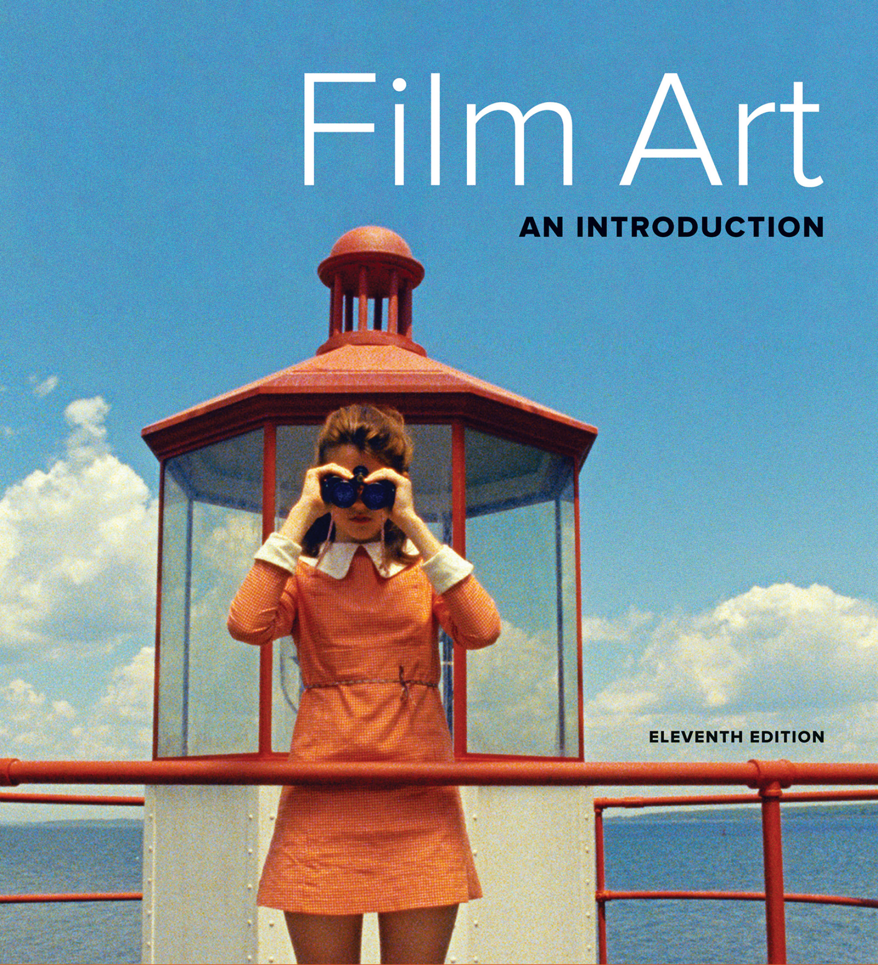
Film Art

AN INTRODUCTION



ELEVENTH EDITION

McGraw Hill Education

DAVID BORDWELL | KRISTIN THOMPSON | JEFF SMITH

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FILM ART: AN INTRODUCTION, ELEVENTH EDITION

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David Bordwell and Kristin Thompson have also collaborated on *Film History: An Introduction* (McGraw-Hill, 3d ed., 2010), *Minding Movies: Observations of the Art, Craft, and Business of Filmmaking* (University of Chicago Press, 2011), *Christopher Nolan: A Labyrinth of Linkages* (Irvington Way Institute Press, 2013), and, with Janet Staiger, on *The Classical Hollywood Cinema: Film Style and Mode of Production to 1960* (Columbia University Press, 1985).

Jeff Smith is a professor in the Communication Arts Department at the University of Wisconsin–Madison and the author of two books: *The Sounds of Commerce: Marketing Popular Film Music* (Columbia University Press, 1998) and *Film Criticism, the Cold War, and the Blacklist: Reading the Hollywood Reds* (University of California Press, 2014).

To our parents,

Marjorie and Jay Bordwell

and Jean and Roger Thompson

FILM ART—A PERSONALIZED LEARNING AND TEACHING EXPERIENCE IN FILM APPRECIATION

Film Art helps students master the skills of film appreciation by teaching them to analyze and appreciate classic and contemporary films. Enhanced by McGraw-Hill Education's SmartBook®, *Film Art* delivers a learning and teaching experience tailored to the needs of each institution, instructor, and student.

