98</sup>

And, indeed, Mickey’s movements are always legible. A Mickey Mouse in silhouette—featureless, expressionless, without his characteristic shorts or gloves—is still Mickey Mouse thanks to movement.

It is owing to movement, too, that the inevitable mistake cannot destroy Mickey Mouse. Consider a frame in *Mickey’s Man Friday* (David Hand, 1935), in which his nose is painted white instead of black. This is a mistake at the level of painting—a completely understandable mistake, the reasons for which we can easily reconstruct. Mickey’s gloved hands, the tips of his fingers bent, are lifted beside his head in a “voilà!” pose, with his right hand slightly obscured by his face. While that hand is a small detail of the cel painting, if isolated from the drawing as a whole it amounts to little more than a series of curved lines, into which the oval of Mickey’s nose easily blends. Were one to glance at the original drawing, it would be quite easy to read his nose as a finger. It is no wonder, then, that for that one cel his nose is painted white.

What this example in part reveals is the fundamental *strangeness* of the painter’s task: to decipher the components of a pencil sketch (or its tracing on a cel) out of context. Completely severed from the creative process, she had to treat the contours before her as a series of closed loops to be filled. As Johnston and Thomas



FIGURE 3.12. Mickey Mouse as he appears in several frames from *Lonesome Ghosts* (Disney, 1937).

recount, this posed a problem even for a studio as regulated as Disney: “On drawing after drawing there are little areas that could be anything: part of the flowing hair, the skirt, a tail, a ribbon, or even a hand behind the back in the middle of an action. Looking at the drawing itself, there is no way of telling what it might be, or what color should be put on it.”<sup>99</sup> In this case, it is Mickey’s nose that “could be anything”—a phrase that one would expect to encounter in a description of his plasmatic-ness. But in looking at the single frame in this piecemeal way—not alongside the frames that come before and after it, not at the composition as a whole, not even at the single cel, but rather at a portion of the cel—one sees afresh the inherent abstraction of cartoon figures: they do not exist in three dimensions, they are but strokes of paint applied to two sides of a transparent sheet of cellulose nitrate or acetate. When inkers ink and painters paint him, they are not inking and painting *him*, they are merely inking and painting. And yet, in the final film, there he is.

If movement is indeed so powerful, perhaps Mickey Mouse need never *look* like Mickey Mouse at all. What makes Mickey Mouse Mickey Mouse are the principles of character animation that animators derived from conducting motion analyses. Thus they need only provide him with a basic armature or silhouette



that hops, skips, and jumps like Mickey Mouse. Inkers and painters could then fill in his body however they wished. He could look always like he does in several frames of *Lonesome Ghosts*, an elongated, greasy blur of black, red, and yellow (fig. 3.12), or he could look like Eisenstein's signature in one frame, like the handiwork of Jeanne Lee Keil in the next. His body could change form and style with every successive frame. So long as he moves like Mickey—so long as he is animated—he will remain himself. In movement, in animation, Mickey doesn't just live. He *survives*.

#### CODA

Robert Breer's *Rubber Cement* (1976) does not star Mickey Mouse. It does, however, briefly feature a figure that looks an awful lot like Felix the Cat—five frames, to be exact, each punctuated by a frame consisting only of a small black square or (in one instance) a brightly colored pattern (fig. 3.13). The effect is stroboscopic—he is there, and then not there, and each time he reappears he has moved a little bit farther to the right. The individual drawings are deliberately crude. In the first, Felix is little more than a squiggle, over which his features (ears, eyes, nose) have been only roughly jotted in. In the next frame, there are significant gaps between his outline and his blackened-in body. In some, he looks to consist of crayon wax; in others, of the ink from a fat marker. Never does he fully coalesce into anything like the familiar Felix. Otto Messmer, were he to have seen Breer's tribute to his creation, might have dismissed the animation of this Felix as “jerky and amateurish,” drawn in “undue haste.” Yet somehow, in spite of the crudeness with which he has been rendered, in spite of the regular interruptions to his rightward progression, in spite of the relative brevity of his appearance, he still registers as Felix.

*Rubber Cement* thus makes visible the dialectical structure of film, as Benjamin identifies it: “Discontinuous images replace one another in continuous sequence.”<sup>100</sup> Benjamin here plays on the homology between the processes of cinema and the principles of Taylorism, which both dissect human movement into discrete parts; the filmstrip and the assembly line alike then reconstitute the parts into a whole. In this chapter, I have considered those parts as wholes unto themselves, as individual components that arrest our attention, taking us out of the flow of the patterned movements to which they are intrinsic. I have done this in order to imagine an alternative aesthetics of cel animation, in which noncreative laborers are granted the freedom of artistic self-expression they had hitherto been, by definition, denied. There is a deep romanticism to this possibilist history, insofar as it remains invested in an Eisensteinian belief in the individual's capacity for genius. But it also tries to see the mass ornament from above, dreaming always of the harmony of the whole—of the film that could be made out of those frames, the house out of those bricks, the movement out of those poses, the animation studio out of those workers.



FIGURE 3.13. Felix the Cat's cameo appearance(s) in Robert Breer, *Rubber Cement* (1976).

# The Multiplication of Traces

## *Xerographic Reproduction* and One Hundred and One Dalmatians

*The production processes of society disappear into a stream of paper—a stream of paper, moreover, which is processed in a continuous flow like that of the cannery, the meatpacking line, the car assembly conveyor.*

—HARRY BRAVERMAN<sup>1</sup>

*At rows of blank-looking counters sat rows of blank-looking girls, with blank, white folders in their blank hands, all blankly folding blank paper.*

—HERMAN MELVILLE<sup>2</sup>

### THE IDEA OF XEROGRAPHY

In 1963, *Business Week* ran a two-page advertisement for the Xerox 914, the first office photocopier. Earlier advertisements had touted the 914's versatility, automation, speed, and low price. This campaign took a different tack. Below a photograph of a pair of identical ink drawings of an eagle, each set in an ornate frame and occupying the top three-quarters of its respective page, stretches a banner of text:

We bought a famous Picasso picture. We took it out of the frame. Made a copy of it on our Xerox 914. Then we put the original back in its frame and also framed the copy. We photographed both of them. And here they are. Can you tell which is which? Are you sure?<sup>3</sup>

The answer, of course, is no. We can make out the embossed wallpaper behind the picture on the left, the beveled matting within each frame, the density of Picasso's pen strokes, but the telltale signs of xerographic mediation are nowhere to be found. Even if we had the two pictures in front of us—not a photograph of the pictures, not a halftone screenprint of a photograph of the pictures, and certainly

not a digital scan of a halftone screenprint of a photograph of the pictures—the differences between the original and the copy would be nearly invisible. A thin curlicue is a bit thicker in one picture than it is in the other, as are two of Picasso's propulsive diagonal strokes, but these clues lead in no particular direction. Short of removing each picture from its frame and scrutinizing how the ink has or has not taken root in the paper, we could very well be duped by the duplicate.

"As you can see," the advertisement affirms, the Xerox 914 "copies line drawings and signatures flawlessly." A Xerox of *Guernica* (1937) could not fool us, even if it were able to approximate that painting's scale, nor could a black-and-white photocopier successfully render the subtle gradations of brown, tan, and maroon in *Gertrude Stein* (1905–6). The black calligraphy and white paper of Picasso's eagle drawing make it the perfect test case. If the original had been drawn in graphite or crayon, the copy would lose some of its finer textures. An all-black eagle would yield a mottled clone. But here the line is fine—but not *too* fine—and strong—but not *too* strong. We can read it as clearly as if it were written. Indeed, the looseness of Picasso's penmanship suggests that he drew the eagle, signed his name, and dated the picture all in one sitting, perhaps without even refreshing his brush. The loop in the "P" of "Picasso" is amplified in the eagle's feathers. Text abuts image, image abuts text, and the photocopier, which regards the entire field of the sheet of paper as a single unit, does not discriminate between text and image. It treats each squiggle and dash equally, as black marks on a blank field. Particles of pigment amass only where there is darkness.

Xerography, which literally means "dry writing," allowed for clean, crisp, and clear copies. Paper went in and paper came out. The first advertisements for the 914 listed the ways the new medium improved on older technologies of mechanical reproduction: unlike its predecessors the Rectigraph, Photostat, and Thermo-Fax, it did not "require expensive sensitized paper, or intermediate film negative, or liquid chemicals"; it was capable of copying "onto standard office paper (plain or colored), your own letterhead, or card stock," not just flimsy carbon paper; it forwent the perils of stenography.<sup>4</sup> These advertisements targeted businesses. Although it could do otherwise, the device was designed to reproduce text. Yet this 1963 advertisement holds out another possibility, in which the text might in fact be an image and images are treated as text. In addition to demonstrating the machine's technical capabilities and practical uses, the advertisement makes an implicit aesthetic claim: it says that, for its purposes, a Picasso is the same as a memorandum.

Simultaneously, the Xerox machine positions itself as a tool not just for the white-collar worker but also for the graphic designer, the photographer, the illustrator—as an artistic medium. That this particular technology underwent this kind of redefinition within just three short years is hardly remarkable. As media scholars like Lisa Gitelman, Rick Altman, James Lastra, and Jonathan Sterne have demonstrated, the identities of representational technologies are always contested.<sup>5</sup>

The parameters we have come to think of as defining and delimiting the telephone, the radio, the typewriter, et al. were “by no means historical inevitabilities, but rather the result of complex interactions between technical possibilities, economic incentives, representational norms, and cultural demands.”<sup>6</sup> Objects originally intended for office use, such as the phonograph, are “reinvented” as household amusements; the projected motion picture proves more lucrative than the kinoscope’s peephole model. The cultural development of the Xerox follows a no less winding path, one with multiple beginnings and an indeterminate end.

A brief interlude into three years of xerography’s history, from 1966 to 1968, reveals just how many “networks of assumptions, habits, practices, and modes of representation” could coalesce in a single technology.<sup>7</sup> In 1966, an estimated fourteen billion photocopies were made in the United States alone. That same year, Marshall McLuhan described Xerox’s rapid ascent as a “reign of terror” that threatened the wholesale destruction of the publishing industry and copyright laws: “Anyone can take any book apart, insert parts of other books and other materials of his own interest, and make his own book in a relatively fast time.”<sup>8</sup> In April 1968, Xerox Corporation served as the sole sponsor for ABC’s airing of Emile de Antonio’s *The Confrontation*, a condensed version of de Antonio’s *Point of Order!* (1964), which consisted entirely of excerpts from the 188 hours of kinescope footage of the 1954 CBS broadcast of the Army-McCarthy hearings—McLuhan’s fear had assumed televisual form.<sup>9</sup> The late 1960s also saw the first publication of Harry Zohn’s English translation of “The Work of Art in the Age of Mechanical Reproduction,” in which version Walter Benjamin observes, “Every day the urge grows stronger to get hold of an object at very close range by way of its image, or, rather, its copy.”<sup>10</sup> As Yuriko Furuhashi has shown, graphic designers in Japan drew heavily on Benjamin’s essay in their construction of a xerographic imaginary. For instance one important design journal of the period published an article titled “Graphic Art in the Age of Electronics” in 1968, in which graphic art was defined as the “art of copy and reproduction.”<sup>11</sup> Meanwhile, the conceptual artist Timm Ulrichs photocopied the cover of the German edition of the “Work of Art” essay, and then photocopied that photocopy, and then photocopied *that* photocopy—on and on one hundred times. The image so degrades over generations that the ridges upon ridges of cumulative visual noise accrue into pointed whorls; that which withers in the age of xerographic reproduction still leaves a fingerprint.<sup>12</sup>

Each of these examples expands what Gitelman calls “the idea of xerography.”<sup>13</sup> Xerox is a corporation, a verb, a machine, a product, a promise, a threat. Ulrichs’s photocopies may playfully tweak Benjamin, but the transformation of rigid text into something strange, amorphous, and unrecognizable recalls processes of decay and ruin. Xerox becomes an allegory. A sequence in Robert Taylor’s animated feature *The Nine Lives of Fritz the Cat* (1974) uses xerography to similar effect. A black crow stands atop a fort, defending his home of New Africa from the bullets spitting out of a racist pig’s machine gun. The people of New Africa,

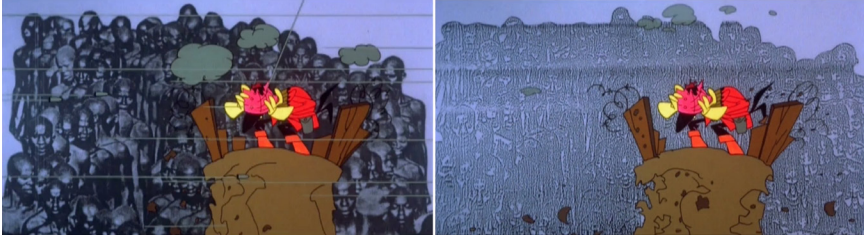


FIGURE 4.1. A photocopy and its great-great-great-great-great-great-grandchild in Robert Taylor, *The Nine Lives of Fritz the Cat* (1974).

a Black separatist nation formed in what used to be New Jersey, are depicted in the background by a xerographic collage of shirtless men. As the onslaught continues, the background changes eight times, each time replaced by a photocopy of the previous background. In a matter of seconds, the discrete human forms appear to have melted into a striated mass (fig. 4.1). The visual power of both Ulrichs's and Taylor's works derives from the Xerox machine's failure to reproduce its own reproductions.<sup>14</sup> (Perhaps the fastest way to determine which Picasso is the original and which Picasso is the copy would be to Xerox them.) Through the photocopy-by-photocopy or frame-by-frame study of each of these works, one can pinpoint the moment when the Xerox goes "wrong," when the represented content is not only unrecognizable but also wholly illegible. A "bad" photocopy makes apparent the machine's mediation. A "good" photocopy, on the other hand, maintains the uniformity of the original text—it is readable, dematerialized, and hence, tautologically, reproducible.

Lisa Gitelman's recent study of xerography considers the case of the Pentagon Papers, which were in fact photocopies made by Daniel Ellsberg of some seven thousand pages of the United States Department of Defense's classified history of the Vietnam War. "Nowhere in [the *New York Times*'s] publication of the Pentagon Papers did the newspaper report that its document/documents were xerographic copies," she writes. "The copies were assumed to be identical to the document/documents, and—because—the document/documents were assumed to be self-identical with their linguistic content."<sup>15</sup> By 1969 one would no more remark on the mediation of the Xerox machine than one would the linotype. It was, in other words, ubiquitous and yet (ideally) invisible. This is the same assumption that has allowed cel animation to be written out of photographic understandings of cinema: if animators had had their way, cartoons would have bypassed the camera altogether. But the camera was only *socially constructed* as invisible—it was, in fact, an economic, industrial, and ultimately aesthetic necessity. And just as structural filmmakers enable us to "question and interrupt the transparency of photographic representation," so an artist like Ulrichs upends the codes undergirding xerographic representation.<sup>16</sup> He invites us to consider the Xerox machine as an

artistic medium, whether used in the studio or the office, to look at even a copy indistinguishable from the original as having distinct material—and potentially aesthetic—properties.

Of course, this account of xerography, one that doesn't take the photocopy on a case-by-case basis but rather posits each and every one as ontologically identical, risks overdetermination. But such a teleological history can serve as a means of exploring the *limits* of technology. If an obsolete telephone can serve as a paperweight, a television as a television stand, a bicycle wheel as a readymade, what happens when we think of a paperweight as a telephone? Yes, one should not essentialize the telephone—"it is better," Gitelman argues, "to specify telephones in 1890 in the rural United States, broadcast telephones in Budapest in the 1920s, or cellular, satellite, corded, and cordless landline telephones in North America at the beginning of the twenty-first century"—but we can also think through what it would mean to consider one iteration of a technology in light of those that come before and after it.<sup>17</sup> A teleological history, if narrated provisionally or experimentally, becomes a mode of looking.

This chapter, in turn, considers what the advent of xerography means for the visual aesthetics of the animated cartoon. Its introduction to animation production, which I will describe at length in the pages that follow, represents the culmination of the stylistic shift inaugurated by the studio United Productions of America in the 1940s. Zachary Schwartz, an animator who left Disney following the strike and later cofounded UPA, told one interviewer, "Our camera is closer to being a *printing press*, in the way we use it, than it is to being a motion-picture camera."<sup>18</sup> Perhaps we can, following in the spirit of Schwartz, think of the animation camera as a Xerox machine. Such a move necessarily constricts our viewpoint. This chapter, however, takes that as a challenge, not in the sense of an obstacle to be overcome but rather of a test case for the promises and failures of mechanical reproduction.

One of the first businesses to adopt xerographic technology was Walt Disney Studios, not for the dissemination of in-house memoranda and business correspondence, but for art: to transfer drawings onto cels. Starting in 1957, before the Xerox 914 was commercially available, Disney's special-effects technician Ub Iwerks filed a series of patents for methods by which xerographic powder might be securely and consistently transferred onto sheets of cellulose acetate. These inventions allowed the studio to bypass the arduous and expensive inking process. Iwerks's patents positioned the technology as a labor-saving device with certain artistic benefits:

Xerographic techniques could be employed to eliminate a substantial proportion of the skilled manual craftsmanship that was previously employed. Specifically, it was found xeroopies of the original artist sketches could be transferred directly to cels and fused thereon, thereby eliminating completely all of the manual tracing previously required. In addition, it was found that certain of the artist's shading

effects, that were normally lost in the manual tracing operation, could be retained by the careful application of xerographic techniques to improve the quality of the finished cartoon.<sup>19</sup>

When Iwerks writes of “eliminating completely all of the manual tracing,” he means that the predominantly female staff of the studio’s Ink Department could be fired. The male head animators, meanwhile, were delighted to be able to see their own handiwork on-screen. Xerography, they believed, preserved the freshness and vitality of their lines. It also enabled them to shrink their designs when scenes called for extreme long shots—and hence extremely tiny characters and even finer brushwork—without sacrificing precision. (Another reduction technique, used as early as *Snow White and the Seven Dwarfs* [1937], had involved cels coated in a special wash-off relief emulsion, but the results were unpredictable.) What xerography promised, in short, was to maintain the integrity of the animator’s hand—that is, to copy line drawings and signatures flawlessly, just as Xerox 914 advertisements would later boast. It gave Disney the chance to exploit a new technology to which rival studios did not yet have access and to stake out innovative (if not entirely new) artistic territory. After being tested in a few scenes in *Sleeping Beauty* (1959) and used throughout the animated short *Goliath II* (Wolfgang Reitherman, 1960), these promises were fulfilled by *One Hundred and One Dalmatians* (1961), directed by Clyde Geronimi, Hamilton Luske, and Wolfgang Reitherman. As this chapter will show, *One Hundred and One Dalmatians* could not have been made without xerography—indeed, as its title hints, it is a film *about* xerography.

Xerography, in this context, offers viewers a tantalizing proximity to the original, inimitable trace of the artist, in all its imperfections and idiosyncrasies. If before, a cartoon character’s outline was clean and tight and controlled, the inker’s strokes regulated by Taylorist methods of handwriting, now it could be loose and scratchy and spontaneous. Walt Disney himself prized such detailed hand-inking because it effectively concealed itself. Only with the Xerox machine does the viewer become aware of the line as *line*, the contour as *contour*, the drawing as *drawing*. Cruella de Vil’s contours are brittle, marked by the sorts of hesitations and jitters that would previously have been erased, while the lines that demarcate her flowing locks betray the materiality of the pencil Marc Davis used to draw them—some are thinner, some thicker, all are as asymmetrical in their stroke as Cruella’s face is in its contortions. Earlier Disney films, such as *Cinderella* (1950), showcased rounded forms and multicolored ink work: pink flesh is bounded by a slighter darker pink ink, purple by purple, maroon by maroon. Cinderella’s stepmother’s teal earrings have a turquoise border, while Cruella’s are encircled by black (fig. 4.2). The rough jottings that compose Cruella’s face testify to how she was produced, and by whom, a process that multicolored ink covers over. Xerography copies the artist’s signature flawlessly and introduces a new technology for the reproduction of artistic documents.





FIGURE 4.2. Cruella de Vil in *One Hundred and One Dalmatians* (Disney, 1961) (left) and Cinderella's stepmother in *Cinderella* (Disney, 1950) (right).

The use of xerographic technology in *One Hundred and One Dalmatians*, meanwhile, allows us to think of the film as the collation of another sort of document, the kind that would be photocopied in the office to which the Xerox 914 was marketed—*paperwork*. This is a narrow definition of xerography, of course, and one that ignores the admonitions of media theorists to consider the many social and historical contingencies that bear on a technology's meaning, but it is also a definition that speaks to both the organization of labor at Walt Disney Studios in particular and the broadening of white-collar work in the postwar United States in general. While the studio had long been compared to a manufacturing plant (whether by the striking animators, who likened their working conditions to those of steelworkers and machinists, or by Disney himself, who thought of himself as a Henry Ford), we could just as easily think of it as an *office*.<sup>20</sup> Consider all the paper that was used in the making of a single film: from storyboards to model sheets to transcripts of story meetings, from rough pencil sketches to publicity releases to idle doodles. “Drawing was everywhere; the walls were plastered with drawings,” one employee recalled. “Instead of regarding an individual drawing as a sacred thing it was waste paper.”<sup>21</sup> To be an animator was to work on an assembly line—or it was to work as a scrivener. It was with pen and ink that he (for he was invariably a man) toiled. Thus he joined the ranks of the clerical proletariat, who produces not “footwear, apparel, meat, wooden structures, metal shapes, or grain,” but rather, as Harry Braverman notes, “markings on paper.”<sup>22</sup> Recall the young interloper who accidentally spills hundreds of Winsor McCay's drawings in the live-action prologue to *Little Nemo in Slumberland* (1911). Fifty years later, Jerry Lewis's Morty S. Tashman wreaks similar havoc in the secretarial department of Paramount Pictures in *The Errand Boy* (1961). These affinities allow us to conceive of the animation studio as a modern office, of in-betweeners and inkers as clerks and secretaries, of animating as paperwork. *One Hundred and One Dalmatians* becomes *One Hundred Thousand and One Documents*. The same

xerographic technique that presents a visible challenge to cartoon style also renders redundant highly skilled inkers, further mechanizes below-the-line labor, and contributes to the proletarianization of the animation industry.<sup>23</sup> It is this tension, arising from the deployment of Xerox technology, that gives form to *One Hundred and One Dalmatians*.

#### THE MARKS OF HAND LABOR

The technique of cel animation, introduced in the 1910s, enabled the mechanization of animation production and, consequently, the mass production of cartoons. But what was sacrificed in cel animation was the original artwork. Alternative techniques, while perhaps unsustainable as an industrial model, offered something cel animation could not: a view of the artist's hand. When the leaves of a tree in *Gertie the Dinosaur* (1914) flutter, we do not take the agent of their movement to be a gentle breeze. They move by *mistake*—the mistakes made by Winsor McCay's assistant, John Fitzsimmons, in his redrawing of tree after tree, leaf after leaf, from one frame to their next. The leaves' accidental sway conforms to Thorstein Veblen's description of "the honorific marks of hand labor," or the "imperfections and irregularities in the lines of the hand-wrought article [that show] where the workman has fallen short in the execution of the design." As Veblen explains, handicraft is afforded a "certain margin of crudeness," one that "must never be so wide as to show bungling workmanship, since that would be evidence of low cost, nor so narrow as to suggest the ideal precision attained only by the machine, for that would be evidence of low cost."<sup>24</sup> The exact dimensions of this margin, however, cannot be determined in advance; it is delimited in varying proportions by the stylistic conventions of the period, the larger economic pressures facing the industry, and the vagaries of material production. Moreover, we do not always know precisely *whose* handiwork it is we are seeing—but the point remains that the transmitted line stands as a one-to-one trace of the artist.

This is especially clear in the *Out of the Inkwell* series produced by Max Fleischer, whose studio used cel animation only sparingly well into the 1920s. As discussed in the second chapter, installments in this series routinely test the "hand-of-the-artist" trope of the period in unexpected ways. For instance, a sequence in *Koko Trains 'Em* (1925) begins with what we are led to believe is Fleischer's own hand rapidly drawing the contours of a dog perched on its hind legs, which then transforms (ostensibly of its own accord) into the eponymous Koko the Clown. The hand is in fact a cutout photograph that, thanks to stop-motion animation, appears to draw at lightning speed. Individual frames of the metamorphosis, however, reveal that another hand has previously alighted on these sheets of paper: the thick, dark contours of the dog-clown follow—but not always precisely—the path set by a lighter, thinner line of pencil. That these original sketches remain visible—an imperfection, an irregularity—perhaps indicates the film's low cost, but they

have an aesthetic effect, too: they serve as a penumbra to the figure's plasmatic body, giving what might otherwise be read as pure line a volumetric dimension.

Cel animation of the same period would permit no such access to the animator's initial sketch, and hence eliminated this particular possibility for formal play, however unintentional or crude. Inkers, of course, could still make mistakes—but the crucial aspect of their work was that it always obscured the artist's gesture. Ideally, this would not be the case: they were to function as amanuenses whose mediation was to have no bearing on the meaning of the final image. But the act of tracing necessarily intervened in the drawing's communicative power, for better or worse. Sometimes it made inconsistencies in the original drawing all too palpable, as when, in Disney's *Father Noah's Ark* (Wilfred Jackson, 1933), Noah's hair is a bramble of ever-changing squiggles and zigzags. It is not easy to prevent hair or leaves from being blown by the winds of drawing and redrawing, and tracing such contours is just as thankless. In a 1937 training session dedicated to the design of the Seven Dwarfs, the male animators at Disney Studios expressed anxiety about exactly this problem. One of them, Joe Magro, recalled how Noah had had "a beard that had a continuous buzz-saw all around it," and worried that such a flitting line would likewise plague Doc, Happy, Grumpy, Sneezy, Sleepy, and Bashful (though not the bald, baby-faced Dopey). The solution the animators arrived at was to have the inkers outline the dwarfs' white beards in gray paint instead of black—and then "to say a few prayers."<sup>25</sup>

The move away from dark contours—from black to light gray, for instance—pointed to a larger stylistic shift at Disney. Following *Snow White and the Seven Dwarfs*, inked contours were executed in a variety of shades in order to match more closely the paints used to opaque skin, hair, and clothing. A pink cheek might be offset ever so slightly by a peachy curve or a lavender sleeve wrinkled at the elbow in purple.<sup>26</sup> This move is most commonly seen as in keeping with Disney's pursuit of greater and greater "realism," insofar as it impedes our ability to read outlines as *line* and thus stanches the plasmatic potential of the cartoon figure: a dog can only ever be a dog, never a clown. As Sergei Eisenstein puts it, the comicality of Disney's *Silly Symphonies* and *Mickey Mouse* cartoons "stems from the fact that any representation exists in two ways: as a set of lines, and as the image that arises from them."<sup>27</sup> Their contours now nearly imperceptible, the characters populating Disney's feature films lack comic power. Yet there is a subtle irony here: while now less visible, the outline asserts itself as a constraining force, one that cannot be trespassed and deformed.

To define such an inviolable border required a controlled hand. The lines had to be delicate but not tentative, rigid in their adherence to the animator's pencil strokes but never static in their execution. Inking, while still classified as below-the-line labor, nonetheless required skilled craftsmanship. The refinement of the technique indicates another shift then under way at Disney. The growth of the animation industry over the previous decade had been concomitant with an increase

in the mechanization of the production process. Labor was segmented, jobs more strictly demarcated. A clear divide was articulated between inkers (responsible for tracing the animator's drawing with black paint onto the front of the cel) and painters (responsible for opaquing the back of the cel, that is, coloring within the lines). Demanding greater precision than painting, inking was compensated accordingly. In addition, although some studios employed assistant animators to erase stray and excessive markings on an animator's sketch, inkers were often trusted to work with sketches that hadn't been cleaned up—according to Phyllis Craig, who worked at Disney, “a good inker knew what lines to pick up.”<sup>28</sup>

But this shift, in turn, contributed to rising labor costs. Unsurprisingly, then, by the mid-1930s, studios began looking for alternatives to inking. Herman Schultheis, who oversaw the special effects of Disney's *Pinocchio* and *Fantasia* (both 1940), experimented with using microphotography to transfer drawings directly to cels. This technique, which never came to fruition, was a refinement of the wash-off relief emulsion process, which had been used as early as 1937 in the production of *Snow White* for sequences in which Snow White and the Prince are framed in long shot. Drawing characters of such small size was exceedingly difficult, if not impossible, even for the most controlled of hands. As Snow White's animator, Grim Natwick, explained: “You could take a 6H pencil and draw as carefully as you want to, and there's a point beyond which you cannot do good work.”<sup>29</sup> The use of a special photographic emulsion enabled Natwick to draw Snow White at regular size and then create a reduction print on the cel. This same technique was used in *Pinocchio* to transfer the detailed shading of Monstro the Whale from the animator's sketches to the final image and to animate vehicles and machinery (a scale model of Stromboli's wagon, for instance, was photographed in high contrast and then printed on a cel, where it could then be painted); the gurgling lava and earthquake of “The Rites of Spring” sequence in *Fantasia* were also printed via wash-off relief emulsion.<sup>30</sup> But the process had a serious downside. Because its elements were wet (hence “wash-off”), there was little technicians could do to ensure that they maintained their form from frame to frame: in long shot, Snow White and the Prince both look to be leaking kohl from their eyes. Xerography, as a dry reproductive process, would eventually solve this problem.

Given the pronounced economic competition between Disney and Fleischer Studios in the 1930s, it is not surprising that Max Fleischer was exploring similar techniques. In 1936 he filed a patent for a process of combining foreground and background elements through contact printing. The foreground element, which would typically have been traced from an animator's pencil sketch onto a cel, would first be drawn with what the patent specifies as “a substantially opaque line” and then photographed in high contrast onto positive film stock. By printing the resultant image on negative stock, the technician could produce a matte of the original image, which could then be combined via contact printing with a static background painting. The advantages of this technique, Fleischer's patent explains,

are twofold. First, transferring the original drawing (more or less) directly onto film would eliminate the inking stage and its attendant costs and hazards. Second, the outline thereby reproduced would be “of a superior and more artistic quality than that now appearing on such films.” Into “superior and more artistic” Fleischer folds several claims: lines would no longer reflect “the different degrees of skill and individual characteristics of the artists making the tracings,” and, moreover, would retain “the artistic quality of the lines in the original drawing.”<sup>31</sup>

This last claim is essential, if ill defined. We should not, I argue, take its assumptions as a given. What about the original drawing is more “artistic” than the traced drawing? Why is mechanical (that is, photographic and, later, xerographic) reproduction capable of preserving this quality, but manual not? It matters not, it seems, that this manual reproduction was performed mechanistically: inkers were trained to pull, rather than push, their brushes in accordance with the Palmer Method, a Taylorist model of handwriting instruction. As the cultural historian Tamara Thornton has explained, the Palmer Method turned writing into an automatic act: “The thousands of ovals executed by penmanship pupils would one day translate into the thousands of bolt-tightenings executed by Henry Ford’s workers.”<sup>32</sup> But even mechanized manual reproduction falls short of fully mechanical reproduction. What’s more, the copy is stripped of the original’s alchemy, what Disney himself referred to as “the full inspiration and vitality in our animators’ pencil drawings.”<sup>33</sup> Disney and Fleischer both articulate the distinct sense that the original drawing possessed something special, something that was irrevocably lost when it was copied.

Even the most skilled inker was performing rote work. She had to stifle her creative energy in order to execute the tracing as cleanly and quickly as possible, and stifled, in turn, is the energy of the original line: a line should have *life*, a line should *move*. Paul Klee writes of lines that walk, Eisenstein of lines that serve as the graphic trace of an action.<sup>34</sup> Critics who were able to see animator’s original sketches or to watch “pencil tests” (films of preliminary motion studies and scenes) remarked on the spontaneity and sensitivity of the lines. A reviewer for the *Chicago Daily News* held that the test version of the storm sequence in *Pinocchio* rivaled the work of Picasso and Georges Braque in its combination of abstraction and representation, two-dimensional line and three-dimensional volume; the animators had captured the storm’s *essence*.<sup>35</sup> A traced line is impoverished in comparison—static, dead. This is in part attributable to the act of tracing, divorced as it is from the moment of creative genesis, and in part to the tracers, who are not themselves artists. Milt Kahl, one of Disney’s “Nine Old Men,” explained to an interviewer, “It’s awfully hard to trace a drawing and get any vitality into it, especially when the tracing is being done by people who really don’t have an appreciation for the mechanics of drawing.”<sup>36</sup> Kahl is not alone in this belief. Ken Anderson, who spearheaded the overall design of *One Hundred and One*

*Dalmatians*, says, “I was very aware from having animated myself, that when you had an inker make a tracing of your drawing that it lost some of the life.”<sup>37</sup> To have a drawing traced was to sacrifice its vivacity, its feeling, its expressiveness.

The discourse around this division of labor offers a multifaceted and sometimes contradictory theory of the line. A line is a trace of the human (namely, of the creative worker) *and* a line must be evacuated of the human touch (namely, of the noncreative worker). A line is a singular expression *and* a line is infinitely reproducible. A line is an index of physical contact *and* a line’s life is not located in the original sheet of paper. These paradoxes are particularly pertinent for my discussion of *One Hundred and One Dalmatians*. If a line is not bound to the paper on which it was painted and the ink that constitutes its body, then it can circulate like text, extracted from its material origins. This is the logic of illustrations and comics, which are drawn in order to be reproduced. A lithograph of a line *is* the line, a photograph of a line *is* the line, and a Xerox of a line *is* the line.

These assumptions undergird head animator Marc Davis’s description of watching the sequences he animated in *One Hundred and One Dalmatians*: “It was the first time we ever saw our drawings on the screen, literally. Before that, they’d always been watered down.” Elsewhere, he recalls: “I did Cruella de Vil, and I had every scene of her. To see my own drawings up there was a very exciting experience.”<sup>38</sup> Davis need not qualify “my own drawings” with “photographic reproductions of xerographic reproductions of my own drawings,” for we understand exactly what he means. The medium is transparent. The presence of Davis’s hand persists across multiple formats, both filmic and digital. It is perhaps most visible in Cruella’s first appearance in the film, as she prances across her friends’ sitting room, her oversize fur coat sweeping around her (fig. 4.3). The jaggedness of its outline, especially on the collar, varies in intensity and style from frame to frame, which produces a slight “buzz-saw” effect like that of Noah’s beard in *Father Noah’s Ark*. Viewing each frame in isolation, one can count the individual strokes that give the coat volume and texture. Longer, darker marks suggest a pencil handled deliberately and confidently, while the shorter, lighter lines suggest a no less confident impulsiveness. One can, indeed, find meaning in even the lines that seem like mistakes. They bristle with energy, and one takes this energy as an index of the human, of Davis. In addition, the lines were almost certainly committed in pencil, not pen, as their angularity testifies. That is, as much as the lines have a life of their own, they also seem bound to the particular instant of which they are but a trace.

But lost in the reproduction is the mediation of the drawing surface. One is not able to measure how deeply the pencil impressed the paper or hold the image up to the light to study the flow of the line in relation to the grain of the paper. Although pencil drawings and their xerographic reproductions might look the same to the



FIGURE 4.3. Cruella de Vil makes a grand entrance in *One Hundred and One Dalmatians* (Disney, 1961).

naked eye, when magnified at least thirty times the difference is clear. Bamber Gascoigne explains in his book *How to Identify Prints*:

The black lines of a xerox image are made up of thousands of tiny dust-like grains of pigment which have rushed onto the charged areas of an electrostatic field before being fixed by heat to the paper. An exact analogy, at a rather large scale, is those photographs of letters formed on the ground by pigeons into the areas charged by the advertisers with corn. As with the pigeons, there will always be a few specks of pigment which are not quite in line and it is these deviants that give the method away.<sup>39</sup>

But not even a projection of the film on a theater screen provides a magnification large enough for these deviations to become visible. Davis's line, it seems, loses nothing when it is reproduced. Are we, then, *really* seeing Davis's own drawings? If a line is *text* (that is, if "its identity is not uniquely bound up in [its] physical form, nor in any one copy"), then yes.<sup>40</sup> If a line is *image* (that is, if its physical embodiment integral is to its form), then no. In *One Hundred and One Dalmatians*, as in all xerographic reproductions, it is both at once. The drawings might not exist "in two ways" in the plasmatic manner described by Eisenstein, but they do seem to pull between the "graphic" as drawn and the "graphic" as written. One almost expects the jagged edges of Cruella's collar to conceal the letters M-A-R-C, if only for a single frame, so close are their constitutive strokes to cursive. It lets us see, as Ken Anderson tell us, Davis's "thought process."<sup>41</sup> His hand and mind are one.

## THINKING BY STROKES

“The separation of hand and brain,” writes Harry Braverman, “is the most decisive single step in the division of labor taken by the capitalist mode of production.”<sup>42</sup> One can perhaps attribute the deadness of the copied line to the deadening task of copying itself. The mechanization of the process meant the total separation of creative and manual labor, and, as a consequence, the ossification of the worker’s brain. The narrator of Melville’s 1853 short story “Bartleby the Scrivener” remarks that copying is a “very dull, wearisome, and lethargic affair,” even “altogether intolerable”; for Balzac’s Charles Rabourdin, it is nothing short of “idiot toil.”<sup>43</sup> Similar rhetoric infuses animators’ oral histories. In the early years of cel animation, men often got their start in the industry as inkers and painters. The cartoon director Chuck Jones, for instance, worked as an inker for a spell: “Most inking was not creative work, and I quickly decided that I did not want to be an inker. It was not for this that I had been to art school. The hypnosis of boredom forced me, in order to exist at all, to learn to ink while napping.”<sup>44</sup> But male animators had the luxury of regarding inking and painting as a stepping-stone to above-the-line work, whereas with few exceptions, women in the animation industry could not expect to advance through the studio ranks. Of course, to believe that women somehow did not find this work taxing is specious. It took a real, physical toll. Inkers gave up coffee and cigarettes and did their best not to sneeze—or even talk—in order to preserve the integrity of their line. “Pushed a pen around for 16 years,” one remarked in an interview. “No wonder I can’t see today.”<sup>45</sup>

The gendered division of labor of the animation studio strongly resembled that of the office. While for most of the nineteenth century clerical work was performed entirely by men, by the 1880s this began to change. The work became mechanized, deskilled, and, consequently, feminized. Coeval with the introduction of typewriters, addressographs, pneumatic tubes, and telephones was the introduction of women to helm them. By 1930, more than 95 percent of stenographers and typists were women.<sup>46</sup> (Consider, for instance, a shot of the newspaper “help wanted” section from Disney’s *Lonesome Ghosts* of 1937, discussed in the first chapter [see fig. 1.3]: to the right of the advertisement for ghost exterminators is a collage element clipped from a preexisting source, a column seeking female stenographers, typists, and secretaries.) In his sociological study of white-collar workers in Weimar Germany, Siegfried Kracauer dryly explains the economic logic underpinning this shift:

Thanks to the intellectual labor invested in [machine] equipment, its handmaidens are spared the possession of knowledge; if attendance at commercial college were not compulsory, they would need to know nothing at all. . . . The fact that they are so fond of placing girls in charge of machines is due, among other things, to the innate dexterity of the young creatures—which natural gift is, however, too widely distributed, alas, to warrant a high rate of pay.<sup>47</sup>



Kracauer's sarcasm is blistering, but ultimately not enough to damage the reified rhetoric of scientific management. Female office workers were regarded as transient employees who would leave as soon as they were married, a belief that was enforced by the so-called "marriage bar." High turnover among women employees benefited employers both by allowing them to keep salaries low and by impeding the possibility of unionization.

The same bar was in place at animation studios. According to a short 1941 article in *Glamour*, salaries for women at Disney ranged from "\$18 to \$75 per week, [but] would be higher if more girls didn't work a couple of years, marry and quit."<sup>48</sup> An interview with Walt Disney in 1943 reaffirmed this:

This is the way it works: I hire a capable woman artist and put her to work. She turns out a nice job, and the men working around her begin to sit up and take notice. Soon they're taking too much notice . . . and before I know it I can hear wedding bells ringing in the offing. In due course there's a marriage . . . and then of course my able woman artist has her mind more on a home than on animated cartoons.<sup>49</sup>

Disney's monitoring of what his employees "have on their mind" is revealing. Male animators were allowed greater latitude to let their thoughts roam, as the many ribald doodles they made of Snow White demonstrate. Inkers and painters, meanwhile, were expected to keep their focus on their work, no matter how boring. One hears echoes of Kracauer's observation about female punch-card operators: "Just one thing is required of them: attention. It cannot wander free but is under the control of the apparatus it controls."<sup>50</sup> It would follow, then, that the lines they ink are as constrained.

Of course, it is ultimately impossible to speculate on an inker's state of mind. We could try to wring psychoanalytic insights from frequent errors and signature strokes, or we could take the inkers at their word: in interviews, women repeatedly affirm that their work was *work*. It required a certain level of mastery that could be attained only through extensive training. But here, again, many of the inkers fall back on a common refrain—their skills, particularly their patience, came naturally to them because they were women. The head of the Ink and Paint Departments at Disney, Grace Bailey, told Bob Thomas, "Inking and painting is precision work that requires neatness and patience. Women seem to have those qualities, plus a necessary feeling for their work."<sup>51</sup> And many of her employees agreed. One remarked, "You find very few men with that patience that a woman had to do that."<sup>52</sup> Theirs was a distinctly feminine touch. Is it this touch that animators were rejecting? Were the women *too* patient, and hence their lines too controlled?

But Antonio Gramsci and Walter Benjamin, writing contemporaneously with Kracauer and the industrialization of celluloid animation, offer alternative accounts of the relationship between mental labor and manual reproduction. Gramsci levels a critique of the assumption that has thus far guided my analysis, namely, that scientific management "produces a gap between manual labor and the

'human content' of the work." He acknowledges, however, that the mechanization of clerical and stenographic work is especially difficult, for the most skilled of these professionals must effectively *not think* in order to perform their work. A scribe must learn "to fix his attention exclusively on the calligraphic form of the single letters; or to be able to break down phrases into 'abstract' words and then words into characters, and rapidly select the pieces of lead in the cases; or to be able to break down not single words but groups of words, in the context of discourse, and group them mechanically into shorthand notation; or to acquire speed in typing, etc." Any mistakes are a measure of the scribe taking *too much interest* in what he is copying—intellectual curiosity is a liability. Yet Gramsci embraces mechanization. It does not stultify the mind, but frees it. For Gramsci, the apparatus controls only the copyist's physical gestures, and the brain is "unencumbered for other occupations."<sup>53</sup> Benjamin, meanwhile, wholly submits to the control of the copied text, but finds the act of copying a mode of self-exploration in of itself. He likens the experience of manual reproduction to walking a path previously seen from above: "Only he who walks the road on foot learns of the power it commands, and of how, from the very scenery that for the flier is only the unfurled plain, it calls forth distances, belvederes, clearings, prospects at each of its turns."<sup>54</sup> This is *flânerie*, a vision of travel that conforms to Benjamin's theory of historical materialism: the rejection of the universal, the eternal, and the dogmatic in favor of experience, possibility, and disorientation.

Of course, Gramsci and Benjamin are describing the act of copying text, not images. The difference between text and image becomes clear through the manner by which each can or cannot be copied. A text can be written by hand, dictated, impressed into carbon paper, typed; it can circulate on newsprint or microfilm or be projected twenty-feet high on a billboard or inscribed on a grain of rice. An image, by contrast, is bound to its materials. Roland Barthes says of the art of Cy Twombly that "everything happens in that infinitesimal moment in which the wax of his crayon approaches the grain of the paper." Thus in Twombly's line coalesces a set of physical processes (Twombly's presumed bodily gestures) and properties (the "leavened flight of bees" of the crayon's line). Barthes admits that there are categories of drawings that effectively function as text—architectural blueprints, for instance, which we value only insofar as they are intelligible, decipherable, readable. When we examine a piece of handwriting, however, "there are also other opaque and insignificant elements—or rather elements of a different significance—that capture our attention and what can already be called our desire: the nervous turn of the letters, the flow of the ink, the cast of the strokes, a whole series of accidents that are not necessary for the functioning of the graphic code." Twombly's art, for Barthes, exists at the threshold between writing and drawing. It is, above all, inimitable. To imitate it, to copy it, he says, produces *nothing*. Yet Barthes does find himself imitating it—not Twombly's exact marks, but rather the movements he takes them to be the trace of: "I am copying not the product by

rather the production. I try to place myself, if the expression is permissible, *into the stride of the hand*.”<sup>55</sup> (It perhaps bears mentioning that Barthes was studying a printed catalogue—meaning, reproductions—of Twombly’s drawings.) The pen pushers (or, rather, pen pullers) at animation studios, meanwhile, did not have the luxury to contemplate the drawing process, let alone the drawings they were copying. Their focus was on the product alone, their job to work as mechanically, mathematically, and unflaggingly as possible.

One wonders, then, what the difference is between *automatized* drawing and *automatic* drawing. The former is drawing under the sway of scientific management, every gesture determined in advance in order to maximize efficiency. The brain turns off and the body performs the same task for hours on end—as Chuck Jones recounts, one inks while napping. This is degraded, uncreative labor, a purely manual operation. But what about the adverb Barthes uses to describe how he imitates Twombly’s penmanship? “I imitate the tracings that I infer, if not unconsciously, at least *dreamily*, from my reading.”<sup>56</sup> As Barthes makes clear in many of his essays—including this one—the choice of modifier is no small matter.<sup>57</sup> Is the state Barthes enters different in kind from that to which Jones must succumb? The most salient difference, it seems, is that Jones’s labor was alienated, while Barthes was performing his solely for himself as a playful exercise in artistic expression. It is this practice I am calling “automatic,” as opposed to “automatized”: one reveals the hidden recesses of the mind, the other shuts the mind down; one wanders free, the other is rigidly predetermined; one is “the trace of a dance,” the other repetitive and uninspired.<sup>58</sup> This distinction is articulated in Stendhal’s *The Red and the Black* (1830), wherein Julien Sorel’s lover confronts him about a curiosity in the love letters he sent her, the words of which he in fact purloined from another author: “He had been copying line by line without thinking of what he was writing, and evidently had forgotten to substitute for the name London and Richmond in the original those of Paris and Saint-Cloud.” But Julien doesn’t confess. Instead, he offers this excuse: “Exalted by the discussion of the most sublime, the most lofty ideas of which the human soul is capable, my own spirit, as I wrote to you, must have suffered a momentary oblivion.”<sup>59</sup> In fact, the thoughtlessness of Julien’s copying births an obliviousness quite removed from that engendered by the sublimity of love. The first is a deadening of the spirit, the second its awakening.

Eisenstein’s theory of the line, as well as his own drawing practice, clarifies what is at stake in the mechanization of manual production and reproduction. Eisenstein drew prolifically, obsessively. Drawing and writing were intimately connected in his practice. His notes are littered with schematic diagrams and quick sketches that illustrate or test the concepts he is working through, and he remarks in one diary entry from 1931 that he frequently would turn to drawing when he was too tired to articulate his ideas in prose. The scale of his output defies cataloging. He drew on napkins and calendar pages and envelopes and toilet paper. In this sense, the drawing surface both mattered, in that his line clearly responded to it,

and did not matter, in that he drew on whatever he had at the ready. His words flow into his images, and back again.

Perhaps the fullest expression of Eisenstein's approach to drawing appears in the scores of sketches he produced while in Mexico. It was there, inspired in part by the graphic purity of Mexican art, that he rekindled the hobby, which he had abandoned in the previous decade. Trapped indoors during the rainy season, Eisenstein devoted an entire week in early June 1931 to renditions of a single theme. This was a deliberate project, intended as an investigation into "drawing and the process of drawing," but he undertook it as if in a "trance," "blindly and automatically piling up material for research."<sup>60</sup> By the end of the week he had amassed more than one hundred drawings, including fifty-two done in a single day, all depicting the murder of King Duncan in *Macbeth*—which, incidentally, happens offstage in the Shakespeare play. Eisenstein was thus "think[ing] by strokes" in order to manifest what Shakespeare had left to the imagination.<sup>61</sup> Any given sketch in the series is meant to suggest an ongoing flow of action of which it is but one instant, while the entire series demonstrates how a single idea can give way to infinite possibilities. They are Eisenstein's rejoinder to Lady Macbeth's goading of her husband: "What cannot you and I perform upon / The unguarded Duncan?" Nothing, Eisenstein answers, and thus each extant sketch has Macbeth and Lady Macbeth tending to Duncan's body in some new (and novel) way: strangling the king with what appears to be Macbeth's belt or penis, fondling his disembodied head with their bare feet, feeding on his heart or toes, defecating on his crown—all while, of course, "the owl scream[s] and the crickets cry."<sup>62</sup>

Eisenstein numbered 127 of these drawings. If he had maintained that rate for a year he would have had enough for a split-reel animated cartoon. But he was only one man. He exhausted the theme: his drawings repeat certain stylistic flourishes, such as the ripples of Duncan's hair, and gags, such as Macbeth or Lady Macbeth wearing Duncan's head like a crown. His hand faltered; sometimes his line trembles. When drawn on paper too soft with ink too heavy, the line varies in thickness, coagulating when it is directed upward and thinning when pulled downward. Sometimes Eisenstein drew on both sides of the paper, sometimes on only one. In some reproductions one can see the verso image bleeding through to the front or the embossment of the paper stock, while other reproductions, rendered in high contrast, effectively wash out the materiality of the paper's surface—and thus the sense of the drawing's existence in endless space. Yet the space *was* delimited: his characters stretch to the paper's very bounds without ever exceeding them.

Can his images be treated as text? Certainly Eisenstein allows for that possibility. He aimed to achieve a near "mathematical abstraction and purity of line," which suggests that one could do away with his hand altogether, plug in a formula, and graph his figures geometrically. And their reproductions follow suit.<sup>63</sup> The hotel letterhead is cropped out, stains and tears in the paper are eliminated, and we are left only with a clarified image: a vast field of white crisscrossed by

black calligraphy. His Macbeth drawings appear in miniature, nine to a page, in the volume of *Metod* overseen by Naum Kleiman; some of these reappear in larger format in black and white in *The Body of the Line* and in full color in *A Mischievous Eisenstein*, both published in 2000; the reproductions in *The Eisenstein Collection* (2006) are pixelated.<sup>64</sup> Yet Eisenstein's style persists. It is there when tiny and it is there when nearly life-size, it is there when his blue pencil is printed as gray, it is there when the brown paper disappears. It *can* be mechanically reproduced. But it cannot be traced. He recycles tropes (contortions of limbs and spines, positions of heads, organizations of bodies) and reduces his forms to the cleanest, simplest line (an S, perhaps, or a W) and draws the same thing (heads upon heads upon heads) over and over again, but this does not mean that some other hand could ever imitate him.

Eisenstein presents a radical alternative to the industrial mode of film production. He is an individual artist, a singular genius. He fulfills the model of the craftsman detailed by the sociologist C. Wright Mills: his work is meaningful because it is not "detached" in his mind from the product of the work; he is free to control when and how he works; there are no motives for his work "other than the product being made and the processes of its creation"; his work is play.<sup>65</sup> Nonetheless, his theory of drawing and his drawing practice engage with many of the same questions as *One Hundred and One Dalmatians* and the idea of xerography. How do we evaluate mechanized art? To what extent is the mode of reproduction itself, whether manual or mechanical, an artistic intervention? Do we believe that the inkers, like Eisenstein, were "think[ing] by strokes"?