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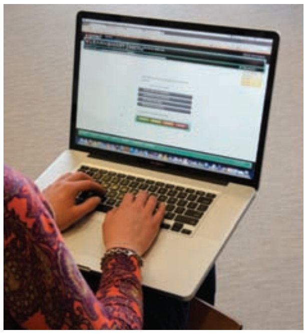

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ANALYZING AND CRITIQUING FILM

Mc Graw Hill Education connect®

Studying film isn't just about learning the facts; it's also about the skills of watching and listening closely. Together with the Criterion Collection, we've developed Connect Film to introduce students to the world of film and challenge them to develop the critical-analysis skills necessary to become informed viewers.

The authors have partnered with the Criterion Collection to create brief video tutorials, available exclusively in Connect Film. The tutorials use film clips to clarify and reinforce key concepts and model the critical skills necessary to become informed viewers. They can be shown in class or assigned for students to view outside class, with brief optional follow-up quizzes. Below is a list of Criterion Collection tutorial selections available in Connect Film:

Light Sources: *Ashes and Diamonds* (1958)

Available Lighting: *Breathless* (1960)

Staging in Depth: *Mr. Hulot's Holiday* (1953)

Color Motifs: *The Spirit of the Beehive* (1973)

Tracking Shots Structure a Scene: *Ugetsu* (1953)

Tracking Shot to Reveal: *The 400 Blows* (1959)

Style Creates Parallelism: *Day of Wrath* (1943)

Staging and Camera Movement in a Long Take: *The Rules of the Game* (1939)

Editing with Graphic Matches: *Seven Samurai* (1954)

Shifting the Axis of Action: *Shaun of the Dead* (2004)

Crossing the Axis of Action: *Early Summer* (1951)

Crosscutting: *M* (1931)

Elliptical Editing: *Vagabond* (1985)

Jump Cuts: *Breathless* (1960)

Sound Mixing: *Seven Samurai* (1954)

Contrasting Rhythms of Sound and Image: *Mr. Hulot's Holiday* (1953)

Offscreen Sound: *M* (1931)

What Comes Out Must Go In: 2D Computer Animation

Lens and Camera Movement

Film Lighting

Below are several Criterion Tutorials new to the eleventh edition:

Contrasting Style for Objective and Subjective Narration: *Journey to Italy* (1954)

Diegetic narration by an Unidentified Character: *I Vitelloni* (1953)

Setting and Costume Play an Active Role: *Ivan the Terrible, Part II* (1958)

Two Ways of Staging for Humor: *The Gold Rush* (1925)

The Long Lens and Zooming: *Close-up* (1990)

Playing with Unrealistic Sound: *Daisies* (1966)

Staging with the Main Characters' Backs toward the Camera: *L'Avventura* (1960)

Authenticity in Documentaries: *Nanook of the North* (1922)

Surrealism in Experimental Film: *Un Chien andalou* (1929)

Post Production Sound

In addition, Connect Film features **Film Analysis Assignments** with additional clips, film stills, and links to movie clips to help students practice analyzing aspects of each film and prepare them for their longer written assignments. These include clips from the following films:

Battleship Potemkin (1925)

D.O.A. (1950)

The General (1926)

His Girl Friday (1940)

The Lady Vanishes (1938)

M (1931)

Man with a Movie Camera (1929)

Meet John Doe (1941)

Night of the Living Dead (1968)

Nosferatu (1922)

Scarlet Street (1945)

Sita Sings the Blues (2008)

Wackiki Wabbit (1943)

APPRECIATING FILM

Film Art provides the respected scholarship and analytic tools students need to understand key vocabulary and concepts of film forms, techniques, and history; appreciate a wide variety of classic and contemporary films and the creative choices made by filmmakers to shape the experience of viewers; and analyze films critically and systematically to enrich their understanding and appreciation of any film, in any genre.