#### STYLISTIC RUPTURES

It is here useful to recall Veblen's argument about the "certain margin of crudeness," a margin that cannot be prescribed in advance. Popular animation, as a product of both industry and handcraft, is forever cognizant of this margin. Eisenstein holds out one possibility, commercial imperatives another. But when we consider the ways in which the animation process had to be rationalized—or, at least, rationalizable—and its results consistent, we should not forget what *might* have been. After all, xerography was by no means the only method of bringing the animator's handiwork directly to the screen. One need look no further than the Disney Studios' own pencil tests, which were photographed directly from animation sketches and screened for animators in what was dubbed the "sweatbox." Lacking backgrounds and sound and often riddled with stray lines, extant and reconstructed tests nonetheless manage to convey the full emotion of the characters and dynamism of the staging. They are truly drawings come to life—drawings as *drawings*. Ken Anderson looked to the pencil tests for inspiration for the aesthetic of *One Hundred and One Dalmatians*. "The tracing looks dead," he explained, "but the one underneath it somehow or other has the spark of life, because it was conceived

because of an idea or an emotion. I always thought that was true when we would run tests in black and white; the animation had more life to it.”<sup>66</sup> But the pencil tests were ultimately too loose, too unmoored from the world of sounds and colors, to be commercially viable.

Thus Disney eschewed the methods that independent and experimental animators used to bypass tracing. For *A Man and His Dog Out for Air* (1957), Robert Breer produced around a thousand individual ink drawings directly on eight-by-twelve-inch sheets of paper. Over the course of the film’s two-minute running time, Breer’s line worms, fractures, and swivels into a series of abstract shapes before congealing into a pair of makeshift forms that almost resemble a man walking a dog and then, finally, spelling the word “End.” The animation is deliberately crude, but also spontaneous and vital, and the revelation of recognizable shapes at its conclusion fulfills Eisenstein’s theory of the line’s comicality. John and Faith Hubley’s *Moonbird* (1959), a more traditional work of character animation than Breer’s, likewise plays with the line’s duality. Instead of tracing animators’ drawings, the crew cut out the original artwork and pasted it onto sheets of celluloid. Visible throughout the film are the pentimenti demarcating the ovoid forms that structure each character, as are thin slivers of paper that exceed characters’ outlines because, we assume, they resisted even the sharpest scissor. Such imperfections are in keeping with the film’s exploration of childhood and imagination. The characters come to life not in spite of but because of their origins in everyday craft materials (paper, pencil, paint, glue).

*One Hundred and One Dalmatians*, by contrast, must ultimately conform to the conventions of commercial filmmaking. And, when considered alongside theatrical shorts and television spots of the same period, its xerographic technique hardly represents a radical stylistic break. Instead, its form suggests Disney’s efforts to keep pace with the rapid changes in the animation industry over the previous decade. The release of *One Hundred and One Dalmatians* coincided roughly with the close of the Golden Age of animation in the United States, which was precipitated by a number of factors, including but not limited to the unionization of the labor force and the resultant rise in employee salaries, the steady dismantling of the Hollywood studio system in the wake of the 1948 Paramount case, and the growth of television in the postwar years. By the end of the 1950s, most studios had shuttered their in-house animation units. But while the era of theatrical shorts was drawing to a close, this did not mean that animated cartoons were no longer being produced. It was only the exhibition format that changed, from cinema to television: in 1958, trade papers reported that more than half of all television commercials were animated.<sup>67</sup> The studios that remained open were making more cartoons than ever, and independent houses flourished. William Hanna told *Variety* that he and Joseph Barbera could churn out as many as five cartoons a week—thirty times the rate at which they had produced theatrical shorts two decades earlier. To meet such demand, offices devised new ways to reduce below-the-line expenditures:

Hanna-Barbera sped up production by eliminating in-betweening; Jay Ward's *Rocky and His Friends*, which premiered in 1959, was animated in the United States but inked and painted in Mexico; other producers began outsourcing noncreative work to studios in cities like Prague and Tokyo.<sup>68</sup>

Television shows and commercials had significantly lower production costs than theatrical shorts. A television screen might be as small as or smaller than a cel, and the broadcasted image was, even with perfect reception, of lower resolution than 16mm film. Details of character design and movement were thus superfluous, and indeed often amounted to distracting noise. Animators no longer agonized about drapery or bone structure. The modernist style of limited animation most strongly associated with UPA became the industry norm, albeit without its political or artistic bite.<sup>69</sup> Reemerging in this economic context were the thick, black contours of slash-and-tear and early cel animation. Now, however, the characters they defined were not plasmatic, not prone even to squashing or stretching, utterly incapable of multiplying or smearing. But, much like Felix the Cat and Mickey Mouse, they had a strong iconographic presence, which allowed them to be identified from far away or in miniature. Their movements, simple and repetitive, could be read even through TV static. Animated commercials frequently incorporated into their mise-en-scène collage elements such as product labels and boxes, which both reinforced the flatness and inflexibility of the character design and heightened the legibility of the image as a whole. Backgrounds, too, were simplified, often radically so, if not discarded altogether in favor of monochromatic fields of color.

This aesthetic permeates *One Hundred and One Dalmatians*. The film still subscribes to the tenets of full character animation (for instance “squash and stretch”) outlined in Ollie Johnston and Frank Thomas’s “Principles of Animation,” but the design of characters, props, and settings are all clearly influenced by UPA and limited animation: in addition to their black outlines, the human characters have thin limbs and pointed features, a graphic starkness that belies their richly rendered movements; the newspapers they read are xerographic reductions of actual newspapers (including the *Daily Mail* and the *Reynolds News and Sunday Citizen*); the backgrounds consist of abstract patches of color and busy black lines.<sup>70</sup>

That last tendency, overseen by Walt Peregoy, is particularly noteworthy, in that it marked a deliberate attempt to wed foreground and background. The background illustrations, done in pencil, were Xeroxed onto cels, giving them a line quality identical to the characters. These cels were then overlaid on paintings based only loosely on the original illustrations—thus the drawing of a cylindrical lampshade might be set against a triangular patch of color, or the upper edges of a curtain might be of the same shade of brown as the lintel from which it hangs. The layout artist Ray Aragon likened Peregoy’s style to that of the Fauvist painter Raoul Dufy, calling it a “style where you paint beyond the line. Where you just ignore the lines and paint over and beyond. It looks like nothing. But when you put the line on

the thing, there it is.”<sup>71</sup> Look again, however, and the representation dissolves into abstraction. Look once more, and the representation reasserts itself. Color plays against line, line against color. Although by no means unique to *One Hundred and One Dalmatians*—UPA tested it out in their early sponsored film *Brotherhood of Man* (Robert Cannon, 1945), and even made a short for television called *The Invisible Mustache of Raoul Dufy* (Aurelius Battaglia, 1955)—this style was nonetheless a first for a Disney feature film. The studio’s previous features had all fallen prey to what Eisenstein called a “total stylistic rupture” between foreground and background, a direct consequence of the cel animation technique—the “crucial aspect” of which is, as Kristin Thompson has detailed, the separation of these layers.<sup>72</sup> In *One Hundred and One Dalmatians*, however, foreground and background are stylistically unified. The bold colors of the background match the opaque cel paintings, and the black xerographic lines tie them together. Most importantly, line and color seem to have independent existences. Neither is determined by the other, and their moments of coincidence appear almost unintentional.<sup>73</sup> This, again, is color as color and line as line. But the two also need each other in order to make sense. Without color, the figures would be weightless, disembodied; without line, the backgrounds would be flat and impenetrable.

But these compositions are *crowded*. The large cast of characters is swallowed up by the background’s black lines and off-register colors. UPA and its imitators, meanwhile, were praised for their abstract treatment of space, in which, as a critic for the *New York Times* describes, “emptiness becomes a positive value against which are drawn a few architectural motifs or a single, telling prop.”<sup>74</sup> Compare Big Ben as it appears in the title card for Chuck Jones’s *Deduce, You Say!* (Warner Bros., 1956) and the opening credits for *One Hundred and One Dalmatians* (fig. 4.4). Only five colors are used in the earlier film: two shades of green to indicate an adjacent structure and three purplish blues for the sky, Big Ben, and the rest of the Palace of Westminster. In *One Hundred and One Dalmatians*, by contrast, Big Ben competes for attention not only with the surrounding skyline but also with the very lines used to give its colors a skeleton. Nonetheless, in both films, line and color are engaged in a careful *pas de deux* that dynamizes an otherwise flattened composition. *One Hundred and One Dalmatians* vacillates between three dimensions and two, between representation and abstraction, between image and text. Disney had learned from UPA how to treat the camera as a printing press.

Ultimately, however, the xerographic technique could only supplement—not entirely supplant—the cel animation technique. It was not enough merely to photocopy an animator’s drawing, for then the pencil tests alone would have proven sufficient for commercial release. The drawings had to be painted and then overlaid on backgrounds. Television commercials and animated shorts had greater freedom to test the limits of representation, but feature-length animated films still needed to place full-bodied characters in fully rendered spaces in order to anchor their stories. Xerography, then, was a shortcut, a way of making the animation





FIGURE 4.4. Big Ben's appearance in *Deduce, You Say!* (Warner Bros., 1956) (left) and *One Hundred and One Dalmatians* (Disney, 1961) (right).

process cheaper and faster without appearing too cheap or too fast—and, thanks to changing stylistic trends, its black lines were no longer viewed as markers of crudeness. Thus, obscured by the account of xerography that privileges the artist's hand was the primary function of the technology: to reduce labor costs. Xerography rendered the Ink Department redundant. The line may index Marc Davis, but it symbolizes shifts in the animation industry (and, by extension, the US economy) at large.

#### LEGIBLE IMAGES

What makes *One Hundred and One Dalmatians* remarkable is how it reflects in both its style and its narrative the formal and industrial changes of the previous decade. It was the first Disney feature film to be set in a recognizable location—London—in the present day, and the jazz-inflected score by George Bruns firmly grounds it in contemporary idioms.<sup>75</sup> The story it tells is simple: Pongo, a Dalmatian, and his owner, Roger, meet and fall in love with Perdita, another Dalmatian, and her owner, Anita. Perdita gives birth to fifteen puppies, and Anita's friend Cruella steals the puppies in order to make a Dalmatian fur coat. Pongo and Perdita, aided by a motley crew of other beasts, rescue their children along with eighty-four additional Dalmatian puppies. It is not insignificant that these titular animals are black and white. The dogs themselves figure the central components of the xerographic process, namely, black ink and white paper. Publicity materials for the film at once downplayed this fact ("All 101 of us are in black and white [like all Dalmatians], but *everything* else is in gorgeous Technicolor," read the cover of one press kit), while also noting the range of whites and grays devised just for the film in order to handle a variety of lighting schemes.<sup>76</sup> In the daytime the dogs are a bright, clean white; indoors they are a creamy off-white; marching through a blizzard they are a light blue-gray. But they do not have the light contours or the

subtle shading of the dogs in Disney's *Lady and the Tramp* (1955). In color and line they are flat, like the sheets of paper on which they originated.

That the dogs are *spotted* is also not incidental, for it suggests a fundamental element of the xerographic process, whereby dots of ink amass into a line. The very first xerographic image ever made, by Chester Carlson and Otto Kornei in Queens in 1938, is speckled with excess lycopodium powder, and, as we have seen with Timm Ulrichs and *The Nine Lives of Fritz the Cat*, photocopies of photocopies soon dissolve back into these constitutive dots. In *One Hundred and One Dalmatians*, spots serve as a narrative leitmotif: they are playfully invoked by pipe ash patterns, splattered ink, dirty paw prints, and when drips from a melting icicle slowly expose a disguise of coal dust. And, importantly, the spots represent the sheer impossibility of making the film without xerographic technology. As Chuck Jones told an interviewer, "If I had suggested doing *One Hundred and One Dalmatians* [at Warner Bros.], everyone would have thought I was crazy. Even a dog named Spot, with one spot, would have been out of the question."<sup>77</sup> Such patterns were notoriously difficult to animate. In Dave Fleischer's *Ding Dong Doggie* (Paramount, 1937), Betty Boop's pup, Pudgy, dons dots in order to join a Dalmatian-helmed fire brigade, but they disappear and reappear throughout the cartoon; the dots on the ermine trim of a robe worn by Bugs Bunny in *Rabbit Hood* (Chuck Jones / Warner Bros., 1949), meanwhile, elongate and slide of their own accord. For *One Hundred and One Dalmatians*, the animators learned to treat the dots as if they were a fixed constellation of stars, which allowed them to preserve their relative size and position. David Michener, who worked under Milt Kahl, explained that his primary task was putting spots on Pongo: "That was a terrifying job. I knew if one of those spots ever jumped or jittered or jerked, there would be hell to pay."<sup>78</sup> The Xerox machine did not eliminate Michener's position, but it did mean that no spot would go overlooked in transferring the drawing from paper to cel. Ultimately it enabled the film's final budget to come in at "half of what it would have cost if they'd had to animate all those dogs and all those spots."<sup>79</sup>

Xerography offered the ability to control what the human hand couldn't—not just the inimitable flourish of an animator's line and the countless dots that even the most diligent of inkers would miss, but also the especially fine and precise lines animators themselves could not achieve. Here xerography picked up where Disney's wash-off relief emulsion had left off. As a dry process, xerography did not suffer from the sorts of irregularities to which wet processes were prone—shriveled, warped, and watery lines. It could thus be used to shrink or enlarge a drawing, perhaps to suggest camera movement relative to the character or character movement relative to the camera, without any degradation. Xerography was used in this way to animate a miniature elephant in *Goliath II* (1960) and a battle sequence staged in long shot in *Sleeping Beauty* (1959). The title sequence of *One Hundred and One Dalmatians* also teases this application of the xerographic process: a single drawing of Pongo goes from being framed in extreme long shot to

extreme close-up in six successive enlargements. The final shot is, in fact, so close as to be nearly defamiliarized: visible only are a half-dozen of Pongo's spots and three sharp lines delimiting his back and upper leg. Thus magnified, and further magnified in the act of projection on-screen, the shifting texture and varying pressure of pencil against paper are palpable. The line's pockmarks and protrusions, now as large as the entirety of Pongo once was, give it flesh. Short of examining the original drawing under a microscope or subjecting the reproduction to the analytic procedures suggested by Bamber Gascoigne, we are as close to the trace of the artist as we will ever be.

Xerography faithfully reproduces even those aspects of the line that aren't visible to the naked eye. Its results are consistent, predictable, trustworthy. It was thereby well suited to the reproduction of diagrams and maps, the kinds of drawings Barthes explicitly likened to text. In this regard, it could improve on the wash-off relief emulsion as well as on another animation technology, Max Fleischer's rotoscope, both of which had been used to animate machinery. Fleischer initially developed the rotoscope, a device that enabled animators to trace live-action footage frame by frame in order to achieve more realistic movement with little artistic training, for instructional films on the operation of heavy artillery. The assemblage of a gun could thus be filmed with a regular motion-picture camera and then its most salient features copied manually, so as to schematize an otherwise complicated process without sacrificing the accuracy of its depiction. The wash-off relief emulsion process was used to similar effect in Disney feature films for the turning of gears and wheels, which, if animated by hand, risked eccentricity. The cars and trucks in *One Hundred and One Dalmatians* posed the same problem. As they had done for the wagons in *Pinocchio*, the animators crafted scale models of the vehicles, which they then photographed frame by frame. These frames could then be enlarged and transferred xerographically onto cels. But there was an intervening step. The models constructed for *One Hundred and One Dalmatians* were entirely white, save for the black lines demarcating their windows, sides, wheels, headlights, and grills. When photographed before a black backdrop, the resultant image was nearly indistinguishable from a drawing: the white flattened into paper, the black details into inky lines, and the backdrop could be treated as a matte (to be used to combine images). In motion, however, it is apparent that the vehicles were not drawn, for they maintain their exact dimensionality and proportions even as they rotate through space.

Disney was not the only production company of the period to experiment with this kind of technique. In 1955, a pair of independent producers, the brothers Norman and Leon Maurer, devised a similar method for producing animated cartoons that purported to do away with drawing altogether. Their process was promoted as fully automated, the fastest and cheapest way to animate human motion. The performances of human actors, dressed in black and white (including black-and-white makeup), were shot on high-contrast stock in front of a black backdrop,

their bodies fully illuminated by the studio lights so as to “appear as a ‘flat object’ free from shadow.” The film was then chemically treated to separate the figures from the background, as in a matte, and to remove the white portion of the image. The result was the outline of the figure, including details like eyebrows, nostrils, cheek lines, face wrinkles, belts, coat buttons, ties, et cetera. After another round of processing, the outline was photographically transferred to a transparent sheet, which in turn functioned much like an inked cel—it need only be opaqued, overlaid on a background of one’s choosing, and finally rephotographed in order to produce a frame of the animated cartoon. Although these last steps had to be done by hand, the Maurers promoted their process as a radical alternative to the manual techniques of animating and inking: animation without animators. One of their early patents declared, “Manual techniques impose literally an insurmountable burden on the draftsmen or cartoon illustrators in order to produce an acceptable end product.”<sup>80</sup>

A 1957 demonstration of the process, then called Artiscope, showcased animated ballerinas and sea pirates. (Later versions of the process had names like AnimaScope, Colormation, and Dynatoons. A related technique called CineMagic, which involved tinting and solarizing the image, was used for Mars scenes in the low-budget science-fiction film *The Angry Red Planet* (1959).<sup>81</sup> Related by marriage to Moe Howard, the Maurers collaborated frequently with the Three Stooges. Artiscope was even integrated into the narrative of *The Three Stooges in Orbit* (1962). Disappointed with their current cartoon series, their television sponsor, “N’yuk N’yuks Cereal,” threatens to drop the Stooges unless they can come up with something better. Thankfully, their friend Professor Danforth has a plan: “Electronic cartoons,” he tells them. “The most startling new process since the magic lantern!” Later, the Professor holds up a painting of an owl for Moe, Larry, and Curly-Joe to scrutinize. “No artist ever touched this,” he informs them. “The whole thing was drawn by a machine.” He then removes a paintbrush from a bucket of white paint, slaps it across each of their faces, and instructs them to get into costume—white suits with black detailing, including lapels and buttons, as well as black panels on the sides that will presumably function as attached shadows in the animated image. A subsequent shot reveals the Stooges in full getup as they boogie for the Professor’s special camera. Their faces have been completely slathered in thick white paint, their features (including cleft and double chins) rimmed in black, and their eyebrows and lips darkened. We get only a few glimpses of the final “electronic cartoon” in which the animated Stooges shimmy on TV exactly as we saw them shimmy in their black-and-white costumes earlier in the film (fig. 4.5). What makes them distinctly cartoonish is not their animation per se, which is indistinguishable from what was captured by the motion-picture camera, but rather the movement of the opaque blocks of gray-toned paint that fill each figure. The application of paint to what was once a photographic image flattens it by eliminating the visual cues for volume and texture. Simultaneously it produces



FIGURE 4.5. The “before” and “after” of Norman and Leon Maurer’s Artiscope process, as fictionalized in *The Three Stooges in Orbit* (1962).

a parallel layer of movement, one that slides alongside the photographically determined black outline. The result is uncanny—and, moreover, is evidence that a human hand *has* touched it. Its cartoonishness arises specifically from manual intervention into the mechanically produced image.

The Maurers’ process pushes at the relationship between the photographic and the graphic just as the rotoscope had before it. Enabling the frame-by-frame projection of live-action footage onto an animator’s drawing board, from which it could then be traced, the rotoscope yielded cartoons that operated in a liminal space between animation and photography. What both processes prioritize is the line—not its relative vitality, spontaneity, or plasticity, but rather its legibility, its ability to simplify the noisiness of the photographic image. The costuming and makeup worn by the Three Stooges likewise eliminate unnecessary details (pores, flab, stubble) and underscore the body’s borders. Of course, the use of black-and-white costumes in motion analysis has its source in the chronophotography of Étienne-Jules Marey, and was taken up by the Fleischers early in the development of the rotoscope: Dave Fleischer dressed in a black clown costume with oversize white buttons when he performed as Koko for his brother. At Disney, meanwhile, animators worked with both rotoscoped footage and individual photostats (enlarged film frames printed on photographic paper) of actors in performance.<sup>82</sup> For the role of Snow White, Marjorie Champion wore a white dress with black piping, so as to facilitate the tracing of the fabric as it moved with and around her.<sup>83</sup> But whether built into the subject of the photograph or drawn over it, the line functions to turn the photograph, in all its plenitude and inexhaustibility, into a diagram—to make an image readable.

The Maurers’ invention thus followed the broader stylistic shifts inaugurated by the advent of television and the rise of the UPA aesthetic. Like limited animation, Artiscope and its offshoots prioritized the legibility of the image. And, like limited animation, its primary appeal was that it saved labor. Where character animation had been highly labor intensive, requiring both the close study of human and animal locomotion and the subsequent step-by-step, frame-by-frame re-creation of movements small and large, animation of the 1950s focused on

graphic boldness. Sacrificed were the subtleties of gesture and facial expression, in favor of striking visual design. While *One Hundred and One Dalmatians* does not deviate radically from the principles of character animation (we learn as much about Cruella de Vil from the way she stubs out her cigarettes as from her name or her demonic features), it nonetheless articulates a tension between its characters' movements and their design. This is a rehearsal of the tension from which emerges the comicality of the animated cartoon (between "a set of lines," here understood as design, and "the image that arises from them," here understood as character), but it also further complicates xerography's negotiation between the original and the copy.

#### MULTIPLYING TRACES

On the one hand, xerography was uniquely capable of reproducing the trace of the artist in all its idiosyncrasies and particularities. Marc Davis, for the first time, saw his own handiwork moving on-screen. But the very same process could be used to produce a plurality of copies, each identical to the original and to one another. The same drawing of Cruella appears at least three times in the film (fig. 4.6). She sneers behind the wheel of her car, her gaze directed downward and her shoulders hunched. Her fingers are slender, her eyebrows arched, her cheekbones sharp. There are variations in the way she is painted—in one, the red of the lining of her coat is applied to a section that in the others is flesh-colored—but there is no question that the three drawings have a common origin. In one, however, Cruella is driving her car from the right to the left; the image is a mirror reversal of the other two, in which she is driving in the opposite direction. And there is a variation in shot scale: whereas Cruella is framed roughly in medium shot in two of the three frames, in the third she is in medium close-up. Xerography, here employed to save time and money, must treat the drawing as a design element, one that can be flipped or enlarged as the narrative demands.

Can we really expect Davis to have had the same reaction to each of these reproductions? Which is the original? Which is the copy? These questions recur throughout *One Hundred and One Dalmatians*—and throughout the one hundred and one Dalmatians. As Chuck Jones told Michael Barrier, it was xerography that facilitated the animation of the "acres and acres of puppies." All they had to do was animate "eight or nine cycles of action, of dogs running in different ways, then [make] them larger or smaller, using Xerox, knowing that if there are a hundred and one dogs, and if there are eight or nine distinct cycles, and they're placed at random in this rabble of dogs, no one will know that they all haven't been animated individually."<sup>84</sup> Staggered just right, one puppy can hop over the same obstacle again and again without being noticed (fig. 4.7). The singularity of the drawing (the line as an index of an inimitable gesture, the fleeting moment when graphite first makes contact with paper) gives way to a multiplicity of copies.



FIGURE 4.6. The same drawing of Cruella de Vil, three times, in *One Hundred and One Dalmatians* (Disney, 1961).



FIGURE 4.7. The same puppy jumps to safety again and again in *One Hundred and One Dalmatians* (Disney, 1961).



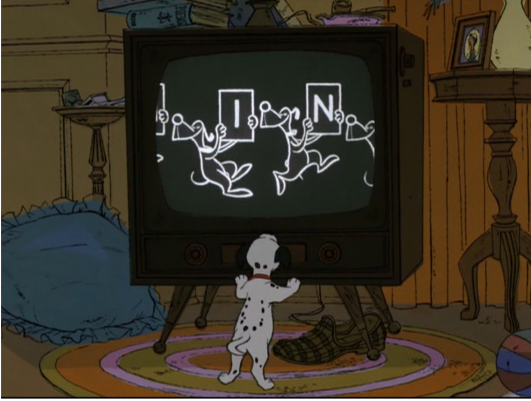


FIGURE 4.8. From top: “Kanine Krunchies,” *Springtime*, and *What’s My Crime?* play on the television in *One Hundred and One Dalmatians* (Disney, 1961).

Significantly, several sequences in the film are organized around a television set, and it is through these scenes that the film broaches the problem of how to animate a mass of nearly identical characters (fig. 4.8). The Dalmatian family gathers around the cathode hearth to watch their favorite television star, a collie named Thunderbolt, foil his human heavy, and at a pivotal moment, the program cuts to a commercial for the pet food Kanine Krunchies. (When Pongo turns off the TV, the spokesman for Kanine Krunchies is xerographically reduced over several frames in order to suggest the television tube going out.) Later, kidnapped and trapped in Cruella's hideout, the puppies and their scores of companions watch an early *Silly Symphonies* short, *Springtime* (Disney, 1929). Cruella's henchmen then take control of the set to watch an episode of a game show called *What's My Crime?*. The style and content of these programs recall earlier (that is, pre-Xerox) solutions by the animation industry to problem of depicting similar-looking characters—a problem not all that dissimilar to the one posed by *One Hundred and One Dalmatians* itself. In *Springtime*, three flowers dance in perfect unison, their limbs moving fluidly in the manner of “rubber hose” animation. Donald Crafton explains how this synchronization was achieved:

Once a figure has been sketched out in its component motions, an assistant simply retraces the drawings to make another identical character to position next to the original. Repeat as needed to make more clones. If the drawings are flipped left to right before tracing, then mirror-image figures dance with each other in the same steps. But they move in the opposite direction. . . . By retracing and cycling the drawings, a complicated dance sequence with several characters could be done, all based on a single original sketch series.<sup>85</sup>

So which flower exactly, we might wonder, is the original? The same question can also be asked of the advertisement for Kanine Krunchies, which is pitched by a row of dogs drawn in the UPA style. Their stereotyped movements and highly simplified character design, white contours set against a black background, meant considerably less work for the Ink Department and perhaps none at all for the Paint Department, and hence made rendering a large number of figures economically viable. The human figures in *Thunderbolt* and *What's My Crime?*, meanwhile, are distinguished from one another through both their design and their movement—they are emblems of labor-intensive character animation, which offers yet another solution to the problem of animating multiple characters. After all, it was with *Three Little Pigs* (1933) that Disney pioneered the technique. Chuck Jones cites it as “the first picture with three characters that looked alike and were differentiated by the way they moved and the way they spoke.”<sup>86</sup> The television programs thus figure three styles of animation, each with its own labor process.

Before Xerox, then, one hundred and one—or even just two or three—Dalmatians might have been brought to life through a process of manual tracing

(as with the flowers in *Springtime*), or by radically simplifying their designs so as to reduce the amount of tracing necessary (as with the dogs in the Kanine Krunchies commercial), or through the painstaking process of giving each Dalmatian its own unique manner of walking and talking (as with the human figures in *What's My Crime?*). The first two options are in keeping with an idea of xerography that values the medium's capacity for multiplication; the third, meanwhile, follows the desire to come closer to the vitality synonymous with the virtuosity of the individual artist.

And, at its very beginning, *One Hundred and One Dalmatians* strongly implies that each of the one hundred and one Dalmatians will have a distinctive, signature movement: xerography will be harnessed for its ability to copy line drawings flawlessly, but not for its ability to multiply them. In the first post-credit scene, Pongo stares out his master Roger's window and contemplates the dogs (and their walkers) passing by. Based on their gait and design alone, he makes snap judgments: "Unusual breed." "A little too short coupled." "Much too fancy." "Too old." "Too young." What we witness, through Pongo's discriminating gaze, is character animation at its finest: the pug waddles, the afghan hound lopes, the poodle prances. Watching it, we might entertain the thought that this sort of rich, detailed attention will be given to every last one of the Dalmatians: all will be original, and we will be able to tell one from the other just by the way they strut. And yet—and this is a big yet—this same sequence has built into it another possibility. However vibrant and comical the animation of these woman-dog pairs may seem, none would have been realized without the shortcut known as a walk cycle. The characters are walking on a loop, just as they would in a phenakistoscope or zoetrope or a Marey or Eadweard Muybridge motion study. The same drawing is reused with each renewal of the cycle (fig. 4.9). (Which, then, is the original? Which is the copy?) As it turns out, *One Hundred and One Dalmatians* is a film filled with walk cycles—walk cycles multiplied with a little help from the Xerox machine.

Xerography, as deployed within *One Hundred and One Dalmatians*, differed from its use elsewhere. What mattered most to animators was the machine's capacity for reproduction, less so its capacity to produce *multiple* copies that made it so popular in other contexts. But, in fact, both ideas are at work in Disney's film, and, ultimately, Ub Iwerks's Xerox machine is not all that different from the Xerox 914. We can see in the film, then, proof of Benjamin's claim that "technological reproduction can place the copy of the original in situations which the original itself cannot attain."<sup>87</sup> And we might feel, even in this sequence, that we are being brought closer to the inimitable trace of the animator. But there emerges a paradox. Somehow mechanical reproduction brings us closer to the artist's hand than manual reproduction ever could—for manual reproduction, we understand, was not performed by *the* artist, and not even by *an* artist. And yet the manually reproduced line, the line traced by the female inker, the noncreative worker, is *unique*, an irreducible impression left by the anonymous laborer. The xerographically reproduced line, however, is not unique. The very same process that let Marc Davis



FIGURE 4.9. The same drawing of the Afghan hound is reused with each renewal of the walk cycle in *One Hundred and One Dalmatians* (Disney, 1961).

see his “own drawings” on-screen for the first time could also be used to produce a multiplicity of copies, each identical to the original and to one another.

In the *Arcades Project*, Benjamin coins the term “the multiplication of traces” to refer to the necessary outgrowth of the “modern administrative apparatus”—the bureaucratic networks of documentation and paperwork, of identity cards and fingerprints, of filing cabinet after filing cabinet after filing cabinet.<sup>88</sup> He quotes Balzac’s early diagnosis of the surveillance state:

Do your utmost, hapless Frenchwomen, to remain unknown, to weave the very least little romance in the midst of a civilization which takes note on public squares of the hour when every hackney cab comes and goes, which counts every letter and stamps them twice at the exact hours when they are posted and when they are delivered, which numbers the houses, which registers each floor on the schedule of taxes, after making a list of the windows and doors, which ere long will have every acre of land, down to the smallest holdings and its most trifling details, laid down on the broad sheets of a survey—a giant’s task, by command of a giant!<sup>89</sup>

But he could just as easily have been describing the animation industry, with its interchangeable parts, its rigid division of labor, its cost-cutting measures, its systems of managerial control, its piles of paper, its monotonous regularity—of which *One Hundred and One Dalmatians* is the culmination.

#### MASS REPRODUCTION

Pages proliferate. Paper piles up. Cels are inked and painted and then photographed and then washed clean. After four or five passes through the assembly line, they are incinerated. Drawings and gags are recycled within films and from film to film. For the animator, Scott Curtis remarks, “the number and ubiquity of images is mind-boggling and inescapable.”<sup>90</sup> Promotional materials for *One*

*Hundred and One Dalmatians* tout these numbers: 6,469,952 spots scattered across 113,760 frames of film, requiring, all told, the consumption of 1,218,750 pencils, any one of which we might submit to the “act of attention” described by Vladimir Nabokov in his 1972 novel *Transparent Things*. We follow the graphite back to its excavation from the earth and the wood back to its tree. We finger the pencil, “we hear the whine of a newly invented power saw, we see logs being dried and planed.” Nabokov regards the lead with Dziga Vertov’s *Kino-Eye*, which can bring slaughtered livestock back to life: “See it baked, see it boiled in fat (here a shot of the fleecy fat-giver being butchered, a shot of the butcher, a shot of the shepherd, a shot of the shepherd’s father, a Mexican) and fitted into the wood.”<sup>91</sup> But the sheep is gone, the saw is gone, the pencil is gone. We are left only with its trace, the trace of its trace, a copy of a copy of a copy, a screen grab of a digital file of a scan of a print of a photograph of a palimpsest of glass, celluloid acetate, and paper—thousands of them. Where do we even begin? The accumulation threatens to overwhelm.

Throughout this book, I have argued that we should start with one frame at a time. To stop the film and to study the individual image—the photographically reproduced document, the photograph as such, the painting as such—is to remember that the image is not, in the words of Lisa Gitelman, “self-apprehending.” Gitelman insists that the material histories of technological reproduction should not be relegated to footnotes, that research must not forget “the real human agents involved, like the typesetters and printers of 1854, the microfilm camera operators and film processors of the twentieth century, and the scanner technicians and data handlers employed today by ProQuest’s offshore contractor.”<sup>92</sup> At the animation studios, the human agents were inkers and painters, assistant animators and in-betweeners, camera operators and cel washers. Their history is also the history of secretaries, textile workers, and machinists, of Adam Smith’s pin manufacturers and Upton Sinclair’s meatpackers. It is an anonymous history. It is a history of drudgery.

Ben Kafka’s recent intellectual history of paperwork thus doubles as a history of cel work: “The manual labor required to transform [its] raw materials into files, registers, and finally power itself was slow, hard, and prone to error.”<sup>93</sup> Paperwork, he explains, is defined by the frustration it engenders. We hear echoes of this frustration in the exasperation expressed by inkers and painters, and it is palpable, too, in Walt Peregoy’s lament that in-betweening was “absolutely the epitome of factory work” and Jack Kirby’s comparison of Fleischer Studios to a garment plant.<sup>94</sup> It lurks within Benjamin’s cryptic pronouncement that “the route taken by a file in an office is more like that taken by Mickey Mouse than that taken by a marathon runner.”<sup>95</sup> And it determines the plot of Disney’s *Pigs Is Pigs* (Jack Kinney, 1954), in which a hapless railway agent wrangles doggedly with bureaucratic red tape. Unsure if a shipment of guinea pigs should be classified as “pigs” or “pets,” he sends a telegraph missive to upper management. The guinea pigs, in the

meantime, breed and multiply exponentially, their numbers matched only by the carbon-copied files and memoranda the railway produces to keep track of them. The voice-over jauntily recounts the reproductive process:

They examined the wire and immediately dated it  
 Then stamped the receipts and communicated it  
 To the department that quadruplicated it.  
 Copies were sent out to all of the staff.  
 Each copy received was filed and related  
 To copies of copies that checked and notated.  
 Nine copies of each were validated . . .

The final line of Friz Freleng's *By Word of Mouse* (Warner Bros.), released the same year, hinges on an identical pun. A German mouse, having related to his family the details of his trip to the United States, where he received a tour of a department store and a quick lesson in capitalist industry, concludes his story by asking them, "Und now do you all understand mass consumption und mass production?" "*Understand mass production?*" cries a harried female mouse, at whose feet swarm a flock of children. "I'm a victim of it!" Her offspring's movements cycle over and over again. Can you tell which is which? Are you sure? The traces multiply before our eyes.

# Conclusion

## *The Labor of Looking*

*That's how it was in the dream; I was nothing but seeing.*

—WALTER BENJAMIN<sup>1</sup>

### SEEING DOUBLE

I begin my conclusion in medias res, with a description of the beginning of Chuck Jones's *Sniffles Bells the Cat* (Warner Bros., 1941), which itself begins in medias res.

The cartoon opens with a trio of mice sprinting leftward across the screen. The camera tracks laterally to keep them in the frame, but eventually the mice outpace it. Undeterred, it continues on its leftward track, traveling for more than a second past a seemingly unending stretch of wall (two horizontal bands of blue wallpaper and light brown paneling) and floor (a horizontal band of hardwood, its constitutive panels perpendicular to the wall). At last a fourth mouse enters the frame, and he too soon overtakes the camera, slipping out of view. The camera proceeds with its horizontal movement, and another two seconds elapse before a fifth and final figure catches up with it: the large house cat from whom the mice are fleeing.

The subsequent shot places us inside the home of the mice, a floor-level hole in the wall, with a mouse's-eye-view through its rounded doorframe at the larger room beyond (fig. 5.1). Given that much of the frame is shrouded in darkness, a surprising amount of the room is visible: the leg of a (human-size) chair peeks out just to the left of the opening, and another human-size chair and table are in the distance. In addition, the reflection in a mirror hanging above the table displays the meeting of ceiling and walls in the opposite corner of the room. But before we have time to absorb the plenitude of details of this composition—the sense of the world both depicted within the frame and extending beyond the limits of the frame—the first three mice scramble into the right side of the screen. They dash toward their hole, and as they make their approach they seem to grow in



FIGURE 5.1. A wide-angle view of the domestic setting of *Sniffles Bells the Cat* (Warner Bros., 1941).

size several times over—from extreme long shot to medium shot in just a few short steps. Two pass by the camera, disappearing from view, while a third stays by the door (in cartoons, after all, mouseholes have doors), waiting for the fourth member of their party. The straggler makes his appearance a second later. The cat is hot on his tail, but he reaches his destination just in time for his friend to slam the door in the cat's face.

This sequence creates suspense through its willingness to let the camera linger over spaces devoid of characters: we have to wait for things to happen. The tension is then ratcheted up through the exploitation of two very different cinematographic techniques. The two shots are linked via the basic principles of continuity editing, namely, the preservation of screen direction—the mice and the cat exit on the left side of the frame and reenter in the subsequent shot on the right—but in all other respects they offer radically divergent views of the world. In the first shot, the camera tracks laterally at a uniform rate and at a uniform distance from its subjects, capturing each of the scurrying mice in full shot (the cat, considerably larger than the mice, appears in medium close-up). The second shot, meanwhile, is static—but it is no less dynamic, due to the deployment of a wide-angle lens that effectively reshapes the space of the room, distorting our sense of scale and perspective. The tremendous depth of field of the wide-angle lens allows both the immediate foreground (the door to the mouse's hole, the leg of the chair) and the far background (the table and chair and even the reflection in the mirror) to be in focus. Moreover, it makes the distance between these objects nearly impossible to gauge, thereby heightening the scene's tension: Just how much of the floor do the mice have to cover? Will they make it to safety in time?

Of course there is no camera, at least none conforming to the cameras I have described. No tracks have been laid for a dolly to pass over. No wide-angle lens has



been affixed to the photographic apparatus. For that matter, there is not a single mouse, nor is there a cat, a chair, a mirror, or a door. There is only a stationary camera of prescribed focal length, directed downward at a table, on which is placed a stack of paintings. At the bottom of the stack is a painted sheet of paper, atop which are a series of transparent cels, each individually inked and opaqued. And what I have described consists of far more than two shots. At more than twenty-two seconds from start to finish, the total number of individual shots is in fact closer to five hundred and twenty-five. *Sniffles Bells the Cat* is, like each and every work of celluloid animation, a photographic record of ephemeral documents.

But how reductive! To look at this sequence frame by frame—shot by shot—is to drain it of its narrative content. There is no suspense, no surprise. We overlook how each mouse is given his own distinct personality through the manner in which he moves, we miss the moment when the fourth mouse snatches his hat before it flies off. What happens to *fiction*? Do I really wish to argue, per Noël Carroll, that “*M* is about Peter Lorre rather than about a psychopathic child killer” or that “*The Creature from the Black Lagoon* is not about a rivulet off the Amazon but about Wakulla Springs, Florida”?<sup>2</sup> Or, in this case, that *Sniffles Bells the Cat* is about paint, paper, cellulose acetate, and glass? The forensic gaze treats each frame as functionally the same as the next, and often demands the disruption of the sequential logic of the filmstrip—and, for that matter, the narrative. As such, we cannot appreciate the film’s exquisite tweaking of the narrative tropes that were, by 1941—a mere year after the debut of MGM’s Tom and Jerry—already all too familiar. The film can begin in medias res because we do not need to know exactly what led this cat to chase these mice. Cats chase mice. That is just what happens in cartoons.

Yet to see this sequence only for the story it tells is to neglect those formal and stylistic aspects, some more salient than others, that enable the story to be told at all. Those first three mice are able to run at different speeds and in different ways—one pumping his arm here, the other glancing over his shoulder there—because each has been animated separately and then inked and painted onto his own cel. There is a direct correspondence between the order in which the cels are stacked below the animation camera and the putative position of the putative mice relative to the putative traveling camera. In this respect, there is an absolute equivalence between the cel as a physical object before an actual lens and the mouse painted thereon: stack a different cel above it, and the mouse represented by its painted surface moves closer to the imaginary camera. This might seem obvious, but it nonetheless bears mentioning: as I showed in chapter 2, the order in which cels are stacked is both an essential component of the aesthetics of the cel animation technique and also one more variable, one more thing that can go wrong, in a highly complicated production process.

So, too, does the actual graphic content have meaning that exceeds the concerns of the film’s narrative. Each mouse is detailed not only in his animation but also

in his design: eyebrows for extra expressiveness, rounded cheeks for extra cuteness, pants and shoes and gloves for just a touch of humanness. (In this respect, the installments in Chuck Jones's *Sniffles* series are the most Disney-like of the Warner Bros. cartoons; that the same director would be responsible for as radical an experiment as *Dover Boys* just a year later is a testament to the wide range of animation styles of the early 1940s alone.) But while the mice are bipedal, the cat runs on all fours. He is animated in a cycle, and the regularity of his stride suggests that animals are closer to machines than we might have thought. Of course, the walk cycle is itself an attempt to mechanize human motion, namely, the motion of the animator—to standardize, streamline, simplify. Nor is cycled animation the only labor-saving technique on display. For instance, the illusion of the camera's leftward movement is achieved by incrementally moving a long, painted background rightward. As the scene unfolds, the background is reused several times over, but its "seam" (the conjunction of where the background ends and where it begins again) is only barely visible: the space reads as continuous.

The cycling of the background affords a pleasure that cannot be assimilated into any normal viewing of the film, particularly in the moments in the first shot in which the tracking camera takes in only "empty" space: the wall and the floor. For more than two seconds, the viewer must look at nothing more than the imperfect loop of the background painting. Certain details, particularly the pattern of the floorboards, the streaks in the wood paneling that suggest grain, and a groove that runs along the base of the wall, give the image some dimensionality (fig. 5.2). Even so, it is easy to ignore these hints of perspectival space and focus instead on the play of pure color—the blue of the wallpaper, the off-white of the wall's base, the reddish brown of the floor—that this camera movement affords. We can even pluck these sequences from the film and turn them into an endless loop of abstract animation, in which horizontal bands of color unfurl ceaselessly before us—save, of course, for the slight hiccup every time the background begins anew.

Another instance that ruptures the film's stylistic cohesiveness occupies just a single frame: an elaborate dry-brush smear that accompanies the moment when the mouse slams the door against the cat (fig. 5.3). Irregular lines of brown (the door), red (the mouse's hat), auburn (the mouse's ear), and white (the mouse's glove) reverberate outward, but more than simulating motion blur, the jagged patterns of paint give the image texture it would otherwise lack. Taken on its own, isolated from the full action of which it is a part, the image is strange. In its left half, the bottom of the cat's paw reaches through the hole, toward the viewer, while the right half directs its energy along the X-axis, as the door is pushed one way and the dry brushstrokes ripple in the opposite direction. It abounds with curious, unintended rhymes between the two sides of the composition: the red of the cat's open mouth is matched by the red of the mouse's hat, and the pattern of the black pads on the cat's white paw is inverted on the reverse side of the door, with the pattern of white dry brushstrokes against the dark interior wall of the



FIGURE 5.2. A background painting in *Sniffles Bells the Cat* (Warner Bros., 1941).



FIGURE 5.3. Sniffles's friend closes the door just in time in *Sniffles Bells the Cat* (Warner Bros., 1941).

mouse's hole. In a single frame thus coalesce multiple planes and axes of action, but regarding the image as a coherent unit in its own right invests its component parts with fresh meaning.

Each of these ways of looking at *Sniffles Bells the Cat* might seem to be mutually exclusive. The conventions of formal analysis permit us to examine how its expert cinematography and mise-en-scène work in tandem with the narrative, but everything else I have described is superfluous. Alternatively, attending to the scene's fluid staging means losing sight of the labor-intensive production process that allowed for the scene to be staged at all. Must one watch this cartoon with

each eye trained in a separate direction? Having been broken down, can *Sniffles Bells the Cat* ever be put back together again?

#### DEEP FOCUS

I return now to the language of formal analysis—particularly the terminology of camera movement and camera lenses—in order to describe the opening of *Sniffles Bells the Cat*. As I have already indicated, these two shots were not photographed with a tracking camera or a wide-angle lens. Rather, they simulate the effects thereof. And while the imprecise shorthand I naturally fall back on is more or less clear in spite of its imprecision, it comes at the expense of any truly rigorous discussion of the art, labor, and technology of celluloid animation: it elides the particular technology of the animation stand, the specialized labor of, among others, the camera technician and the layout artist, and the aesthetic appeals specific to animation. I have, effectively, opted to treat *Sniffles Bells the Cat* as a live-action film that happens to feature four fully clothed mice.

But perhaps I am not the one at fault here. How can I blame myself for identifying the cinematographic techniques the cartoon is clearly intending to evoke? Anthropomorphized mice aside, we might very well say that *Sniffles Bells the Cat* is a cartoon that pretends it is not a cartoon: instead of deploying the formal techniques proper to its medium, it draws on the visual language of photographic cinema. This, certainly, is a critique many film theorists might level at it, just as they did (and continue to do) with Disney films from the late 1930s onward. In 1940, Siegfried Kracauer looked back to animation's first decade for an exemplar of the form, finding it in the films of Émile Cohl, whose work he likened to that of Paul Klee. According to Kracauer, the “nimble evolutions” of Cohl's “white stick-figure . . . are still unbeatable today.”<sup>3</sup> While he did not have recourse to Sergei Eisenstein's concept of the plasmatic at the time, Kracauer nevertheless suggests that the strongest animation is that which engages with the expressive capacities of the line—a line gone out for a walk, to paraphrase Klee. But Kracauer would also extend his criticisms beyond the quality of the animation per se. His negative review of *Dumbo* (1941) makes an explicit ontological claim: “The cartoon film tends toward the dissolution rather than the reinforcement of conventional reality, and its function is not to draw a reality which can be better photographed.”<sup>4</sup> A review of *Bambi* (1942) in the *New York Times* distills Kracauer's thesis to an incisive rhetorical question: If cartoons are simply going to resemble life, then “why have cartoons at all?”<sup>5</sup>

By contrast, I argue that *Sniffles Bells the Cat* is an animated cartoon not in spite of but indeed *because of* its reliance on cinematographic codes. Its simulation of the wide-angle lens in particular demonstrates not a slavish adherence to preexisting codes of representation but rather an imaginative expansion of the possibilities of cinema as a whole—not just animation. What it might lack in the plasmaticness of its figures, it makes up for in plasticity of the entire image.

My reasoning is simple, even simplistic, at least at first glance: *Sniffles Bells the Cat* is in color. The year of its release, 1941, was also the year of Howard Hawks's *Ball of Fire*, William Wyler's *The Little Foxes*, and, of course, Orson Welles's *Citizen Kane*, all films photographed by the pioneering cinematographer Gregg Toland, best known for shooting in deep focus. But these films were in black and white. Technicolor film stock was simply too slow to allow for this kind of depth of field, something evident in a number of other films of the period, such as Sam Wood's *Our Town* (1940), photographed by Bert Glennon; *Kings Row* (1942), photographed by James Wong Howe; John Ford's *Tobacco Road* (1941) and *How Green Was My Valley* (1941), both photographed by Arthur C. Miller; and William Dieterle's *The Devil and Daniel Webster* (1941), photographed by Joseph H. August. Cel animation could thus achieve what conventional cinematography could not.

To support this claim, we need look no further than Gregg Toland's own forays into Technicolor. In 1948 he and Hawks remade *Ball of Fire* as the Technicolor musical *A Song Is Born*, with Danny Kaye in the Gary Cooper role. In the earlier film, a scene of a group of characters clustered around a table was shot with a wide-angle lens. Cooper, sitting at the table's head, is closest to the camera and is, as a consequence, significantly larger than the other men. When restaged in *A Song Is Born*, the scene was shot with a normal lens, and in the resultant image Kaye is the same size as his companions (fig. 5.4). A minor difference, to be sure, but it invites closer investigation into both the aesthetics and the formal function of deep-focus cinematography (one that, alas, this conclusion can only gesture at). More telling, perhaps, is a shot in *A Song Is Born* that *does* have tremendous depth of field: Kaye's character, framed in medium shot, watches a jazz band performing off-screen—except that the jazz band is visible in the image thanks to a mirror strategically placed behind Kaye's head, allowing two disparate shot scales to be in sharp focus. But this deep-focus image is, in fact, a composite, comprising two shots taken at different times and combined via the optical printer. Like the shot in *Sniffles Bells the Cat*, it only *simulates* a wide-angle lens.

A similar scene appears in Disney's *Song of the South* (1946), for which Toland provided the live-action cinematography. Uncle Remus, played by James Baskett, sits on a log with an animated frog—a pairing facilitated by careful optical printing. The two chat and blow smoke rings—again, a marriage of conventional photography, cel animation, and analog special effects. But it is the subsequent shot that is the most playful: Remus, now framed (along with his amphibious friend) in extreme long shot, throws out a fishing line toward the camera. The line enters the water in extreme close-up, its cartoon cork bobbing up and down (fig. 5.5). It is marvelous to see a flesh-and-blood human converse with an ink-and-paint frog, but it is even more stunning to witness a deep-focus composition in full color.

What these examples underscore are the deep affinities between cel animation and analog special effects, which both relied on frame-by-frame manipulation of



FIGURE 5.4. The wide-angle lens enlarges Gary Cooper's head in *Ball of Fire* (dir. Howard Hawks, 1941) (left) and the same scene as staged and photographed in Technicolor in *A Song Is Born* (dir. Howard Hawks, 1948) (right).

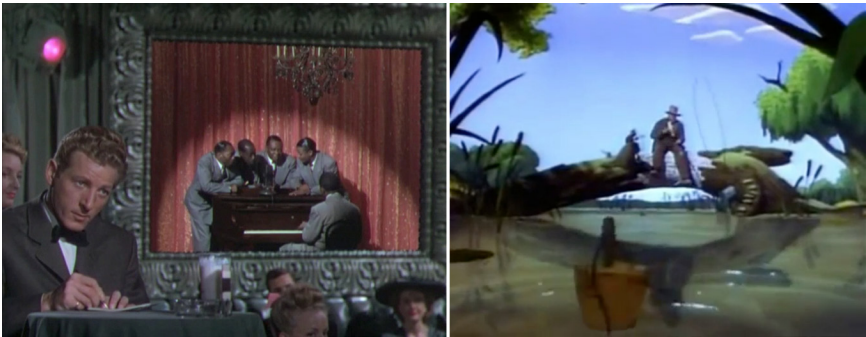


FIGURE 5.5. Animation and analog special effects combine to create deep-focus compositions in *A Song Is Born* (dir. Howard Hawks, 1948) (left) and *Song of the South* (Disney, 1946) (right).

the image. As Julie Turnock has argued in her study of 1960s and 1970s special effects, “optical printing techniques . . . made the film frame more flexible and mutable, and in fact, more like *animation*,” allowing filmmakers to “move toward realizing the goal of the *total control of all elements of the frame*.”<sup>6</sup> By identifying the ways in which filmmakers drew heavily on animation techniques, Turnock’s analysis of such films as Steven Spielberg’s *Close Encounters of the Third Kind* (1977) and George Lucas’s *Star Wars* (1977) offers a significant challenge to theories of film that prioritize the photographic nature of the medium. But equally significant is the grounding assumption of her work, which emphasizes the fundamental plasticity of the animated image. Even a cartoon that imitates cinematographic techniques must first deform the world in order to make it whole again. It dissolves *and* reinforces conventional reality.