CREATIVE DECISIONS

"Creative Decision" sections provide in-depth examples to deepen students' appreciation for how creative choices by filmmakers affect how viewers respond. Discussions include, for example, performance and camera positioning in *The Social Network,* editing in *The Birds,* and overlapping dialogue cuts in *The Hunt for Red October.*

"Closer Look" features examine important issues in contemporary cinema and provide detailed looks at such topics as computer-generated imagery (CGI) in *The Lord of the Rings,* editing in *L. A. Confidential,* and motifs in *The Shining.*

Authors' blog, "Observations on Film Art." In what Roger Ebert called "the most knowledgeable film blog on the web," David Bordwell and Kristin Thompson share their ideas and experiences with instructors and students (http://www.davidbordwell.net/blog). Throughout the text, "Connect to the Blog" references point to blog entries with relevant ideas, terms, and film examples, connecting ideas in *Film Art* to the current film scene in an accessible way.

PERSONALIZING FILM TEACHING

Through **McGraw-Hill Education's Create**, a new chapter on Film Adaptations, written by Jeff Smith of the University of Wisconsin, is available for instructors to better customize and personalize their film appreciation course. In addition, an appendix on "Writing a Critical Analysis" is available for instructors who require written film critiques, and DVD Recommendations provide particularly effective resources related to key topics.

McGraw-Hill Create allows you to create a customized print book or eBook tailored to your course and syllabus. You can search through thousands of McGraw-Hill Education texts, rearrange chapters, combine material from other content sources, and include your own content or teaching notes. Create even allows you to personalize your book's appearance by selecting the cover and adding your name, school, and course information. To register and to get more information, go to http://create.mheducation.com.

Chapter-by-Chapter Changes

Chapter 1 Updated and expanded information on digital production, distribution, and exhibition, with examples of special effects from *Pacific Rim*. New information on contemporary theater sound systems, as exemplified by Atmos and *Brave*. New references to *Middle of Nowhere* and *Nightcrawler*. Examination of marketing campaigns for *The Dark Knight*, the *Transformers* series, and *The Grand Budapest Hotel*. Enhanced references to blog "Observations on Film Art."

Chapter 2 Enhanced references to blog "Observations on Film Art."

Chapter 3 Enhanced references to blog "Observations on Film Art."

Chapter 4 New references to mise-en-scene in *Watchmen, Snowpiercer*, and *Laura*. Enhanced references to blog "Observations on Film Art."

Chapter 5 Updated information on digital color grading. Discussion of 3D in *Life of Pi*. Discussions of *Family Plot* and *Leviathan*. Enhanced references to blog "Observations on Film Art."

Chapter 6 New examples from *Wolf of Wall Street* and *Lucy*. Enhanced references to blog "Observations on Film Art."

Chapter 7 Extensively revised sound chapter, with new material on sound perspective in the theater space. New analyses of sound techniques in *The Magnificent Ambersons, Blow-Out, Norma Rae, Interstellar, Breakfast at Tiffany's, Reservoir Dogs, The Nutty Professor, Vicki Cristina Barcelona, Gosford Park, 12 Monkeys,* and *Accident*, along with an expanded consideration of *The Conversation*. Enhanced references to blog "Observations on Film Art."

Chapter 8 Extensive new section on *Gravity* and film style in the digital age. Enhanced references to blog "Observations on Film Art."

Chapter 9 New section on sports film as genre, with new examples from *My Sweet Pepper Land, The World's Fastest Indian, Fever Pitch*, and *Offside*. Enhanced references to blog "Observations on Film Art."

Chapter 10 New examples from *The Act of Killing, Searching for Sugar Man*, and *Rango*. Enhanced references to blog "Observations on Film Art."

Chapter 11 New detailed analysis of *Moonrise Kingdom*. Enhanced references to blog "Observations on Film Art."

Chapter 12 Update on contemporary Hollywood industry and technology, including sound systems and Video on Demand. New examples from *Beetlejuice, Ben-Hur, The Apple,* and *Beasts of the Southern Wild*. Enhanced references to blog "Observations on Film Art."

FROM THE AUTHORS

If you're in your late teens or early twenties, we have something in common with you. That was the age when we became curious about—some would say, obsessed with—film, cinema, movies.

What fueled our enthusiasm was a simple love of this medium and the great films we saw. For us, films that are classics today, from *Alphaville, 2001,* and *The Godfather* through *Jaws* and *Nashville* to *Pulp Fiction* and *Chungking Express*, were new movies. Over the years, we've watched film history unfold, and our excitement at new developments hasn't flagged.