## NOTHING BUT SEEING

By enabling action to unfold along multiple planes of the image, deep focus obviated the need for analytical montage, in which space is broken up into fragments and reconstituted on the editing table. This is what André Bazin—other than Toland himself, perhaps the most famous champion of deep-focus cinematography—admired about the technique. Deep-focus cinematography might produce “an impression of tension and conflict, as if the image might be torn apart,” but it nonetheless preserves the unity of reality. Bazin termed this effect “*découpage* in depth,” which, he claimed, furnishes the image with a “surplus of realism,” comprising an “ontological realism” that restores “to the object and the decor their existential density, the weight of their presence; a dramatic realism which refuses to separate the actor from the decor, the foreground from the background; [and] a psychological realism which brings the spectator back to the real conditions of perception, a perception which is never completely determined a priori.”<sup>7</sup>

The films I have described, not only *Sniffles Bells the Cat* but also *A Song Is Born* and *Song of the South*, do not satisfy Bazin’s description. After all, they still rely on conventional editing techniques to “chop the world up into little fragments.”<sup>8</sup> Indeed, animation is montage taken its logical extreme. We might revise a claim Bazin makes about analytical montage accordingly: “In analyzing [or *synthesizing*] reality, montage [or *animation*] presupposes of its very nature the unity of meaning of the dramatic event.”<sup>9</sup> But I want to focus in particular on Bazin’s claim about the perceptual experience deep-focus cinematography engenders. By forcing the viewer to scan the image for narrative information, Bazin argues, “depth of focus reintroduced [the possibility of] ambiguity into the structure of the image.” Indeed, it demanded of the viewer “a more active mental attitude,” for it was ultimately “from his attention and his will that the meaning of the image” would derive.<sup>10</sup> Or, as Karl Schoonover explains, “Seeing becomes a form of labor.”<sup>11</sup> The viewer must *work*.

The viewer of animated cartoons must work, too, if she wishes to see the labor that went into their making. Looking at cartoons frame by frame is labor intensive—tiring, tedious. Yet her attention and her will must never waver. A single frame, so easily overlooked, might contain a pencil drawing that wasn’t meant to be photographed, a profusion of feathery brushstrokes, a telling fingerprint. At the same time, she must also *play*. The monotony of frame-by-frame analysis leads one to daydream. As such, each of the chapters of this book has been structured around a thought experiment. *What if?*, I ask again and again. What if we looked at works of cel animation like we do microform periodicals? What if we thought through cel animation’s photographic basis in accordance with both realist and materialist theories of cinema? What if we treated each cel as a work of art in its own right? What if we compared inkers to secretaries? These questions, and the ones that emerge from them, are meant to test the limits of animation.

They are games, but that does not mean they are frivolous. The theoretical riddles they pose reveal buried histories. The counterfactual histories they write upend theoretical truisms. They introduce the possibility of ambiguity into film theory and history.

By looking at frames out of order, I cross-reference collage elements like reused newspaper clippings, locate the source animation sketches for certain cels, and identify staggered walk cycles. By bringing debates about one form of technological reproduction (photography) to bear on another (xerography), I press at the borders between the graphic image and the calligraphic text. By watching a cartoon as Dudley Andrew does *Jules et Jim* or as Virginia Woolf does *Caligari* (chapter 2), I grow sensitive to the flight of dust, the downpour of scratches, and the dance of film grain. I have access to these films in a way that Eisenstein did not. He had to rely on his memories of them and anchor his analysis in analogues from the history of literature (Lewis Carroll, D. H. Lawrence, Herman Melville) and illustration (Honoré Daumier, J. J. Grandville, Hokusai). I, however, can view and re-view these films, rearrange them, even remake them. I am able to look past their immediate attractions—the plasmatic, free-form, potent movement of painted bodies—toward those elements of the image that are static (a newspaper insert, a background painting) or repeated (cycled motion) or fleeting (flicker) or imperceptible (a single frame).

Consider, as a final example, Disney's *Cinderella* (1950). *Cinderella*, certainly more than *Sniffles Bells the Cat*, is a cartoon that is not a cartoon. Its main characters are humans, who speak and walk and run and sing like humans. Yes, like *Sniffles Bells the Cat*, *Cinderella* has talking, anthropomorphized mice. And a key sequence stars a Fairy Godmother, whom we might understand as a proxy for the animator, transforming those mice into horses (and a horse into a coachman and a pumpkin into a coach) before our very eyes. With just a wave of her wand and a gibberish shibboleth (“Bibbidi-Bobbidi-Boo”), the Fairy Godmother both evokes the trope of the animator's self-figuration common to early animation and sets in motion a series of metamorphoses, of the sort only cartoons are capable of. But those mice are hardly Mickey Mouse. Their bodies cohere; their movements are circumscribed by the laws of physics; nothing about them “disavow[s] experience.”<sup>12</sup> Their transformation into horses takes place in just a short succession of frames and is obscured by a flurry of sparkles from the Fairy Godmother's wand. This moment of metamorphosis is not revelatory. It does not challenge the limits of representation, as Eisenstein described Mickey's movements, and wholly lacks the improvisatory and miraculous character of Mickey's existence, as identified by Walter Benjamin.

Still, most contemporary critics singled out the mice (along with the film's other animal characters) and the “Bibbidi-Bobbidi-Boo” sequence as the film's highlights. A critic for *Showman's Trade Review* extolled “the blue birds, red birds, mice, the dog, cat and horse” for adding an “element of surprise” to an otherwise



familiar story, while a review in *Harrison's Reports* declared them to be “as irresistible as any Disney ever created.”<sup>13</sup> Bosley Crowther, writing in the *New York Times*, reserved special praise for Disney’s anonymous “army of craftsmen,” remarking, “Whoever engineered the sequence of the pumpkin transformation in this film—the magical change to coach and horses—deserves an approving hand.” Crowther was less generous, however, in his evaluation of the design and animation of the film’s human figures: “They’re banal.”<sup>14</sup> Cinderella, for instance, has no ears and barely even a nub of a nose; the very facial features that would normally be prime candidates for comic exaggeration (just ask Dumbo) are instead discreetly tucked away or only hinted at. Her body does not, indeed, cannot smear, multiply, or fragment. Thus, when the Fairy Godmother gives the poor maidservant appropriate attire for the royal ball, Cinderella herself does not change shape, contort, twist, contract. She just gets a new hairdo (which still conceals her ears) and a fancy dress.

But, like *Sniffles Bells the Cat*, *Cinderella* also simulates deep-focus cinematography to striking effect. The technique is used throughout the royal ball sequence, when Cinderella is always in the extreme background of the shot, occasionally joined by the Prince. In the extreme foreground, meanwhile, is either a static decorative object (an urn, a tree, a column) or a character (such as the Prince’s father or Cinderella’s stepmother or stepsisters) straining to get a better glimpse at the mysterious woman in the distance (fig. 5.6). “Take a look at that, you pompous windbag! Who is she? Do you know her?” the King asks. “I know I’ve never seen her,” one stepsister remarks, to which her mother replies, “Nor I.” In the entire sequence, Cinderella only appears once in close-up, and she is in that moment engaged in an intimate dance with the Prince; no one else is privy to her face. Deep-focus cinematography, as it is here deployed, has a clear formal function, first reinforcing Cinderella’s inscrutability for her rivals and the audience alike and then placing Cinderella and the Prince on a plane apart from the world around them—their love belongs to them alone.

Kracauer could very well have been thinking of this sequence when he devoted a passage of *Theory of Film* (1960) to excoriating Disney’s “growing tendency toward camera-reality”:

Disney shoots his sham nature as he would the real one, with the camera now panning over a huge crowd, now swooping down on a single face in it. The effects thus produced make us time and again forget that the crowd and the face in it have been devised on a drawing board. They might have been photographed as well. In these cartoons false devotion to the cinematic approach inexorably stifles the draftsman’s imagination.<sup>15</sup>

The freedom of Cohl, who managed to conjure a world out of the flat drawing surface, has been supplanted by the literal translation, and hence dilution, of cinematographic codes into paint. The layout artist who merely copies photographic



FIGURE 5.6. Deep-focus compositions in *Cinderella* (Disney, 1950).

representation is no more of an artist than the inker, following the paths laid down by another. Kracauer's critique is thus premised on a claim about the qualitative distinction between artistic or creative labor, the expressive capacity of which flows from the mind of the singular artist, and manual or noncreative labor, which is shackled to images generated by another, be it human or machine.

But the "draftsman's imagination" is a red herring. It presupposes, first, that there is a rigid division between creative and manual labor and, second, that this division matters for how we experience art. This book has striven to break down that division. Ultimately, the labor that shapes our aesthetic experience of animated cartoons is our own.

We work at watching animation in order that we might play. We scan the deep-focus composition in order to find Cinderella, and in the process take in its sumptuous blues and pinks, the shadows that have been painted and the shadows that have been photographed, the three-dimensionality of two dimensions. "The child plays at being not only a shopkeeper or teacher," Benjamin writes of mimetic behavior, "but also a windmill and a train."<sup>6</sup> We imitate the animator, the inker, and the camera operator, but also the pen, the exposure sheet, the projector. It is not only our attention and will that gives the film meaning, but also our imagination.

In *The Book of Disquiet* (1982), the poet Fernando Pessoa describes a tram ride in which he studies at length the dress of the woman sitting in front of him:

I see the material it's made of, the work involved in making it—since it's a dress and not just material—and I see in the delicate embroidery around the neck the silk thread with which it was embroidered and all the work that went into that. And immediately, as if in a primer on political economy, I see before me the factories and all the different jobs: the factory where the material was made; the factory that made the darker colored thread that ornaments with curlicues the neck of the dress; and I see the different workshops in the factories, the machines, the workmen, the seamstresses. My eyes' inward gaze even penetrates into the offices, where I see the managers trying to keep calm and the figures set out in the account books, but that's not all: beyond that I see into the domestic lives of those who spend their working hours in these factories and offices . . .

He is entranced. He grows dizzy. He leaves the tram “exhausted, like a sleepwalker, having lived a whole life.”<sup>17</sup> Looking is laborious. But looking is also dreaming.

## NOTES

### EDITOR'S INTRODUCTION BY DANIEL MORGAN

1. Joseph Conrad, *The Nigger of the "Narcissus"* (New York: W. W. Norton, 1979), 8.
2. Tom Sito, interview by Didier Ghez on April 11 and 27, 2007, in *Walt's People: Talking Disney with the Artists who Knew Him*, ed. Didier Ghez (Bloomington, IN: XLibris, 2010), 9:483.
3. Stanley Cavell, "The Aesthetic Problems of Modern Philosophy," in *Must We Mean What We Say?* (Cambridge, England: Cambridge University Press, 1969), 78–79.
4. Cavell was not unaware of his desire to produce this effect. In his memoirs, he recalls an audition for a music class at Berkeley where he was required to perform a piece of music on the piano. Not having played seriously in years, he recalled only the opening of Liszt's D-flat Impromptu: "I stopped playing as the theme was about to elaborate itself, as if I could have gone on to the end were there time and need." Stanley Cavell, *Little Did I Know: Excerpts from Memory* (Stanford, CA: Stanford University Press, 2010), 209.
5. Hannah Frank, "Traces of the World: Cel Animation and Photography," *Animation: An Interdisciplinary Journal* 11, no. 1 (2016): 23–39.
6. Hannah Frank, "The Potential of *Pochta*: Unlikely Affinities between American and Soviet Animation, 1928–1948," in *A World Redrawn: Eisenstein and Brecht in Hollywood*, ed. Zoe Beloff (New York: Christine Burgin, 2016), 99–112.
7. Hannah Frank, "Proceeding from the Heat-Oppressed Brain': Thinking through Eisenstein's Macbeth Drawings," *Critical Quarterly* 59, no. 1 (2017): 70–84; Hannah Frank, "Robert D. Feild," "Eduard Fuchs," "Immanuel Kant," "Herman Melville," "Plato," and "James Thurber," in *Reading with Sergei Eisenstein*, ed. Ada Ackerman and Luka Arsenjuk (Montreal: Caboose Books, forthcoming).
8. Hannah Frank, "The Hitherto Unknown: Toward a Theory of Synthetic Sound," *boundary 2* (forthcoming).

9. Vlada Petric, *Constructivism in Film* (Cambridge, England: Cambridge University Press, 1987), 159.

10. See for example Norman M. Klein, "Animation as Baroque: Fleischer Morphs Harlem; Tangos to Crocodiles," in *The Sharpest Point: Animation at the End of Cinema*, ed. Chris Gehman and Steve Reinke (Toronto: YYZ Books, 2005), 27–48; Tom Klein, "Woody Abstracted: Film Experiments in the Cartoons of Shamus Culhane," *Animation: An Interdisciplinary Journal* 6, no. 1 (2010): 39–53.

11. She indicates this in an unpublished fragment: "But animation is also intertwined with modernist artistic traditions. As a way to analyze some of the surprising affinities between popular animated cartoons and avant-garde painting and film, I have begun amassing a parallel archive of stylistic tropes, ranging from kaleidoscopic effects that suggest blasts of dynamite to abstract compositions that simulate the disorienting blur of a whip-pan."

12. Sergei Eisenstein, *Eisenstein on Disney*, ed. Jay Leyda, trans. Alan Upchurch (London: Seagull Books, 1986), 3–4.

13. Paul Wells, *Understanding Animation* (New York: Routledge, 1998), 22.

14. Scott Bukatman, *The Poetics of Slumberland: Animated Spirits and the Animating Spirit* (Berkeley: University of California Press, 2012), 108.

15. Jean-Louis Baudry, "The Apparatus: Metapsychological Approaches to the Impression of Reality in the Cinema," in *Narrative, Apparatus, Ideology: A Film Theory Reader*, ed. Phil Rosen (New York: Columbia University Press, 1986), 299–318.

16. For some reflections on the dynamics between stillness and motion in cinema see Garrett Stewart, *Between Film and Screen: Modernism's Photo Synthesis* (Chicago: University of Chicago Press, 1999); Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion, 2006); Karen Beckman and Jean Ma, eds., *Still Moving: Between Cinema and Photography* (Durham, NC: Duke University Press, 2008).

17. Thomas Elsaesser, "'Le cinéma d'après Lumière': Rereading the 'Origins' of the Filmic Image," in *The Practice of Cultural Analysis: Exposing Interdisciplinary Interpretation*, ed. Mieke Bal and Bryan Gonzales (Stanford, CA: Stanford University Press, 1999), 66. I take it that Frank's emphasis on the intertwining of speculation and materialism is of a very different order than the movement known as "speculative realism," or what Quentin Meillassoux has described as "speculative materialism."

18. Hannah Frank, "Traces of the World," 26.

19. This is one of Frank's close affinities with the project of the Frankfurt school. See for example Miriam Hansen, "Benjamin, Cinema and Experience: 'The Blue Flower in the Land of Technology,'" *New German Critique* 40 (1987): 179–224.

20. We may even want to speculate against Frank's own conclusions. In the discussion of *Hair-Raising Hare*, she reads the disappearance of Bugs's head as a mistake that exposes the production process. But what if it wasn't? Bugs has just asked, "Is there a doctor in the house?" Could we see this as an inside joke: his head has just disappeared (or: he's lost his head!), and so he needs a doctor. That would mean that animators knew about the mistakes that were sometimes made, and were able to structure that knowledge into a joke of their own. It seems unlikely—but then, at least before reading Frank's book, so was the thought of Bugs's head going missing for a frame.

21. Tom Gunning, "The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde," *Wide Angle* 8, nos. 3/4 (Fall 1986): 63–70.

22. Warburg is mentioned once, but only for his use of index cards (18).
23. Relevant accounts of Warburg's work are Ernst Gombrich, *Aby Warburg: An Intellectual Biography* (London: Warburg Institute, 1970); Philippe-Alain Michaud, *Aby Warburg and the Image in Motion*, trans. Sophie Hawkes (Cambridge, MA: Zone Books, 2004); Georges Didi-Huberman, *Atlas, or the Anxious Gay Science*, trans. Shane Lillis (Chicago: University of Chicago Press, 2018).
24. Jay Leyda, *The Melville Log: A Documentary Life of Herman Melville, 1819–1891*, 2 vols. (New York: Harcourt, Brace, 1951); Jay Leyda, *The Years and Hours of Emily Dickinson*, 2 vols. (New Haven, CT: Yale University Press, 1960).
25. See for example Tom Klein, "Woody Abstracted," 39–53.
26. In an August 2011 email, Frank wrote: "I at last realized how to tie it all together: *Melville*. Aside from the Leyda connection (*Melville Log* is dedicated to Eisenstein), Eisenstein writes about Melville when he writes about Disney." I am grateful to Sam Frank for permission to quote this correspondence.
27. Sergei Eisenstein, "The Materialist Approach to Form," in *Selected Works*, vol. 1, *Writings, 1922–34* (London: BFI, 1988), 62.
28. See Susan Buck-Morss, *The Dialectics of Seeing: Walter Benjamin and the Arcades Project* (Cambridge, MA: MIT Press, 1989).
29. An important thread throughout the book is how microfilm reading functions as a precursor to frame-by-frame analysis.
30. Hollis Frampton, "For a Metahistory of Film: Commonplace Notes and Hypotheses," in *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, ed. Bruce Jenkins (Cambridge, MA: MIT Press, 2009), 136. That Frank shared Frampton's initials was a source of delight to her.
31. Stanley Cavell, *The World Viewed: Enlarged Edition* (Cambridge, MA: Harvard University Press, 1979), 168. As Ryan Pierson has argued, Cavell's own position is more complex. See Ryan Pierson, "On Styles of Theorizing Animation Styles: Stanley Cavell at the Cartoon's Demise," *Velvet Light Trap* 69 (2012): 17–26. For a reconsideration of the place of animation in realist film theory see Karen Beckman, "Animating the *Cinéfilms*: Alain Resnais and the Cinema of Discovery," *Cinema Journal* 54, no. 4 (2015): 1–25.
32. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 302; Esther Leslie, *Hollywood Flatlands: Animation, Critical Theory, and the Avant-Garde* (New York: Verso, 2002); Karen Beckman, ed., *Animating Film Theory* (Durham, NC: Duke University Press, 2014). See also Donald Crafton, "The Veiled Genealogies of Animation and Cinema," *Animation: An Interdisciplinary Journal* 6, no. 2 (2011): 93–110.
33. Noël Carroll, *Philosophical Problems of Classical Film Theory* (Princeton, NJ: Princeton University Press, 1988), 149.
34. See for example Joel Snyder and Neil Walsh Allen, "Photography, Vision, and Representation," *Critical Inquiry* 2, no. 1 (Autumn 1975): 143–69; Tom Gunning, "What's the Point of an Index? or, Faking Photographs," *Nordicom* 25, no. 1 (2005): 106–29; Daniel Morgan, "Rethinking Bazin: Ontology and Realist Aesthetics," *Critical Inquiry* 32, no. 3 (Spring 2006): 443–81; Josh Ellenbogen, *Reasoned and Unreasoned Images: The Photography of Bertillon, Galton, and Marey* (University Park: Pennsylvania State University Press, 2012).
35. On the display of the animator see Donald Crafton, *Before Mickey: The Animated Film, 1898–1928* (Chicago: University of Chicago Press, 1993), 11.

36. See Dana Polan, “Daffy Duck and Bertolt Brecht: Toward a Politics of Self-Reflexive Cinema?,” in *American Media and Mass Culture: Left Perspectives*, ed. Donald Lazere (Berkeley: University of California Press, 1987), 345–56.

37. In an unfinished essay, Frank examines *Bosko in Person* (Warner Bros., 1933) to explore the relation between blackface and reflexivity in black-and-white cartoons. Building off work by Nicholas Sammond (*Birth of an Industry: Blackface Minstrelsy and the Rise of American Animation* [Durham, NC: Duke University Press, 2015]), she writes of the connection of animation to minstrelsy: “Yet blackness is special, for it is synonymous with the material properties of animated cartoons, namely, ink.” How could animators resist? “All it takes for a white character to turn black is a blast of soot or a splash of paint or a splatter of mud.” Race and ink come together.

38. Manny Farber, “Saccharine Symphony,” in *Farber on Film: The Collected Film Writings of Manny Farber*, ed. Robert Polito (Washington, DC: Library of America, 2009), 17. See also Siegfried Kracauer, “Dumbo,” in *Siegfried Kracauer’s American Writings: Essays on Film and Popular Culture*, ed. Johannes von Moltke and Kristy Rawson (Berkeley: University of California Press, 2012), 139–40.

39. It also means, as Frank notes, that there is a close connection between animation and analog special effects (150–1). To which we might add that there is a connection to the uses of digital special effects, too.

40. See for instance Lisa Gitelman, *Paper Knowledge: Toward a Media History of Documents* (Durham, NC: Duke University Press, 2014), 83–110.

41. Iwerks was not only Walt Disney’s early collaborator, but became a special-effects designer for Hollywood, most famously on Alfred Hitchcock’s *The Birds* (1963).

42. Here and below I rely on unpublished documents.

43. The focus on industrial production marks a key difference between Frank’s work and Vivian Sobchack’s account of stop-motion animation in “Stop + Motion: On Animation, Inertia, and Innervation,” *Kracauer Lectures in Film and Media Theory*, University of Frankfurt, May 2015, <http://www.kracauer-lectures.de/en/sommer-2015/vivian-sobchack/>.

44. Ryan Pierson and Alla Gadassik, “The Frankish Frame,” *The Moving Image* 18, no. 1 (2018), 88–91. I am grateful to Ryan Pierson as well for his comments on an earlier version of this introduction.

45. Pierson and Gadassik sound a similar note: “The point here—as with most of these epistemological knots into which Hannah ties herself—is that the closer we look, the less we know. But the less we know, the more closely we are prompted to look.”

## INTRODUCTION

1. Susan Howe, *Spontaneous Particulars: The Telepathy of Archives* (New York: New Directions, 2014), 21.

2. For the impact of Taylorism and the related industrial practices of Henry Ford on film production see Scott Curtis, “Images of Efficiency: The Films of Frank Gilbreth,” in *Films That Work: Industrial Film and the Productivity of Media*, ed. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009), 85–99; Lee Grieveson, “The Work of Film in the Age of Fordist Mechanization,” *Cinema Journal* 51, no. 3 (Spring 2012): 25–51. Many of this book’s claims about mass production and anonymous art were

first broached in Sigfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (1948; repr., Minneapolis: University of Minnesota Press, 2013).

3. Earl Hurd, "Process of and Apparatus for Producing Moving Pictures," US Patent 1,143,542, filed December 19, 1914, patented June 15, 1915; E. G. Lutz, *Animated Cartoons: How They Are Made, Their Origin and Development* (1920; Bedford, MA: Applewood Books, 1998), 66. See also John Randolph Bray and Earl Hurd, "Bray-Hurd: The Key Animation Patents," *Film History* 2, no. 3 (September–October 1988): 229–66.

4. The definitive account of the industrialization of the animation process remains Donald Crafton, *Before Mickey: The Animated Film, 1898–1928* (Chicago: University of Chicago Press, 1993). See also David Callahan, "Cel Animation: Mass Production and Marginalization in the Animated Film Industry," *Film History* 2, no. 3 (1988): 223–28; Matt Stahl, "Nonproprietary Authorship and the Uses of Autonomy: Artistic Labor in American Film Animation, 1900–2004," *Labor: Studies in Working-Class History of the Americas* 2, no. 4 (2004): 87–105.

5. For instance, Fleischer did not have a Story Department, while Disney did, and the fairly loose hierarchical arrangement of above-the-line workers at Warner Bros. gave individual directors greater authorial control over their films—which is why we know the names and signature styles of Chuck Jones, Tex Avery, Bob Clampett, Frank Tashlin, et al. For an excellent overview of different models of organizational control see Alan Bryman, "Telling Technological Tales," *Organization* 7, no. 3 (August 2000): 455–75. See also Mark Langer, "Institutional Power and the Fleischer Studios: The 'Standard Production Reference,'" *Cinema Journal* 30, no. 2 (Winter 1991): 3–22.

6. My research would not be possible without the groundwork laid by historians like Harvey Deneroff, Michael Denning, Neal Gabler, Mark Langer, and Tom Sito. See Harvey Deneroff, "Popeye the Union Man: A Historical Study of the Fleischer Strike" (PhD diss., University of Southern California, 1985); Michael Denning, *The Cultural Front* (New York: Verso, 1997), 403–22; Neal Gabler, *Walt Disney: The Triumph of the American Imagination* (New York: Knopf, 2006), 349–80; Mark Langer, "The Disney-Fleischer Dilemma: Product Differentiation and Technological Innovation," *Screen* 33, no. 4 (Winter 1992): 343–59; Tom Sito, *Drawing the Line: The Untold Story of the Animation Unions from Bosko to Bart Simpson* (Lexington: University of Kentucky Press, 2006).

7. As reported in "N.Y. Projectionists May Force Fleischer Settlement; Cancellations," *Variety*, July 7, 1937, 23; "Strikers Jeer at Film," *New York Times*, June 26, 1937, 3.

8. This total does not include television programs or feature-length films, which also figure in this book, nor does it include non-US animated films. I should also note that I studied most of these shorts on DVD and Blu-ray, as well as via streaming sites such as YouTube, Amazon Video, Netflix, and Dailymotion; I have seen several hundred on 35mm, 16mm, and 8mm film as well.

9. Vivian Sobchack, "Animation and Automation, or, the Incredible Effortfulness of Being," *Screen* 50, no. 4 (Winter 2009): 384.

10. I am here paraphrasing Walter Benjamin, "Experience and Poverty," in *Walter Benjamin: Selected Writings*, vol. 2, 1927–1934 (Cambridge, MA: Belknap, 1999), 735. Donald Crafton, *Before Mickey*, 11.

11. Kirsten Moana Thompson, "Quick, Quick, Like a Bunny: The Ink and Paint Machine, Female Labor and Color Production," *Animation Studies Online Journal*, February 3, 2014, <https://journal.animationstudies.org/kirsten-thompson-quick-like-a-bunny/>; Peng-yi Tai,



“The Principle of Animation: History and Theory of a Social Technology” (PhD diss., University of California at Irvine, 2012); Nicholas Sammond, *Birth of an Industry: Blackface Minstrelsy and the Rise of American Animation* (Durham, NC: Duke University Press, 2015).

12. Scott Bukatman, *The Poetics of Slumberland: Animated Spirits and the Animating Spirit* (Berkeley: University of California Press, 2012), 108, emphasis in original.

13. Scott Curtis, “Tex Avery’s Prison House of Animation, or Humor and Boredom in Studio Cartoons,” in *Funny Pictures: Animation and Comedy in Studio-Era Hollywood*, ed. Daniel Goldmark and Charlie Keil (Berkeley: University of California Press, 2011), 226.

14. Sergei Eisenstein, “On Disney,” in *The Eisenstein Collection*, ed. Richard Taylor (Oxford: Seagull Books, 2006), 92. Of Eisenstein’s notes on Disney, Michael North comments wryly, “There are a number of fairly obvious ironies here, foremost among them the fact that Eisenstein did not come to write down [many of] his impressions of Disney until 1941, at which time the studio was wracked by an angry, epoch-making labor strike that led to the departure of a considerable percentage of Disney’s happy collective.” Michael North, *Machine-Age Comedy* (Oxford: Oxford University Press, 2009), 60.

15. Walter Benjamin, “Experience and Poverty,” 171. For an analysis of how Benjamin’s writings on Mickey Mouse fit within his broader theories of modernity and experience see Miriam Hansen, *Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno* (Berkeley: University of California Press, 2011), 163–82. For a comparative analysis of Eisenstein’s and Benjamin’s respective takes on Disney see Esther Leslie, *Hollywood Flatlands: Animation, Critical Theory and the Avant-Garde* (London: Verso, 2002).

16. Reprinted as Richard Thompson, “Meep-Meep!,” in *The American Animated Cartoon*, ed. Danny Peary and Gerald Peary (New York: E. P. Dutton, 1980), 219; Scott Bukatman, “Some Observations Pertaining to Cartoon Physics; or, The Cartoon Cat in the Machine,” in *Animating Film Theory*, ed. Karen Beckman (Durham, NC: Duke University Press, 2014), 301.

17. Siegfried Kracauer, “Ufa-Beiprogramm,” in *Werke Band: Kleine Schriften zum Film*, vol. 6, no. 2, 1928–1931, ed. Inka Müller-Bach (Frankfurt: Suhrkamp Verlag, 2004), 45, my translation.

18. Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality* (Princeton, NJ: Princeton University Press, 1997), xlvii.

19. Eric Smoodin, *Animating Culture: Hollywood Cartoons from the Sound Era* (New Brunswick, NJ: Rutgers University Press, 1993), 45.

20. Kristin Thompson, “Implications of the Cel Animation Technique,” in *The Cinematic Apparatus*, ed. Teresa de Lauretis and Stephen Heath (New York: St. Martin’s, 1980), 112–13.

21. Kristin Thompson, “Implications of the Cel Animation Technique,” 119.

22. In addition to Crafton’s *Before Mickey* and Smoodin’s *Animating Culture*, these works include (but are by no means limited to) Michael Barrier, *Hollywood Cartoons: American Animation in Its Golden Era* (New York: Oxford University Press, 1999); J. B. Kaufman and Russell Merritt, *Walt in Wonderland: The Silent Films of Walt Disney* (Gemona, Italy: La Cineteca del Friuli, 1993); Kevin S. Sandler, ed., *Reading the Rabbit: Explorations in Warner Bros. Animation* (New Brunswick, NJ: Rutgers University Press, 1998); Charles Solomon, *Enchanted Drawings: The History of Animation* (New York: Knopf, 1989).

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24. This is but the tip of the iceberg. See Daniel Goldmark, *Tunes for Toons: Music and the Hollywood Cartoon* (Berkeley: University of California Press, 2005); Lea Jacobs, *Film Rhythm after Sound* (Berkeley: University of California Press, 2014), 58–108; Thomas Lamarre, *The Anime Machine: A Media Theory of Animation* (Minneapolis: University of Minnesota Press, 2009); Casey Riffel, "Dissecting Bambi: Multiplanar Photography, the Cel Technique, and the Flowering of Full Animation," *Velvet Light Trap* 69 (Spring 2012): 3–16; Tom Klein, "Woody Abstracted: Film Experiments in the Cartoons of Shamus Culhane," *Animation: An Interdisciplinary Journal* 6, no. 1 (March 2011): 39–53; Scott Curtis, "Tex Avery's Prison House of Animation," 211–27; Donald Crafton, *Shadow of a Mouse: Performance, Belief, and World-Making in Animation* (Berkeley: University of California Press, 2013); Dan Bashara, "Cartoon Vision: UPA, Precisionism and American Modernism," *Animation: An Interdisciplinary Journal* 10, no. 2 (July 2015): 82–101.

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26. Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 302, emphasis in original. Alan Cholodenko makes a similar claim in his introduction to *The Illusion of Life: Essays on Animation* (Bloomington: Indiana University Press, 1993), 9–10.

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28. Tom Gunning, "Animating the Instant: The Secret Symmetry Between Animation and Photography," in *Animating Film Theory*, 40.

29. Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion, 2006), 27; Christian Keathley, *Cinephilia and History, or the Wind in the Trees* (Bloomington: Indiana University Press, 2006), 9; Garrett Stewart, *Between Film and Screen: Modernism's Photo Synthesis* (Chicago and London: University of Chicago Press, 1999), 5.

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*Analysis* (Princeton, NJ: Princeton University Press, 1981); David Mayer, *Sergei M. Eisenstein's Potemkin: A Shot-by-Shot Presentation* (Boston: Da Capo, 1990).

33. Scott Bukatman, *The Poetics of Slumberland*, 106.
34. Anne Nesbet, *Savage Junctures: Sergei Eisenstein and the Shape of Thinking* (London: I. B. Tauris, 2003), 10–11.
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#### 1 ANIMATION AND MONTAGE; OR, PHOTOGRAPHIC RECORDS OF DOCUMENTS

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4. Walter Benjamin, "Little History of Photography," trans. Edmund Jephcott and Kingsley Shorter, in *Walter Benjamin: Selected Writings*, vol. 2, 1927–1934, (Cambridge, MA: Belknap, 1999), 518. See also John Szarkowski and Maria Morris Hambourg, eds., *The Work of Atget*, 4 vols. (New York: Museum of Modern Art, 1981–85).
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47. Jay Leyda, *The Melville Log: A Documentary Life of Herman Melville, 1819–1891* (New York: Harcourt, Brace, 1951), 1:ii, emphasis in original.
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49. Jay Leyda, *The Years and Hours of Emily Dickinson* (New Haven, CT: Yale University Press, 1960), 1:xxiii.
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60. Jay Leyda, *The Years and Hours of Emily Dickinson*, 2:470–71.
61. Jay Leyda, *The Years and Hours of Emily Dickinson*, 1:xxi–xxii.
62. Jay Leyda, “Miss Emily’s Maggie,” in *New World Writing* (New York: New American Library, 1953), 255–56.
63. R. W. Franklin, ed., *The Manuscript Books of Emily Dickinson* (Cambridge, MA: Belknap, 1981), xiv.
64. Susan Howe, *The Birth-Mark: Unsettling the Wilderness in American Literary History* (Middletown, CT: Wesleyan University Press, 1993), 153; Jerome McGann, “Emily Dickinson’s

Visible Language,” in *Emily Dickinson: A Collection of Critical Essays*, ed. Judith Farr (Upper Saddle River, NJ: Prentice-Hall, 1996), 259, emphasis in original. For a detailed account of Dickinson’s scholarly reception see Lena Christensen, *Editing Emily Dickinson: The Production of an Author* (New York: Routledge, 2008).

65. Jay Leyda, *The Years and Hours of Emily Dickinson*, 1:xxiii, 1:5.

66. See the Jay Leyda Material in Emily Dickinson Collection, box 31, folders 1–11, Amherst College Archives and Special Collections, Amherst College Library; see also Jay Leyda, in Dickinson Related Materials Collection, box 4, folder 41, Amherst College Archives and Special Collections, Amherst College Library. My thanks to Margaret R. Dakin for sending me PDFs of this material.

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73. George J. Throckmorton, “A Forensic Analysis,” in *Salamander: The Story of the Mormon Forgery Murders*, ed. Linda Sillitoe and Allen D. Roberts (Salt Lake City: Signature Books, 1988), 536.

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83. Walter Benjamin, "The Artist as Producer," 774, 778.
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85. See Walter Benjamin, "What Is Epic Theatre? (II)," trans. Harry Zohn, in *Walter Benjamin: Selected Writings*, 4:305.
86. See Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (Cambridge, MA: MIT Press, 2006), 123–50.
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91. Jonas Mekas, "On the Expanding Eye," in *Movie Journal: The Rise of the New American Cinema 1959–1971* (New York: Macmillan, 1972), 119, quoted in Andrew Johnston, "Pulses of Abstraction: Episodes from a History of Animation" (PhD diss., University of Chicago, 2011), 131–32.
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93. P. Adams Sitney, *Visionary Film: The American Avant-Garde, 1943–2000* (New York: Oxford University Press, 2002), 344–45.
94. See Eivind Røssaak, "Acts of Delay: The Play between Stillness and Motion in *Tom, Tom, The Piper's Son*," in *Optic Antics: The Cinema of Ken Jacobs*, ed. Michele Pierson, David E. James, and Paul Arthur (New York: Oxford University Press, 2011), 96–106.

## 2 A VIEW OF THE WORLD: TOWARD A PHOTOGRAPHIC THEORY OF CEL ANIMATION

1. Allan Sekula, "An Eternal Esthetics of Laborious Gestures," *Grey Room* 55 (2014): 17.
2. Andrew Norman Wilson, "Andrew Norman Wilson with Laurel Ptak: *ScanOps*," *Aperture* 210 (Spring 2013): <http://www.aperture.org/magazine-2013/andrew-norman-wilson-with-laurel-ptak-scanops/>.
3. Gordon S. Mitchell, "Making Mickey Mouse Act for the Talkies," *Modern Mechanics and Inventions*, March 1931, 68; Carl Fallberg, "Animated Film Techniques—Part VIII,"



*American Cinematographer* 40, no. 3 (March 1959): 198; John Canemaker, *The Animated Raggedy Ann & Andy: An Intimate Look at the Art of Animation: Its History, Techniques, and Artists* (Indianapolis and New York: Bobbs-Merrill, 1977), 275.

4. See John Tagg, *The Burden of Representation: Essays on Photographies and Histories* (Minneapolis: University of Minnesota Press, 1993), 109; Allan Sekula, "An Eternal Esthetics of Laborious Gestures," 17.

5. Tom Gunning, "What's the Point of an Index? Or Faking Photographs," in *Still Moving: Between Cinema and Photography*, ed. Karen Beckman and Jean Ma (Durham, NC: Duke University Press, 2008), 30.

6. Shamus Culhane quoted in "Where Does the Money Go?" *Sponsor*, December 8, 1955.

7. Dudley Andrew, *What Cinema Is! Bazin's Quest and Its Charge* (Hoboken, NJ: Wiley-Blackwell, 2010), 2.

8. As Tess Takahashi observes, direct animators like Richard Reeves might *claim* "a direct, existential link between artist's pen and the strip of celluloid, a link that seemingly avoids the machine altogether," but what of their work "is screened is surely a print." Tess Takahashi, "Meticulously, Recklessly Worked Upon: Direct Animation, the Auratic and the Index," in *The Sharpest Point: Animation at the End of Cinema*, ed. Chris Gehman and Steve Reinke (Toronto: YYZ Books, 2005), 170. See also D. N. Rodowick, *The Virtual Life of Film* (Cambridge, MA: Harvard University Press, 2007), 58–59; Tom Gunning, "Animating the Instant: The Secret Symmetry between Animation and Photography," in *Animating Film Theory*, ed. Karen Beckman (Durham, NC: Duke University Press, 2014), 37–38.

9. Hollis Frampton, "Some Propositions on Photography," in *On the Camera Arts and Consecutive Matters: The Writings of Hollis Frampton*, ed. Bruce Jenkins (Cambridge, MA: MIT Press, 2009), 5–8.

10. John Tagg, *The Burden of Representation*, 11.

11. Tom Gunning, "Moving away from the Index: Cinema and the Impression of Reality," *differences* 18, no. 1 (2007): 38.

12. For a more complex discussion of Bazin's film theory than I am able to provide here see Daniel Morgan, "Rethinking Bazin: Ontology and Realist Aesthetics," *Critical Inquiry* 32, no. 3 (Spring 2006): 443–81. For a discussion of Bazin's metaphors see Burke Hilsabeck, "The 'Is' in *What Is Cinema?*: On André Bazin and Stanley Cavell," *Cinema Journal* 55, no. 2 (Winter 2016): 29–35.

13. André Bazin, "The Life and Death of Superimposition," in *Bazin at Work: Major Essays and Reviews from the Forties and Fifties*, trans. Alain Piette and Bert Cardullo (New York: Routledge, 1997), 73.

14. André Bazin, "Theater and Cinema, Part Two," in *What Is Cinema?*, trans. Hugh Gray (Berkeley: University of California Press, 2004), 1:108.

15. D. N. Rodowick, *The Virtual Life of Film*, 121; Mary Ann Doane, "The Indexical and the Concept of Medium Specificity," *differences* 18, no. 1 (2007): 148–49n3. For investigations into other affinities between photography and animation see Tom Gunning, "Animating the Instant," 37–53; Karen Beckman, "Animating the Cinéfilms: Alain Resnais and the Cinema of Discovery," *Cinema Journal* 54, no. 4 (Summer 2015): 1–25.

16. Lawrence A. Cummings, "Pitfalls of Photocopy Research" (1961), in *Studies in Micropublishing, 1853–1976: Documentary Sources*, ed. Allen B. Veaner (Westport, CT: Microform Review, 1976), 294.

17. D. Martin, "The Isabella Beecher Hooker Project," *Microform Review* 10, no. 2 (Spring 1981): 104; Richard I. Korman, "Latin American and Caribbean Official Statistical Serials on Microfiche," *Microform Review* 9, no. 3 (Summer 1980): 173.
18. André Bazin, "The Ontology of the Photographic Image," in *What Is Cinema?*, 1:14.
19. For an account of these debates see Peter Wollen, "'Ontology' and 'Materialism' in Film," *Screen* 17, no. 1 (1976): 7–25. See also D. N. Rodowick, *The Crisis of Political Modernism: Criticism and Ideology in Contemporary Film Theory* (Berkeley: University of California Press, 1994).
20. Theodor Adorno, *In Search of Wagner* (1952), trans. Rodney Livingstone (London: Verso, 2009), 72–74.
21. Honoré de Balzac, *Modeste Mignon and Other Stories*, trans. Clara Bell (Philadelphia: Gebbie, 1900), 63.
22. Sergei Eisenstein, "On Disney," in *The Eisenstein Collection*, ed. Richard Taylor (Oxford: Seagull Books, 2006), 139.
23. Sean Cubitt, *The Cinema Effect* (Cambridge, MA: MIT Press, 2004), 2; Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 298.
24. Stanley Cavell, *The World Viewed: Enlarged Edition* (Cambridge, MA: Harvard University Press, 1979), 168, 24. This of course is a highly condensed and necessarily reductive reading of Cavell. For a more nuanced analysis of Cavell's theory of animation see Ryan Pierson, "On Styles of Theorizing Animation Styles: Stanley Cavell at the Cartoon's Demise," *Velvet Light Trap* 69 (2012): 17–26.
25. Yuri Lotman, "On the Language of Animated Cartoons," trans. Ruth Sobel, in *Film Theory and General Semiotics*, ed. Ann Shukman (Oxford: Russian Poetics in Translation, 1981), 37.
26. Yuri Lotman, "On the Language of Animated Cartoons," 37; Frederic Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (Durham, NC: Duke University Press, 1991), 76.
27. Jean Charlot, "But Is It Art? A Disney Disquisition," *American Scholar* 8, no. 3 (Summer 1939): 266.
28. Dudley Andrew, *What Cinema Is!*, xvii.
29. Dudley Andrew, *What Cinema Is!*, 18–19.
30. Dudley Andrew, *What Cinema Is!*, 19–20.
31. André Bazin, "The Evolution of the Language of Cinema," in *What Is Cinema?*, 1:24.
32. Andrew Sarris, *The American Cinema: Directors and Directions, 1929–1968* (New York: Da Capo, 1996), 55; Jacques Rivette, "The Genius of Howard Hawks," in *Howard Hawks: American Artist*, ed. Jim Hillier and Peter Wollen (London: BFI, 1996), 28.
33. Andrew Sarris, *The American Cinema*, 55; Jacques Rivette, "The Genius of Howard Hawks," 30.
34. Gerald Mast, *Howard Hawks: Storyteller* (New York: Oxford University Press, 1982), 203.
35. Christian Keathley, *Cinephilia and History, or The Wind in the Trees* (Bloomington: Indiana University Press, 2006), 65, emphasis in original.
36. André Bazin, "Theater and Cinema, Part Two," 110.
37. Shamus Culhane, *Animation: From Script to Screen* (New York: St. Martin's, 1988), 254.

38. Donald Crafton, *Before Mickey: The Animated Film, 1898–1928* (Chicago: University of Chicago Press, 1993), 11–12.
39. Roland Barthes, “All Except You,” in *Saul Steinberg* (Valencia, Spain: Institut Valencià d’Art Modern, 2002), 158.
40. Allan Sekula, “An Eternal Esthetics of Laborious Gestures,” 18.
41. Mark Langer, “Designing Dumbo: An Annotated Interview with A. Kendall O’Connor,” *Animation Journal* 2, no. 1 (Fall 1993): 42.
42. Oliver Wendell Holmes, “The Stereoscope and the Stereograph,” *Atlantic Monthly*, June 1859, accessed April 28, 2013, <http://www.theatlantic.com/magazine/archive/1859/06/the-stereoscope-and-the-stereograph/303361/>. Laura Mulvey’s description of a scene from Chris Petit’s *Negative Space* (1999) in which Petit slows down a shot from Howard Hawks’s *The Big Sleep* (1946) contains echoes of Holmes’s analysis. According to Mulvey, an extra in the scene, a young woman, becomes in slow-motion “a cinematic document as mysterious as an unidentified photograph,” possessed with “a presence that would be impossible to perceive at 24 frames per second and can only be discovered in the ‘playful’ process of repetition and return.” Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion, 2006), 194.
43. Tom Gunning, “Moving away from the Index,” 46.
44. Ising quoted in Russell Merritt and J. B. Kaufman, *Walt in Wonderland: The Silent Films of Walt Disney* (Gemona, Italy: La Cineteca del Friuli, 1993), 88.
45. Jerry McDonald, “The Case against Microfilming” (1957), in *Studies in Micropublishing, 1853–1976*, 274.
46. Michael Frierson, “The Carry Over Dissolve in UPA Animation,” *Animation Journal* 10 (2002): 53, 50.
47. André Bazin, “A Bergsonian Film: The Picasso Mystery,” in *Bazin at Work*, 215.
48. For a discussion of light and cel animation see Kirsten Moana Thompson, “Animating Ephemeral Surfaces: Transparency, Translucency, and Disney’s World of Color,” *Refractory: A Journal of Entertainment Media* 24 (August 2014): <http://refractory.unimelb.edu.au/2014/08/06/thompson/>.
49. Donald Crafton, *Shadow of a Mouse: Performance, Belief, and World-Making in Animation* (Berkeley: University of California Press, 2013), 165.
50. Donald Crafton, “The View from Termite Terrace: Caricature and Parody in Warner Bros. Animation,” *Film History* 5, no. 1 (1993): 205.
51. Earl Hurd, “Process and Apparatus for Producing Moving Pictures,” US Patent 1,143,542, filed December 19, 1914, patented June 15, 1915.
52. Charles E. Osborne, “A Means of Preventing the Formation of Newton’s Rings during Contact Printing of Motion-Picture Film,” *Journal of the Society of Motion Picture and Television Engineers* 67, no. 3 (March 1958): 169–70.
53. Barbara Baldwin, interview conducted in 1995 by Rita Street, Collection 222, box 1, folder 3, Center for Oral History Research, Charles E. Young Research Library, University of California, Los Angeles.
54. Herb A. Lightman, “The Men behind the Mouse: A Day at Disney’s,” *American Cinematographer* 354–55 (October 1947): 377.
55. “Behind the Scenes with Walter Lantz: Photographing Animation Cels,” on disc 1 of *The Woody Woodpecker and Friends Classic Cartoon Collection* (Toronto: Universal Studios Canada, 2008), DVD.

56. E. Maurin, *Kinematograf v prakticheskoi zhizni* (Petrograd: n.p., 1916), 154, quoted in Yuri Tsivian, *Early Cinema in Russia and Its Cultural Reception*, trans. Alan Bodger (Chicago: University of Chicago Press, 1998), 105.

57. When working on an early installment of Walt Disney's *True-Life Adventures*, a nature documentary series, the animation technician Ub Iwerks devised a liquid optical printer that used perchlorethylene to conceal scratches in the final film print. See Leslie Iwerks and John Kenworthy, *The Hand behind the Mouse* (New York: Disney Editions, 2001), 169–71.

58. Theodor Adorno, *Prisms*, trans. Samuel and Shierry Weber (Cambridge, MA: MIT Press, 1967), 240; Walter Benjamin, *Arcades Project* (Cambridge, MA: Harvard University Press, 1999), 222.

59. Dai Vaughan, "Let There Be Lumière," in *For Documentary: Twelve Essays* (Berkeley: University of California Press, 1999), 4.

60. See Carolyn Steedman, *Dust: The Archive and Cultural History* (New Brunswick, NJ: Rutgers University Press, 2001).

61. Walter Benjamin, *Arcades Project*, 226.

62. Shamus Culhane, *Animation: From Script to Screen*, 253.

63. Auril Thompson, interview conducted in 1995 by Libby Simon, Collection 222, box 1, folder 17, Center for Oral History Research, Charles E. Young Research Library, University of California, Los Angeles.

64. Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality* (Princeton, NJ: Princeton University Press, 1997), 156.

65. Peter Tscherkassky, "The Analogies of the Avant-Garde," trans. Suzie Grieder-Buchan, in *Found Footage Film*, ed. Cecilia Hausheer and Christoph Settele (Lucerne, Switzerland: Zyklop Verlag, 1992), 27, emphasis in original.

66. Louis Doulas, "Art from Outside the Googleplex: An Interview with Andrew Norman Wilson," *Rhizome*, May 14, 2012, <http://rhizome.org/editorial/2012/may/14/conversation-andrew-norman-wilson/>. For a critical survey of the other works in the documentary subgenre to which Wilson's video belongs, including Harun Farocki's *Workers Leaving the Factory* (1995) and the multiple versions of the Lumière Brothers' 1895 film of the same name, see Jennifer Peterson, "Workers Leaving the Factory: Witnessing Industry in the Digital Age," in *The Oxford Handbook of Sound and Image in Digital Media*, ed. Carol Vernallis, Amy Herzog, and John Richardson (New York: Oxford University Press, 2013), 598–619. For examples of discussions of the socioeconomic impact of the Google workplace in the popular press see Nikil Saval, "The Office of the Future," in *Cubed: A Secret History of the Workplace* (New York: Doubleday, 2014), 256–77; Rebecca Solnit, "Diary: Google Invades," *London Review of Books*, February 7, 2013, 34–35; George Packer, "Change the World," *New Yorker*, May 27, 2013, 44–55.

67. *Philosophical Society of Washington Bulletin* 15 (February 1910): 133–67, available at <http://books.google.com/books?id=1QtBAAAAYAAJ>.

68. Andrew Norman Wilson, "Andrew Norman Wilson with Laurel Ptak: *ScanOps*."

69. Benjamin Shaykin, "Google Hands," <https://cargocollective.com/bshaykin/Google-Hands>; Krissy Wilson, *The Art of Google Books*, <http://theartofgooglebooks.tumblr.com/>. See also Kenneth Goldsmith, "The Artful Accidents of Google Books," *Page-Turner* blog, *New Yorker*, December 4, 2013, <http://www.newyorker.com/books/page-turner/the-artful-accidents-of-google-books>.

70. Louis Doulas, "Art from Outside the Googleplex: An Interview with Andrew Norman Wilson."

71. Rosalind Krauss, "Notes on the Index: Seventies Art in America, Part 2," *October* 4 (Autumn 1977): 59.

72. See Annette Michelson, "Screen/Surface: The Politics of Illusionism," *Artforum*, September 1972, 58–62.

73. Daniel Morgan, "Bazin's Modernism," *Paragraph* 36, no. 1 (March 2013): 18, emphasis in original.

74. It might thus be productively compared to what Hito Steyerl has called a "poor image," the quality of which speaks volumes: its degradation and blurriness "testify to the violent dislocation, transferrals, and displacement of images—their acceleration and circulation within the vicious cycles of audiovisual capitalism." Hito Steyerl, "In Defense of the Poor Image," *e-flux Journal* 10 (November 2009): <https://www.e-flux.com/journal/10/61362/in-defense-of-the-poor-image/>.

75. Karl Marx, *Capital*, trans. Ben Fowkes (London: Penguin, 1990), 1:289.

76. Lev Manovich, *The Language of New Media*, 298.

77. Robert Russett and Cecile Starr, *Experimental Animation: An Illustrated Anthology* (New York: Van Nostrand Reinhold, 1976), 176; see also Daniel Goldmark, "Sounds Funny / Funny Sounds: Theorizing Cartoon Music," in *Funny Pictures: Animation and Comedy in Studio-Era Hollywood*, ed. Daniel Goldmark and Charlie Keil (Berkeley: University of California Press, 2011), 257–71; Clark Farmer, "Every Beautiful Sound Also Creates an Equally Beautiful Picture': Color Music and Walt Disney's *Fantasia*," in *Lowering the Boom: Critical Studies in Film Sound*, ed. Jay Beck and Tony Grajeda (Urbana: University of Illinois Press, 2008), 183–97.

78. Robert Stam, *Reflexivity in Film and Literature: From Don Quixote to Jean-Luc Godard* (New York: Columbia University Press, 1992), 96. For more on the reception of these films see Hank Sartin, "Drawing on Hollywood: Warner Bros. Cartoons and Hollywood, 1930–1960" (PhD Diss., University of Chicago, 1998), 8–22.