Of course, we loved particular films and admired particular filmmakers. At the same time, we were entranced by the artistic possibilities of film as an art form. As teachers and writers, we roamed widely, trying to understand films from very different traditions—from silent avant-garde cinema to modern Hong Kong film, from Los Angeles to Paris to Tokyo. We've written about modern Hollywood, including *The Lord of the Rings*, and filmmakers working outside Hollywood—for example, Carl Dreyer, Sergei Eisenstein, and Yasujiro Ozu. In the past ten years, we've extended our explorations to the Web, where we blog regularly about the many things that interest us in film.

Studying the arts isn't just about learning facts. That's why in *Film Art* we have always emphasized the skills of watching and listening closely. With the tenth edition we partnered with the prestigious Criterion Collection of DVDs and Blu-ray discs in our new Connect Film digital program (see pp. vi–vii). The Criterion Collection is dedicated to gathering many of the greatest classic and contemporary films from around the world. Criterion editions provide the highest technical quality and include award-winning supplements. They are a natural partner in introducing a new generation to cinema studies. We've created a series of clips that model the critical viewing skills that will help you become informed viewers. For this eleventh edition, we've added to our first set of clips, and we hope that these will continue to help you become critical, informed viewers.

Filmmaking has undergone a continuous change since we launched this book in 1979. Digital technology has given many people access to filmmaking tools, and it has changed film distribution and exhibition. You can watch movies on your laptop or mobile phone, and films now arrive at theaters on hard drives rather than film reels. Because we focus on concepts, and because the techniques we study remain central to all sorts of moving-image media, much of what we studied in earlier editions remains valid. Still, we've expanded our discussion to include the creative choices opened up by digital cinema.

Studying the arts isn't only about learning facts and concepts either, although both are important. In addition, studying the arts broadens our tastes. In eleven editions of *Film Art*, we've made reference to many well-known films but also to many that you've probably never heard of. This is part of our plan. We want to show that the world of cinema teems with a great many unexpected pleasures, and we hope to get you curious.

In surveying film art through such concepts as form, style, and genre, we aren't trying to wrap movies in abstractions. We're trying to show that there are principles that can shed light on a variety of films. We'd be happy if our ideas can help you to understand the films that you enjoy. And we hope that you'll seek out films that will stimulate your mind, your feelings, and your imagination in unpredictable ways. For us, this is what education is all about.

Acknowledgments

Over the 40 years of preparing editions of *Film Art: An Introduction* we have incurred many debts to hundreds of individuals, and it's impossible to thank them all individually. We do, however, want to thank certain people for their long-term support. Our colleagues at the University of Wisconsin–Madison: Tino Balio, Maria Belodubrovskaya, Ben Brewster, Noël Carroll, Kelley Conway, Kaitlin Fyfe, Maxine Fleckner-Ducey, Erik Gunneson, Vance Kepley, Mike King, Lea Jacobs, J. J. Murphy, Peter Sengstock, and Ben Singer have helped us in many ways. Archivists have also been exceptionally cooperative, so we thank Eileen Bowser, Elaine Burrows, Mary Corliss, the late Susan Dalton, the late Jacques Ledoux, Jan-Christopher Horak, Patrick Loughney, Nicola Mazzanti, Jackie Morris, Charles Silver, Paolo Cherchi Usai, and especially Gabrielle Claes for giving us access to films and materials in their collections. Thanks as well to Michael Barker of Sony Pictures Classics, Dan Talbot and José Lopez of New Yorker Films, and James Schamus, formerly of Focus Features. Thanks as well to Michael Barker of Sony Pictures Classics, Roni Lubliner of NBC–Universal, Peter McPartlin of Indian Paintbrush, and Matt Zoller Seitz of Rogerebert.com, who initiated our contact with Mr. McPartlin. Finally, we appreciate the kind cooperation of several filmmakers, including the late Les Blank, Bruce Conner, and Norman McLaren, as well as Ernie Gehr, Michael Snow, and Frederick Wiseman.

As the new contributor to this edition, Jeff Smith would like to thank Eric Dienstfrey for his valuable advice about the history of film sound technologies, Michele Smith for her helpful recommendations of new film examples, and Megan Lacroix, personal consultant for all things Harry Potter.