79. Dana Polan, "Daffy Duck and Bertolt Brecht: Toward a Politics of Self-Reflexive Cinema?," in *American Media and Mass Culture: Left Perspectives*, ed. Donald Lazere (Berkeley: University of California Press, 1987), 351.

80. Robert Stam, *Reflexivity in Film and Literature*, 97.

81. Peter Gidal, "Technology and Ideology in/through/and Avant-Garde Film: An Instance," in *The Cinematic Apparatus*, ed. Teresa de Lauretis and Stephen Heath (New York: St. Martin's, 1980), 158.

82. Walter Benjamin, "A Glimpse into the World of Children's Books," trans. Rodney Livingstone, in *Walter Benjamin: Selected Writings*, vol. 1, 1913–1926 (Cambridge, MA: Belknap, 1996), 435.

83. Dudley Andrew, *What Cinema Is!*, 12.

84. Dudley Andrew, *What Cinema Is!*, 11–15.

85. André Bazin, "The Ontology of the Photographic Image," 14.

86. Christian Keathley, *Cinephilia and History*, 74–75.

87. Roland Barthes, *Camera Lucida*, trans. Richard Howard (New York: Hill and Wang, 1981), 3.

88. Walter Benjamin, "On Some Motifs in Baudelaire," in *Walter Benjamin: Selected Writings*, vol. 4, 1938–1940 (Cambridge, MA: Belknap, 2003), 338.

89. Theodor Adorno to Walter Benjamin, New York, February 29, 1940, in *Theodor W. Adorno and Walter Benjamin: The Complete Correspondence, 1928–1940*, ed. Henri Lonitz, trans. Nicholas Walker (Cambridge, MA: Harvard University Press, 1999), 321.
90. Virginia Woolf, “The Movies and Reality,” in *Red Velvet Seat*, ed. Antonia Lant (London and New York: Verso, 2006), 232.
91. For more on the “medium-sensitive film viewer” see Yuri Tsivian, *Early Cinema in Russia and Its Cultural Reception*; Robert Spadoni, *Uncanny Bodies: The Coming of Sound Film and the Origins of the Horror Film Genre* (Berkeley: University of California Press, 2007).
92. Juan A. Suárez, “Structural Film: Noise,” in *Still Moving*, 68–69.
93. Miriam Hansen, introduction to Siegfried Kracauer, *Theory of Film*, x.
94. Werner Nekes, “Whatever Happens between the Pictures,” *Afterimage* 5, no. 5 (November 1977): 10.
95. Peter Tscherkassky, “The Analogies of the Avant-Garde,” 27.

### 3 PARS PRO TOTO: CHARACTER ANIMATION AND THE WORK OF THE ANONYMOUS ARTIST

1. Siegfried Kracauer, “The Mass Ornament,” in *The Mass Ornament: The Weimar Essays*, ed. Thomas Levin (Cambridge, MA: Harvard University Press, 1995), 78.
2. Robert Breer, interview, *AFI Report* 5, no. 2 (Summer 1974): 35.
3. “Betty Boop and Popeye Picket for Cartoonists,” *Daily Worker*, May 15, 1937.
4. “Fleischer Strike Still Deadlocked,” *Variety*, June 16, 1937, 2.
5. See for instance Harvey Deneroff, “Popeye the Union Man: A Historical Study of the Fleischer Strike” (PhD diss., University of Southern California, 1985); Harvey Deneroff, “We Can’t Get Much Spinach! The Organization and Implementation of the Fleischer Strike,” *Film History* 1, no. 1 (1987): 1–14; Tom Sito, *Drawing the Line: The Untold Story of the Animation Unions from Bosko to Bart Simpson* (Lexington: University of Kentucky Press, 2006); Neal Gabler, *Walt Disney: The Triumph of the American Imagination* (New York: Knopf, 2006), 349–80; Michael Denning, *The Cultural Front* (New York: Verso, 1997), 403–22.
6. Russell George, “Some Spatial Characteristics of the Hollywood Cartoon,” *Screen* 31, no. 3 (Autumn 1990): 306.
7. Alina Louchheim, “Cartoons as Art,” *New York Times*, August 23, 1953, X8.
8. “New Approach to the Animated Cartoon: The Schlesinger Studios Having Discovered a Conviction Finds the Courage to Support It,” *Arts and Architecture*, February 1944, 19. Michael Barrier guesses that the writer was Eugene Fleury, a background artist at the studio at the time. Michael Barrier, *Hollywood Cartoons: American Animation in Its Golden Era* (New York: Oxford University Press, 1999), 447.
9. Ward Kimball quoted in Amid Amidi, *Cartoon Modern: Style and Design in Fifties Animation* (New York: Chronicle Books, 2006), 150.
10. Fred Ladd and Harvey Deneroff, *Astro Boy and Anime Come to the Americas: An Insider’s View of the Birth of a Pop Culture Phenomenon* (Jefferson, NC: McFarland, 2009), 85.
11. For a list of some of the most egregious mistakes see Fred Grandinetti, *Popeye: An Illustrated Cultural History* (Jefferson, NC: McFarland, 2004), 130–34.
12. Walt Peregoy, interview by Julie Svendsen on December 15, 2007, in *Walt’s People: Talking Disney with the Artists who Knew Him*, ed. Didier Ghez (Bloomington, IN: Xlibris, 2010), 9:270.

13. John Canemaker, *The Animated Raggedy Ann & Andy: An Intimate Look at the Art of Animation: Its History, Techniques, and Artists* (Indianapolis and New York: Bobbs-Merrill, 1977), 247.

14. Studs Terkel, *Working* (New York: Avon Books, 1972), 2, 9–10.

15. A notable exception is the work of background artists, who were often able to get away with ribald jokes—for instance, the paintings of naked women that hang on the walls of the houses in such Warner Bros. cartoons as *The Wabbit Who Came to Supper* (Friz Freleng, 1942), *Daffy—The Commando* (Friz Freleng, 1943), *Bugs Bunny and the Three Bears* (Chuck Jones, 1944), and *Slick Hare* (Friz Freleng, 1947). The most notorious example of this kind of “deliberate mistake” appears in Disney’s *The Rescuers* (1977), which features a photograph clipped from a pornographic magazine in the background of one scene. The detail didn’t receive widespread attention until the film’s release on VHS in 1999. “It was just a little joke because it was going at 1/24 of a second,” the animator Tom Sito told Didier Ghez. “What do you think? Do you think [we imagined] that forty years in the future people would have machines and they’re going to look at this single frame? I don’t think anybody thought that that was possible. *Why would anyone bother to slow down an animated film and look at every frame?*” Sito, interview by Ghez on April 11 and 27, 2007, in *Walt’s People*, 9:483, my emphasis.

16. John Canemaker, *Felix: The Twisted Tale of the World’s Most Famous Cat* (New York: Pantheon, 1991), 108. An analogous practice might be the inscriptions and doodles of scribes and illustrators left in the margins of medieval manuscripts. See Michael Camille, *Image on the Edge: The Margins of Medieval Art* (Cambridge, MA: Harvard University Press, 1992).

17. For most of the 1920s, Sullivan Studios reversed the cel animation technique: Felix was inked on paper and the backgrounds were painted on cels. This had been the process as it was originally patented and as it was outlined in E. G. Lutz’s influential how-to manual published in 1920: E. G. Lutz, *Animated Cartoons: How They Are Made, Their Origin and Development* (1920; Bedford, MA: Applewood Books, 1998).

18. Karl Marx and Friedrich Engels, *The German Ideology*, in *Karl Marx: Selected Writings*, ed. David McLellan (Oxford: Oxford University Press, 2010), 206.

19. Osip Brik, “Our Agenda” (1921), trans. Natasha Kurchanova, *October* 134 (Fall 2010): 82.

20. “Testimony of Charlotte Darling Adams on March 26, 1953,” *U.S. Congressional Committee Hearings* (83) H 1428–2-B: 472.

21. Thomas Brady, “Whimsy on Strike,” *New York Times*, June 29, 1941, X3.

22. Osip Brik, “Our Agenda,” 83.

23. Thomas Elsaesser, “‘Le cinéma d’après Lumière’: Rereading the ‘Origins’ of the Filmic Image,” in *The Practice of Cultural Analysis: Exposing Interdisciplinary Interpretation*, ed. Mieke Bal and Bryan Gonzales (Stanford, CA: Stanford University Press, 1999), 66.

24. Jeanne Lee Keil quoted in Patricia Zohn, “Coloring the Kingdom,” *Vanity Fair*, March 2010, <http://www.vanityfair.com/culture/features/2010/03/disney-animation-girls-201003>.

25. Tom Gunning, “Animated Pictures: Tales of Cinema’s Forgotten Future,” *Michigan Quarterly Review* 34 (Fall 1995): 467.

26. Sergei Eisenstein, “K issledovaniiu ‘Disney’” [Toward the Study of Disney], in *Metod*, ed. Naum Kleiman (Moscow: Muzei Kino, 2002), 2:521. All translations from Russian are my own unless otherwise noted.

27. Sergei Eisenstein, "On Disney" (1941), in *The Eisenstein Collection*, ed. Richard Taylor (Oxford: Seagull Books, 2006), 128.
28. Yuri Tsivian, *Ivan the Terrible* (London: BFI, 2002), 29.
29. Sergei Eisenstein, "On Disney," 127.
30. Sergei Eisenstein, "Zametki o linii i ornamente" [Notes on Line and Ornament], in *Metod*, 2:431, emphasis in original.
31. Sergei Eisenstein, "Montage 1938," in *Selected Works*, vol. 2, *Towards a Theory of Montage*, ed. Michael Glenny and Richard Taylor (London: BFI, 1991), 309.
32. Sergei Eisenstein, "On Disney," 84.
33. For instance Hugh Harman and Rudolf Ising, then working at MGM, allowed their studio's Ink and Paint Departments to work on the completion of *Snow White*. "These girls just slaved, along with their girls, to complete this thing," Hugh Harman told Michael Barrier in 1973. In exchange, Disney allowed Harman-Ising to direct several *Silly Symphonies*, including *Merbabies* (1938), which Eisenstein loved (although, of course, he attributed it to Disney). See Harman, interview by Michael Barrier on December 3, 1973, available at [http://www.michaelbarrier.com/Interviews/Harman/interview\\_hugh\\_harman.htm](http://www.michaelbarrier.com/Interviews/Harman/interview_hugh_harman.htm).
34. Floyd Gottfredson, *Walt Disney's Mickey Mouse: Race to Death Valley*, ed. David Gerstein and Gary Groth (Seattle: Fantagraphics, 2011), 246.
35. Richard Schickel, *The Disney Version: The Life, Times, Art and Commerce of Walt Disney* (repr.; Chicago: Elephant, 1997), 34. Schickel's account, while certainly over-the-top, is at least partly supported by the following anecdote from Leslie Iwerks and John Kentworthy's biography of Ub Iwerks: "Mildred [Iwerks] recalls the tension she witnessed [between Walt and Ub] during a discomfiting evening at a Hollywood party. As Walt, Lillian [Disney], Ub, and Mildred were engaged in conversation, a young boy approached Walt Disney asking him to draw his famous character and autograph it. Turning to Ub, Walt said, 'Why don't you draw Mickey and I'll sign it.' Astonished, Ub fired back, 'Draw your own—Mickey!' and stormed out." Leslie Iwerks and John Kentworthy, *The Hand behind the Mouse* (New York: Disney Editions, 2001), 83.
36. Sergei Eisenstein, *Nonindifferent Nature*, trans. Herbert Marshall (Cambridge, England: Cambridge University Press, 1987), 341.
37. See Bill Mikulak, "Disney and the Art World: The Early Years," *Animation Journal* 4, no. 2 (Spring 1996): 18–42; Eric Smoodin, *Animating Culture: Hollywood Cartoons from the Sound Era* (New Brunswick, NJ: Rutgers University Press, 1993), 96–135; Gregory Waller, "Mickey, Walt, and Film Criticism from Steamboat Willie to Bambi," in *The American Animated Cartoon*, ed. Danny and Gerald Peary (New York: E. P. Dutton, 1980), 48–57; Mark Andrew White, "Thoroughly Modern Mickey: American Art and the Animation of Walt Disney Studios," in *A Century of Magic: The Animation of the Walt Disney Studios* (Norman, OK: Fred Jones Jr. Museum of Art, 2011), 7–43; Timothy White, "From Disney to Warner Bros.: The Critical Shift," in *Reading the Rabbit: Explorations in Warner Bros. Animation*, ed. Kevin S. Sandler (New Brunswick, NJ: Rutgers University Press, 1998), 38–48.
38. William Stull, "Three Hundred Men and Walt Disney," *American Cinematographer* 19, no. 2 (February 1938): 48.
39. Mack Schwab, "The Communalistic Art of Walt Disney," *Cinema Quarterly* 2, no. 3 (Spring 1934): 150.
40. Paul Hollister, "Walt Disney," *Atlantic Monthly*, December 1940, 700.



41. William Kozlenko, "The Animated Cartoon and Walt Disney" (1936), in *The Emergence of Film Art*, ed. Lewis Jacobs (New York: W. W. Norton, 1979), 250; Jean Charlot, "But Is It Art? A Disney Disquisition," *American Scholar* 8, no. 3 (Summer 1939): 269; Alberto Cavalcanti, "Comedies and Cartoons," in *Footnotes to the Film*, ed. Charles Davy (New York: Oxford University Press, 1937), 85.

42. Adam Abraham, *When Magoo Flew: The Rise and Fall of Animation Studio UPA* (Middletown, CT: Wesleyan University Press, 2012), 68. Hilberman, who was fluent in Russian, would later be "named" by Walt Disney in his 1947 testimony before the House Un-American Activities Committee. See "Testimony of Walt Disney on October 24, 1947," *U.S. Congressional Committee Hearings* (80) H 116-5: 280-90, reprinted in *The American Animated Cartoon*, 92-98.

43. Mikhail Kalatozov, *Litso Gollivuda* [The Face of Hollywood] (Moscow: Goskinoizdat, 1949), 50-52.

44. Mikhail Kalatozov, *Litso Gollivuda*, 50-52.

45. J. B. Kaufman, *Snow White and the Seven Dwarfs: The Art and Creation of Walt Disney's Classic Animated Film* (San Francisco: Walt Disney Family Foundation Press, 2012), 128.

46. Martha Sigall, *Living Life inside the Lines: Tales from the Golden Age of Animation* (Jackson: University of Mississippi Press, 2005); Didier Ghez, *Walt's People*, 15 vols.; Patricia Zohn, "Coloring the Kingdom."

47. See Kirsten Moana Thompson, "Quick, Quick, Like a Bunny: The Ink and Paint Machine, Female Labor and Color Production," *Animation Studies Online Journal*, February 3, 2014, <http://journal.animationstudies.org/kirsten-thompson-quick-like-a-bunny>.

48. Robert D. Feild, *The Art of Walt Disney* (New York: Macmillan, 1942), 267; Bob Thomas, *Walt Disney: The Art of Animation* (New York: Golden, 1958), 175; Ollie Johnston and Frank Thomas, *Disney Animation: The Illusion of Life* (New York: Abbeville, 1981), 283. The one creative contribution Johnston and Thomas mention—that it was a painter who thought to redden Snow White's cheeks, and even went so far as to apply her own rouge to the cel—is probably a canard. Commercially available facial powder would have caused far too much of a mess! But, true or not, the story's persistence does underscore the feminized, that is, marginalized, nature of the painters' work.

49. Ed Ainsworth, "As You Might Say," *Los Angeles Times*, May 31, 1931, A4. I will let this sentence's accidental allusion to the fragmentation of bodies under scientific management speak for itself.

50. "The Reluctant Dragon," *Variety*, June 11, 1941, 14.

51. Kirsten Moana Thompson, "Quick, Quick, Like a Bunny." For studies of the aesthetics of color and film see Scott Higgins, *Harnessing the Technicolor Rainbow* (Austin: University of Texas Press, 2007); Joshua Yumibe, *Moving Color: Early Film, Mass Culture, Modernism* (New Brunswick, NJ: Rutgers University Press, 2012); Richard Misek, *Chromatic Cinema: A History of Screen Color* (Chichester, England: John Wiley and Sons, 2010); Simon Brown, Sarah Street, and Liz I. Watkins, eds., *Color and the Moving Image: History, Theory, Aesthetics, Archive* (New York: Routledge, 2013); Giovanna Fossati, Tom Gunning, Joshua Yumibe, and Jonathan Rosen, *Fantasia of Color in Early Cinema* (Amsterdam: Amsterdam University Press, 2015).

52. Donald Crafton, *Shadow of a Mouse: Performance, Belief, and World-Making in Animation* (Berkeley: University of California Press, 2013), 298.

53. Siegfried Kracauer, "The Mass Ornament," 75.
54. Christina Kiaer, *Imagine No Possessions: The Socialist Objects of Russian Constructivism* (Cambridge, MA: MIT Press, 2005), 90. See also Christina Kiaer, "The Russian Constructivist Flapper Dress," *Critical Inquiry* 28, no. 1 (Autumn 2001): 185–243.
55. See Sigrid Wortmann Weltge, *Women's Work: Textile Art from the Bauhaus* (San Francisco: Chronicle Books, 1993); T'ai Smith, *Bauhaus Weaving Theory: From Feminine Craft to Mode of Design* (Minneapolis: University of Minnesota Press, 2014).
56. Alice Kessler-Harris, *Out to Work: A History of Wage-Earning Women in the United States* (New York: Oxford University Press, 2003), 139; Karl Marx, *Capital*, trans. Ben Fowkes (London: Penguin, 1990), 1:595–99.
57. Eisenstein once claimed that he owned everything that had been written on Daumier; Fuchs, for his part, was a leading collector of the French caricaturist and had even published a four-volume anthology of his woodcuts and lithographs. See Ted Perry, "Introduction," in *Eisenstein at Work*, ed. Jay Leyda and Zina Voynow (New York: Pantheon, 1982), vii; Eduard Fuchs, *Honoré Daumier*, 4 vols. (Munich: Albert Langen, 1927).
58. See Eduard Fuchs, *Das erotische Element in der Karikatur* (Berlin: A. Hoffman 1904); Eduard Fuchs, *Illustrierte Sittengeschichte vom Mittelalter bis zur Gegenwart*, 3 vols. (Munich: Albert Langen, 1909–12). On Eisenstein's erotic drawings see Andrei Deryabin, ed., *A Mischievous Eisenstein* (St. Petersburg, Russia: Slavia, 2000); Jean-Claude Marcadé and Galia Ackerman, eds., *Desins secrets* (Paris: Seuil, 1999); Joan Neuberger, "Strange Circus: Eisenstein's Sex Drawings," *Studies in Russian and Soviet Cinema* 6, no. 1 (July 2012): 5–52.
59. Eduard Fuchs, *Die großen Meister der Erotik: Ein Beitrag zum Problem des Schöpferischen in der Kunst* (Munich: Albert Langen, 1930), 35.
60. Sergei Eisenstein, *Neravnodushnaia priroda*, ed. Naum Kleiman (Moscow: Muzei Kino, 2006), 2:499.
61. Sergei Eisenstein, "Wolves and Sheep: The Director and the Actor" (1935), in *Selected Works*, vol. 3, *Writings, 1934–1947*, ed. Richard Taylor, trans. William Powell (London: BFI, 1996), 48; Sergei Eisenstein, "The Future of Film (in an Interview with Mark Segal)," *Close Up* 8, no. 2 (August 1930): 144.
62. Sergei Eisenstein, "Wolves and Sheep: The Director and the Actor," 48.
63. Sergei Eisenstein, "Vorwort" (1944), in *Metod*, 2:417.
64. Karl Marx and Friedrich Engels, *The German Ideology*, 206.
65. Walter Benjamin, "Eduard Fuchs, Collector and Historian" (1937), trans. Howard Eiland and Michael W. Jennings, in *Walter Benjamin: Selected Writings*, vol. 3, 1935–1938 (Cambridge, MA: Belknap, 2002), 283.
66. Walter Benjamin, "Eduard Fuchs, Collector and Historian," 284–85.
67. Chuck Jones, interview by Greg Ford and Richard Thompson (1972), in *Chuck Jones: Conversations*, ed. Maureen Furniss (Jackson: University of Mississippi Press, 2005), 107.
68. Eduard Fuchs, *Dachreiter und verwandte chinesische Keramik des 15. bis 18. Jahrhunderts* (Munich: Albert Langen, 1924), 45, quoted in Walter Benjamin, "Eduard Fuchs, Collector and Historian," 284.
69. Siegfried Kracauer, "The Mass Ornament," 76.
70. Chuck Jones quoted in Bill Schaffer, "Cinema Three? Re-Animating Deleuze," *Warwick Journal of Philosophy* 16 (2005): 459.

71. Béla Balázs, *Theory of the Film: Character and Growth of a New Art*, trans. Edith Bone (New York: Dover, 1970), 192.

72. Tom Gunning, "Animating the Instant: The Secret Symmetry between Animation and Photography," in *Animating Film Theory*, ed. Karen Beckman (Durham, NC: Duke University Press, 2014), 46.

73. 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: University of Chicago Press, 2001), 88–89.

74. Imamura Taihei, *Manga eiganon* (Tokyo: Ghibli Library, 2005), 31, quoted in Yuriko Furuhashi, "Rethinking Plasticity: The Politics and Production of the Animated Image," *Animation: An Interdisciplinary Journal* 6, no. 1 (March 2011): 32. See also Alla Gadassik, "Assembling Movement: Scientific Motion Analysis and Studio Animation Practice," *Discourse* 37, no. 3 (Fall 2015): 269–97.

75. Imamura Taihei, "A Theory of the Animated Sound Film" (1936), trans. Michael Baskett, *Review of Japanese Culture and Society* 22 (December 2010): 47.

76. See Michael Barrier, *Hollywood Cartoons*, 436–37.

77. Tom Klein, "Woody Abstracted: Film Experiments in the Cartoons of Shamus Culhane," *Animation: An Interdisciplinary Journal* 6, no. 1 (March 2011): 39–53. See also Michael Cieply, "That Noisy Woodpecker Had an Animated Secret," *New York Times*, April 10, 2011, C1. Klein's research uncovers abstract paintings in the films Shamus Culhane directed for Walter Lantz in the mid-1940s. His frame-by-frame approach is quite similar to my own, but his ultimate focus is on the singular genius of Culhane: he claims that a sequence from *The Loose Nut* (Universal, 1945), for instance, shows us Culhane's "creative mindscape." It should also be noted that while Klein is correct to point out Eisenstein's influence on Culhane, he does not account for the numerous animators who looked to Eisenstein for inspiration in different ways, including Hugh Harman, Chuck Jones, and Jules Engel.

78. Robert Stam, *Reflexivity in Film and Literature: From Don Quixote to Jean-Luc Godard* (New York: Columbia University Press, 1992), 95.

79. Manny Farber, "Short and Happy," in *Negative Space: Manny Farber on the Movies* (New York: Da Capo, 1998), 52; Kristin Thompson, "Implications of the Cel Animation Technique," in *The Cinematic Apparatus*, ed. Teresa de Lauretis and Stephen Heath (New York: St. Martin's, 1980), 116.

80. Sergei Eisenstein, "On Disney," 103.

81. Scott Bukatman, "Some Observations Pertaining to Cartoon Physics; or, The Cartoon Cat in the Machine," in *Animating Film Theory*, 303.

82. Karen Beckman, "The Tortoise, the Hare, and the Constitutive Outsiders: Reframing Fast and Slow Cinemas," *Cinema Journal* 55, no. 2 (Winter 2016): 128.

83. Siegfried Kracauer, "The Mass Ornament," 76.

84. Sergei Eisenstein, "On Disney," 95.

85. Walter Benjamin, "Mickey Mouse," in *The Work of Art in the Age of Its Mechanical Reproducibility and Other Writings on Media*, trans. Rodney Livingston (Cambridge, MA: Harvard University Press, 2008), 338.

86. Dan O'Neill, quoted in Maureen Orth, "Lewdy Tunes and Merry Maladies," *Village Voice*, April 6, 1972, 23ff.

87. Terry Ramsaye, "Mickey Mouse: He Stays on the Job" (1932), in *A Mickey Mouse Reader*, ed. Garry Agpar (Jackson: University Press of Mississippi, 2014), 56.

88. This, of course, was one of the primary reasons Eisenstein was so attracted to Mickey Mouse. As early as 1930 he was praising those instances in which “a graceful movement of the foot is accompanied by appropriate music, which is, as it were, the audible expression of the mechanical action.” See Sergei Eisenstein, “The Future of Film,” 143.

89. Craig Yoe and Janet Morra-Yoe, eds., *The Art of Mickey Mouse* (New York: Hyperion, 1991); Garry Apgar, *Mickey Mouse: Emblem of the American Spirit* (San Francisco: Walt Disney Family Foundation Press, 2015).

90. Herbert P. J. Marshall Papers, MSE/MN 5001, folder 3, Department of Rare Books and Special Collections, Hesburgh Libraries of Notre Dame, Indiana.

91. Ivor Montagu, *With Eisenstein in Hollywood* (1967; repr., New York: International, 1969), 81.

92. See John Shelton Lawrence, “Donald Duck v. Chilean Socialism: A Fair Use Exchange,” in *Fair Use and Free Inquiry: Copyright Law and the New Media*, ed. Lawrence and Bernard Timberg (Norwood, NJ: Ablex, 1989), 51–69; Michael Todd Helfand, “When Mickey Mouse Is as Strong as Superman: The Convergence of Intellectual Property Laws to Protect Fictional Literary and Pictorial Characters,” *Stanford Law Review* 44, no. 3 (February 1992): 623–74; Douglas A. Hedenkamp, “Free Mickey Mouse: Copyright Notice, Derivative Works, and the Copyright Act of 1909,” *Virginia Sports and Entertainment Law Journal* 2, no. 2 (2003): 254–79; Ben Depoorter, “The Several Lives of Mickey Mouse: The Expanding Boundaries of Intellectual Property Law,” *Virginia Journal of Law and Technology* 9, no. 4 (Spring 2004): 1–68.

93. John Updike, introduction to *The Art of Mickey Mouse*, n.p.

94. Pathe Exchange Ltd. and Van Beuren Co. v. Walt Disney Productions Ltd. (9th Cir. 1931), 33, reproduced in *Classics from the Van Beuren Studio* (Ann Arbor, MI: Thunderbean Animation, 2015), DVD.

95. Pathe Exchange Ltd. and Van Beuren Co. v. Walt Disney Productions Ltd. (9th Cir. 1931), 43.

96. E. M. Forster, “Mickey and Minnie” (1934), in *A Mickey Mouse Reader*, 90.

97. Gilles Deleuze, *Cinema 1: The Movement-Image* (Minneapolis: University of Minnesota Press, 1986), 5.

98. Ollie Johnston and Frank Thomas, *Disney Animation*, 56.

99. Ollie Johnston and Frank Thomas, *Disney Animation*, 275.

100. Walter Benjamin, “The Formula in Which the Dialectical Structure of Film Finds Expression” (1935), trans. Edmund Jephcott, in *Walter Benjamin: Selected Writings*, 3:84. In his discussion of the latent affinities between photography and animation, Gunning offers a similar formulation: “The technical nature of cinema—producing continuous motion from discontinuous instants (frames)—reveals the common grounding of photography and animation in their control of time.” Tom Gunning, “Animating the Instant,” 38.

#### 4 THE MULTIPLICATION OF TRACES: XEROGRAPHIC REPRODUCTION AND ONE HUNDRED AND ONE DALMATIANS

1. Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Review Press, 1974), 301.

2. Herman Melville, “Paradise of Bachelors and Tartarus of Maids,” in *Tales, Poems, and Other Writings*, ed. John Bryant (New York: Modern Library, 2001), 159.

3. Xerox ad, *Business Week*, August 24, 1963, 56–57.
4. Xerox ad, *Fortune*, August 1960, 155. For an analysis of early Xerox advertising campaigns see Hillel Schwartz, *The Culture of the Copy: Striking Likenesses, Unreasonable Facsimiles*, rev. ed. (New York: Zone Books, 2014), 194–99.
5. See for instance Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (Cambridge, MA: MIT Press, 2006); Rick Altman, *Silent Film Sound* (New York: Columbia University Press, 2004); James Lastra, *Sound Technology and the American Cinema: Perception, Representation, Modernity* (New York: Columbia University Press, 2000); Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press, 2003).
6. James Lastra, *Sound Technology and the American Cinema*, 13.
7. James Lastra, *Sound Technology and the American Cinema*, 62.
8. Marshall McLuhan, “Address at Vision 65,” *American Scholar* 35, no. 2 (Spring 1966): 202. See also John Brooks, “Xerox Xerox Xerox Xerox,” *New Yorker*, April 1, 1967, 46–90.
9. The full title of the ABC broadcast was “The Confrontation between Senator Joe McCarthy and Attorney Joseph Welch on the Occasion of the Historic Army-McCarthy Hearings before a Senate Investigating Committee and 20,000,00 Stunned Americans in the Spring of 1954,” and the agency behind the sponsorship was Papert, Koenig, Lois, which was also responsible for the Picasso advertisement. See “The Confrontation,” *Variety*, April 10, 1968, reprinted in *Variety Television Reviews*, vol. 9, 1966–69, ed. Howard H. Prouty (New York: Garland, 1989).
10. Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction,” in *Illuminations*, ed. Hannah Arendt (New York: Harcourt, Brace and World, 1968), 223. An English translation (by H. H. Gerth and Don Martindale) of Benjamin’s essay was first published in 1960: “The Work of Art in the Epoch of Mechanical Reproduction,” *Studies on the Left* 1, no. 2 (Winter 1960): 28–46.
11. Yuriko Furuhashi, “Animating Copies: Japanese Graphic Design, the Xerox Machine, and Walter Benjamin,” in *Animating Film Theory*, ed. Karen Beckman (Durham, NC: Duke University Press, 2014), 188.
12. See Ute Stuffer, Timm Ulrichs, and René Zechlin, eds., *Timm Ulrichs: Betreten der Ausstellung verboten! Werke von 1960 bis 2010* [Keep Out of the Exhibition! Works from 1960 to 2010] (Ostfildern, Germany: Hatje Cantz Verlag, 2011), 92.
13. Lisa Gitelman, “Daniel Ellsberg and the Lost Idea of the Photocopy,” in *History of Participatory Media: Politics and Publics, 1750–2000*, ed. Anders Ekström et al. (New York: Routledge, 2011), 112. See also Lisa Gitelman, *Paper Knowledge: Toward a Media History of Documents* (Durham, NC: Duke University Press, 2014).
14. More recently, the experimental animator Alexander Stewart collated more than 4,500 photocopies of photocopies into the short film *Errata* (2005).
15. Lisa Gitelman, “Daniel Ellsberg and the Lost Idea of the Photocopy,” 115.
16. Juan A. Suárez, “Structural Film: Noise,” in *Still Moving: Between Cinema and Photography*, ed. Karen Beckman and Jean Ma (Durham, NC: Duke University Press, 2008), 68.
17. Lisa Gitelman, *Always Already New*, 8.
18. Zachary Schwartz quoted in Michael Barrier, *Hollywood Cartoons: American Animation in Its Golden Era* (New York: Oxford University Press, 1999), 512.

19. This language appears in all three of Iwerks's patents: Ub Iwerks, "Xerographic Powder Image Transfer Apparatus," US Patent 2,995,108, filed 1958, patented August 8, 1961; Ub Iwerks, "Xerographic Fusing Apparatus," US Patent 3,049,810, filed 1957, patented August 21, 1962; Ub Iwerks, "Xerographic Developing Apparatus," US Patent 3,057,324, filed 1959, patented October 9, 1962.

20. Of course, this hardly exhausts the list of institutions to which an animation studio might be compared. Consider, for instance, one journalist's comparison of the Hyperion Studio to an insane asylum: "The inmates love it. All day long they sit in their holes and corners contriving infinitesimal bits of lunacy—one privileged lunatic I saw was turning a staid still life of a regular violin into a fantastic creation only a mad musician could possibly play. Others, less privileged, have done nothing all morning but dip a brush into a pot of paint labeled 'X-76' and carefully fill in all similarly numbered areas on the squares of celluloid handed to them by the keepers." Arthur Millier, "Walter in Wonderland," *Los Angeles Sunday Magazine*, December 4, 1938, 3.

21. Martin Provinsen quoted in Michael Barrier, *The Animated Man: A Life of Walt Disney* (Berkeley: University of California Press, 2008), 153.

22. Harry Braverman, *Labor and Monopoly Capital*, 316.

23. For a discussion of these trends within white-collar work see Evelyn Nakano Glenn and Roslyn L. Feldberg, "Degraded and Deskilled: The Proletarianization of Clerical Work," *Social Problems* 25, no. 1 (October 1977): 52–64.

24. Thorstein Veblen, *The Theory of the Leisure Class: An Economic Study of Institutions* (1899; repr., B. W. Huebsch, 1912), 159–60.

25. Don Graham, Class on Action Analysis, June 7, 1937, box 1, folder 3, John Canemaker Animation Collection, Accretions 2001, MSS 040, Fales Library and Special Collections, New York University Libraries.

26. Other studios reserved this technique for special releases only, such as Chuck Jones's patriotic short *Old Glory* (Warner Bros., 1939). According to the painter Martha Sigall and a contemporary news report, producer Leon Schlesinger went all out on that short: fresh nitrate cels, special color inks, an additional hundred prints (fifty was the typical number in circulation). See Martha Sigall with Jerry Beck, commentary to *Old Glory*, in *Looney Tunes Golden Collection*, vol. 2, disc 3 (Los Angeles: Warner Home Video, 2004), DVD; Frederick C. Othman, "First Patriotic Cartoon in Hollywood's History Set for July 4 Release," *Pittsburgh Post-Gazette*, June 17, 1939, 22.

27. Sergei Eisenstein, "On Disney," in *The Eisenstein Collection*, ed. Richard Taylor (Oxford: Seagull Books, 2006), 147.

28. Phyllis Craig quoted in Maureen Furniss, "Animation and Color Key: The Career of Phyllis Craig," *Animation Journal* 5, no. 1 (1996): 62.

29. Grim Natwick quoted in J. B. Kaufman, *The Fairest One of All: The Making of Walt Disney's Snow White and the Seven Dwarfs* (San Francisco: Walt Disney Family Foundation Press, 2012), 129. See also William E. Garity, "Latest Tricks of the Animated Filmmakers," *Popular Mechanics*, May 1938, 713–15, 114A, 116A.

30. For a detailed look at the special effects created by Schultheis and his team see John Canemaker, *The Lost Notebook: Herman Schultheis and the Secrets of Walt Disney's Movie Magic* (San Francisco: Walt Disney Family Foundation Press, 2014).

31. Max Fleischer, "Art of Making Motion Picture Cartoons," US Patent 2,130,541, filed December 14, 1936, patented September 20, 1938.

32. Tamara Thornton, *Handwriting in America: A Cultural History* (New Haven, CT: Yale University Press, 1996), 165.
33. Walt Disney, "Growing Pains," *Journal of the Society of Motion Picture Engineers* 236, no. 1 (January 1941): 40.
34. Paul Klee, *Pedagogical Sketchbook*, trans. Sibyl Moholy-Nagy (New York: Praeger, 1972), 16; Sergei Eisenstein, "Organichnost' i obrazhnost'" [The Organic and the Graphic], in *Izbrannyye proizvedeniya*, ed. L. A. Il'ina (Moscow: Iskusstvo 1966), 4:653.
35. *Chicago Daily News* story quoted in "The True Abstract," *Art Digest* 13, no. 20 (September 1, 1939): 23.
36. Milt Kahl, interview by Michael Barrier and Milton Gray on November 4, 1976, in *Walt's People: Talking Disney with the Artists Who Knew Him*, ed. Didier Ghez (Bloomington, IN: XLibris, 2012), 12:461.
37. Ken Anderson, interview by Don Peri, in *Working with Walt: Interviews with Disney Artists* (Jackson: University of Mississippi, 2008), 139–40.
38. Marc Davis quoted in Neal Gabler, *Walt Disney: The Triumph of the American Imagination* (New York: Knopf, 2006), 620; Marc Davis quoted in Leslie Iwerks and John Kenworthy, *The Hand behind the Mouse* (New York: Disney Editions, 2001), 195.
39. Bamber Gascoigne, *How to Identify Prints* (London: Thames and Hudson, 2004), 57.
40. Carlo Ginzburg, "Morelli, Freud and Sherlock Holmes: Clues and Scientific Method," trans. Anna Davin, *Historical Workshop Journal* 9, no. 1 (Spring 1980): 16.
41. Ken Anderson interview, *Storyboard / The Art of Laughter*, August–September 1991, 14.
42. Harry Braverman, *Labor and Monopoly Capital*, 126.
43. Herman Melville, "Bartleby the Scrivener," in *Tales, Poems, and Other Writings*, 72; Honoré de Balzac, "Z. Marcas," in *The Human Comedy: Selected Stories*, ed. Peter Brooks (New York: New York Review of Books, 2014), 207.
44. Chuck Jones, *Chuck Reducks: Drawing from the Fun Side of Life* (New York: Warner Books, 1996), 168.
45. Joyce Carlson, interview by Jim Korkis, in *Walt's People*, 1:237.
46. See Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Witz (Stanford, CA: Stanford University Press, 1999), 183–98; Sharon Hartman Strom, "Machines Instead of Clerks': Technology and the Feminization of Bookkeeping, 1910–1950," in *Computer Chips and Paper Clips: Technology and Women's Employment*, ed. Heidi I. Hartman (Washington, DC: National Academy Press, 1987), 2:63–97.
47. Siegfried Kracauer, *The Salaried Masses: Duty and Distraction in Weimar Germany*, trans. Quintin Hoare (London: Verso, 1998), 42.
48. "Girls at Work for Disney," *Glamour*, April 1941, 50.
49. Walt Disney quoted in Hope Ridings Miller, "Walt Disney, Cartoon Wizard, Comes to Capital on War Mission," *Washington Post*, December 2, 1943, B5.
50. Siegfried Kracauer, *The Salaried Masses*, 42.
51. Grace Bailey quoted in Bob Thomas, *Walt Disney: The Art of Animation* (New York: Golden, 1958), 175.
52. Jean Erwin, interview by Dave Smith on March 30, 1983, in *Walt's People*, 13:126.
53. Antonio Gramsci, "Taylorism and the Mechanisation of the Worker," in *Selections from the Prison Notebooks*, ed. Quintin Hoare and Geoffrey Nowell Smith (New York: International, 1971), 308–10.

54. Walter Benjamin, "One-Way Street" (1928), trans. Edmund Jephcott, in *Walter Benjamin: Selected Writings*, vol. 1, 1913–1926 (Cambridge, MA: Belknap, 1996), 447.

55. Roland Barthes, "Non Multa Sed Multum" (1976), in *Writings on Cy Twombly*, ed. Nicola del Roscio (Munich: Schirmer/Mosel, 2002), 95, 96, 98, emphasis in original.

56. Roland Barthes, "Non Multa Sed Multum," 98, my emphasis.

57. Of Twombly, Barthes asks, "What does he do? What name can we give to what he does? Certain words suggest themselves spontaneously—words like 'drawing,' 'graphism,' 'scribbling,' 'gauche,' and 'child-like'—but immediately afterwards one runs into a problem: at one and the same time (and this is very strange) *these words are neither false nor satisfying.*" Roland Barthes, "Non Multa Sed Multum," 88. Of Saul Steinberg's cartoons he writes, "I cover Steinberg with adjectives, which are like the many rapid vibrations that this living work arouses within me. I say to myself: it is intelligent, precise, funny, amused, varied insistent, ironic, tender, elegant, critical, beautiful, attentive, open, sharp, inventive, distinguished, enchanting, and so on." Roland Barthes, "All Except You," in *Saul Steinberg* (Valencia, Spain: Institut Valencià d'Art Modern, 2002), 159. See also "The Grain of the Voice," in which Barthes asks of music criticism, "Are we condemned to the adjective?" Roland Barthes, *Image-Music-Text*, trans. Steven Heath (New York: Hill and Wang, 1977), 180.

58. Sergei Eisenstein, *Beyond the Stars: The Memoirs of Sergei Eisenstein*, trans. William Powell (London: BFI, 1995), 583.

59. Stendhal, *The Red and the Black*, trans. Robert M. Adams (New York: Norton Critical Editions, 1969), 333–34.

60. Sergei Eisenstein, *Neravnodushnaia priroda*, ed. Naum Kleiman (Moscow: Muzei kino, 2004), 1:484; Sergei Eisenstein, "K issledovaniuu 'Disnei'" [Toward the Study of Disney], in *Metod*, ed. Naum Kleiman (Moscow: Muzei kino, 2002), 2:496.

61. Sergei Eisenstein, "Some Personal Reflections on Taboo" (1943), in *The Eisenstein Collection*, 421.

62. William Shakespeare, *Macbeth*, act 1, scene 4; act 2, scene 2.

63. Sergei Eisenstein, *Beyond the Stars*, 579.

64. *The Body of the Line: Eisenstein's Drawings* (New York: The Drawing Center, 2000); Andrei Deryabin, ed., *A Mischievous Eisenstein* (St. Petersburg, Russia: Slavia, 2000); Richard Taylor, ed., *The Eisenstein Collection*.

65. C. Wright Mills, *White Collar: The American Middle Classes* (1951; repr., New York: Oxford University Press, 2002), 220.

66. Ken Anderson, interview by Don Peri, in *Working with Walt*, 140.

67. "52% of TV Plugs Animated," *Hollywood Reporter*, October 24, 1958, 1.

68. "U.S. Japan-Cartoon Co-Production Set by Toei with Harman-Ising," *Variety*, May 21, 1958, 11; "Hanna & Barbera Near Closing Cartoonery Deal with Columbia Pics," *Variety*, December 9, 1959, 3; "Coast's \$35-Mil. Cartoon Biz," *Variety*, May 24, 1961, 7, 11. See also Tom Sito, *Drawing the Line: The Untold Story of the Animation Unions from Bosko to Bart Simpson* (Lexington: University of Kentucky Press, 2006), 251–55.

69. For more on UPA see Amid Amidi, *Cartoon Modern: Style and Design in Fifties Animation* (New York: Chronicle Books, 2006); Dan Bashara, "Cartoon Vision: UPA, Precisionism and American Modernism," *Animation: An Interdisciplinary Journal* 10, no. 2 (July 2015): 82–101.

70. Ollie Johnston and Frank Thomas, *Disney Animation: The Illusion of Life* (New York: Abbeville, 1981), 42–69. The film's human protagonist, Roger, has a large, pointed nose, a design



trope common in the work of UPA and Saul Steinberg. But some of his more complicated movements, such as when he plays musical instruments, are rotoscoped.

71. Ray Aragon, interview by Didier Ghez, in *Walt's People*, 11:283.

72. See Sergei Eisenstein, *Nonindifferent Nature*, trans. Herbert Marshall (Cambridge, England: Cambridge University Press, 1987), 388–91; Kristin Thompson, “Implications of the Cel Animation Technique,” in *The Cinematic Apparatus*, ed. Teresa de Lauretis and Stephen Heath (New York: St. Martin's, 1980), 112.

73. See Eisenstein's description of “the colored storytelling” of Russian woodcuts, which “results not so much from the will of the artist, but from the limited technical means leaping independently, penetrating one other.” Sergei Eisenstein, “I siuzhet, i tsvet” [Both Plot and Color] (1947/48), in *Izbrannie proizvedeniia*, ed. L. A. Ilina (Moscow: Isskustvo, 1964), 3:515–17.

74. Alina Louchheim, “Cartoons as Art,” *New York Times*, August 23, 1953, X8.

75. Some earlier Disney shorts, including segments in the package pictures of the 1940s, had a contemporary setting. Examples include *All the Cats Join In*, with music by Benny Goodman—an episode in *Make Mine Music* (1946)—and *Football (Now and Then)* (1953), both directed by Jack Kinney, as well as Ward Kimball's contributions to Disney's anthology television series.

76. “Handbook of Production Information” and “Original Presskit,” box 7, folder 10, Walt Disney Productions Publicity Ephemera (Collection 280), Performing Arts Special Collections, Charles E. Young Research Library, UCLA.

77. Chuck Jones quoted in Leslie Iwerks and John Kenworthy, *The Hand behind the Mouse*, 192.

78. Dave Michener, interview by Didier Ghez, May 10 and 23, 2006, in *Walt's People*, 5:358–59.

79. Chuck Jones, interview by Michael Barrier and Bill Spicer, *Funnyworld*, no. 13 (1971), available at [http://www.michaelbarrier.com/Funnyworld/Jones/interview\\_chuck\\_jones.htm](http://www.michaelbarrier.com/Funnyworld/Jones/interview_chuck_jones.htm).

80. Norman Maurer, “Methods and Means for Producing Animated Cartoons,” US Patent 2,998,313, filed January 17, 1955, patented August 29, 1961.

81. “Animation without Animators Claimed for Artiscopes Process,” *Broadcasting*, April 15, 1957, 78; “Industry News,” *American Cinematographer* 42, no. 10 (October 1961): 584; “Sponsor Week Wrap-Up,” *Sponsor*, April 9, 1962, 57; Leon H. Maurer and Harry Wuest, “Methods and Procedures for the Production of Fully-Animated Cartoon Films Using New Animascope Automatic Animation Processes,” *Journal of the Society of Motion Picture and Television Engineers* 76, no. 10 (October 1967): 1012–16.

82. J. B. Kaufman, *The Fairest One of All*, 49.

83. Incidentally, the Photostat camera, developed by Eastman Kodak, was an important precursor to the Xerox machine. See Barbara Rhodes and William Wells Streeter, *Before Photocopying: The Art and History of Mechanical Copying, 1780–1938* (New Castle, DE: Oak Knoll Press; Northampton, MA: Heraldry Bindery, 1999), 159.

84. Chuck Jones, interview by Michael Barrier and Bill Spicer. Ub Iwerks would later use a very similar technique to multiply the birds in Alfred Hitchcock's *The Birds* (1963). See Leslie Iwerks and John Kenworthy, *The Hand behind the Mouse*, 205–6; Kyle Counts, “The Making of *The Birds*,” *Cinefantastique* 10, no. 2 (1980): 14–35. For an analysis of more recent

examples of a similar practice see Kristen Whissel, "The Digital Multitude," *Cinema Journal* 49, no. 4 (Summer 2010): 90–110.

85. Donald Crafton, *Shadow of a Mouse: Performance, Belief, and World-Making in Animation* (Berkeley: University of California Press, 2013), 169.

86. Chuck Jones quoted in Donald Crafton, *Shadow of a Mouse*, 37.

87. Walter Benjamin, "The Work of Art in the Age of Its Reproducibility" (2nd version), in *Walter Benjamin: Selected Writings*, vol. 3, 1935–1938 (Cambridge, MA: Belknap, 2002), 103.

88. Walter Benjamin, *Arcades Project*, trans. Howard Eiland and Kevin McLaughlin (Cambridge, MA: Harvard University Press, 1999), 225. Incidentally, the Russian word for animation, *mul'tplikatsiia*, literally means "multiplication."

89. Honoré de Balzac, *Modeste Mignon and Other Stories*, trans. Clara Bell (Philadelphia: Gebbie, 1900), 72, quoted in both Walter Benjamin, "The Paris in the Second Empire in Baudelaire" (1938), in *Walter Benjamin: Selected Writings*, vol. 4, 1938–1940, ed. Howard Eiland and Michael W. Jennings (Cambridge, MA: Belknap, 2003), 26–27; and Walter Benjamin, *Arcades Project*, 225.

90. Scott Curtis, "Tex Avery's Prison House of Animation, or Humor and Boredom in Studio Cartoons," in *Funny Pictures: Animation and Comedy in Studio-Era Hollywood*, ed. Daniel Goldmark and Charlie Keil (Berkeley: University of California Press, 2011), 226.

91. Vladimir Nabokov, *Transparent Things* (1972; repr., New York: Vintage International, 1989), 6–7.

92. Lisa Gitelman, *Always Already New*, 124.

93. Ben Kafka, *The Demon of Writing: Powers and Failures of Paperwork* (New York: Zone Books, 2012), 12.

94. Walt Peregoy, interview by Julie Svendsen on December 15, 2007, in *Walt's People*, 9:284; Jack Kirby, interview by Gary Groth in summer 1989, *Comics Journal*, no. 134 (February 1990), available at <http://www.tcj.com/jack-kirby-interview/>.

95. Walter Benjamin, "Mickey Mouse" (1931), in *The Work of Art in the Age of Its Mechanical Reproducibility and Other Writings on Media*, trans. Rodney Livingston (Cambridge, MA: Harvard University Press, 2008), 338.

## CONCLUSION

1. Walter Benjamin, "The Rainbow: A Conversation about Imagination," in *Walter Benjamin: Early Writings, 1910–1917*, ed. Howard Eiland et al. (Cambridge, MA: Belknap, 2011), 215.

2. Noël Carroll, *Philosophical Problems of Classical Film Theory* (Princeton, NJ: Princeton University Press, 1988), 149. See also Daniel Morgan, "Rethinking Bazin: Ontology and Realist Aesthetics," *Critical Inquiry* 32, no. 3 (Spring 2006): 455.

3. Siegfried Kracauer, "Frankreich und der Zeichenfilm," in *Werke Band: Kleine Schriften zum Film*, vol. 6, no. 3, 1932–1961, ed. Inka Mülder-Bach (Frankfurt: Suhrkamp Verlag, 2004), 308–9, my translation.

4. Siegfried Kracauer, "Dumbo" (1941), in *Siegfried Kracauer's American Writings*, ed. Johannes von Moltke and Kristy Rawson (Berkeley: University of California Press, 2012), 139–40.

5. T. S., "Bambi, A Musical Cartoon in Technicolor," *New York Times*, August 14, 1942, <https://www.nytimes.com/1942/08/14/archives/bambi-a-musical-cartoon-in-technicolor-produced-by-walt-disney-from.html>.
6. Julie Turnock, *Plastic Reality: Special Effects, Technology, and the Emergence of 1970s Blockbuster Aesthetics* (New York: Columbia University Press, 2015), 43, 24, emphasis in original.
7. André Bazin, *Orson Welles: A Critical View*, trans. Jonathan Rosenbaum (New York: Harper and Row, 1978), 74, 80.
8. André Bazin, "Evolution of the Language of Cinema," in *What Is Cinema?*, trans. Hugh Gray (Berkeley: University of California Press, 2004), 1:52.
9. André Bazin, "Evolution of the Language of Cinema," 50.
10. André Bazin, "Evolution of the Language of Cinema," 50.
11. Karl Schoonover, "Wastrels of Time: Slow Cinema's Laboring Body, the Political Spectator, and the Queer," *Framework: The Journal of Cinema and Media* 53, no. 1 (Spring 2012): 66.
12. Walter Benjamin, "Mickey Mouse" (1931), in *The Work of Art in the Age of Its Mechanical Reproducibility and Other Writings on Media*, trans. Rodney Livingston (Cambridge, MA: Harvard University Press, 2008), 338.
13. "Cinderella," *Showman's Trade Review*, December 19, 1949, 21; "Cinderella," *Harrison's Reports*, December 17, 1949, 202.
14. Bosley Crowther, "The Screen," *New York Times*, February 23, 1950, 33.
15. Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality* (Princeton, NJ: Princeton University Press, 1997), 90.
16. Walter Benjamin, "Doctrine of the Similar," in *Walter Benjamin: Selected Writings*, vol. 2, 1927–1934 (Cambridge, MA: Belknap, 1999), 694.
17. Fernando Pessoa, *The Book of Disquiet*, trans. Margaret Jull Costa (London: Serpent's Tail, 1991), 113.

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