In preparing this edition, we're grateful to Aaron Adair, Southeastern Oklahoma State University; Laura Bouza, Moorpark College; Domenic Bruni, University of Wisconsin–Oshkosh; Maria Elena de las Carreras, California State University–Northridge; Shawn Cheatham, University of South Florida–Tampa; John Claborn, University of Illinois–Champaign; Megan Condis, University of Illinois–Champaign; Steve Gilliland, West Virginia State University; Lucinda McNamara, Cape Fear Community College; James McWard, Johnson County Community College; Barbara Multer-Wellin, New York Film Academy; Deron Overpeck, Auburn University; Lisa Peterson, University of Central Florida–Orlando; Syd Slobodnik, University of Illinois–Champaign; Jared Saltzman, Bergen Community College; and Susan Tavernetti, Deanza College.

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As ever, we're grateful to the McGraw-Hill Education publishing team, particularly Dawn Groundwater, Sarah Remington, Sandy Wille, Shawntel Schmitt, Susan Messer, and Carey Lange.

David Bordwell
Kristin Thompson
Jeff Smith

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PART 1

Film Art and Filmmaking

Film is a young medium. Painting, literature, dance, and theater have existed for thousands of years, but cinema was invented only a little more than a century ago. Yet in its comparatively short span, the newcomer has established itself as an energetic and powerful art.

It's this art that we explore in this book. The chapters that follow show how creative people have used moving pictures to give us experiences that we value. We examine the principles and techniques that give film its power to tell stories, express emotions, and convey ideas.

But this art has some unusual features we should note from the start. More than most arts, film depends on complex technology. Without machines, movies wouldn't move. In addition, film art usually requires collaboration among many participants, people who follow well-proven work routines. Films are not only created but produced. Just as important, they are firmly tied to their social and economic context. Films are distributed and exhibited for audiences, and money matters at every step.

Chapter 1 surveys all these aspects of the filmmaking process. We examine the technology, the work practices, and the business side of cinema. All these components shape and sustain film as an art.

CHAPTER 1

Film as Art: Creativity, Technology, and Business

Motion pictures are so much a part of our lives that it's hard to imagine a world without them. We enjoy them in theaters, at home, in offices, in cars and buses, and on airplanes. We carry films with us in our laptops, tablets, and cellphones. Press a button, and a machine conjures up movies for your pleasure.

Films communicate information and ideas, and they show us places and ways of life we might not otherwise know. Important as these benefits are, though, something more is at stake. Films offer us ways of seeing and feeling that we find deeply gratifying. They take us through experiences. The experiences are often driven by stories centering on characters we come to care about, but a film might also develop an idea or explore visual qualities or sound textures.

Such things don't happen by accident. Films are *designed* to create experiences for viewers. To gain an understanding of film as an art, we should ask why a film is designed the way it is. When a scene frightens or excites us, when an ending makes us laugh or cry, we can ask how the filmmakers have achieved those effects.

It helps to imagine that we're filmmakers, too. Throughout this book, we'll be asking you to put yourself in the filmmaker's shoes.

This shouldn't be a great stretch. You've taken still photos with a camera or a mobile phone. Very likely you've made some videos, perhaps just to record a moment in your life—a party, a wedding, your cat creeping into a paper bag. And central to filmmaking is the act of choice. You may not have realized it at the moment, but every time you framed a shot, shifted your position, told people not to blink, or tried to keep up with a dog chasing a Frisbee, you were making choices.

You might take the next step and make a more ambitious, more controlled film. You might compile clips into a YouTube video, or document your friend's musical performance. Again, at every stage you make design decisions, based on how you think this image or that sound will affect your viewers' experience. What if you start your music video with a black screen that gradually brightens as the music fades in? That will have a different effect than starting it with a sudden cut to a bright screen and a blast of music.

At each instant, the filmmaker can't avoid making creative decisions about how viewers will respond. Every moviemaker is also a movie viewer, and the choices are considered from the standpoint of the end user. Filmmakers constantly ask themselves: *If I do this, as opposed to that, how will viewers react?*

The menu of filmmaking choices has developed over time. Late in the 19th century, moving pictures emerged as a public amusement. They succeeded because they spoke to the imaginative needs of a broad-based audience. All the traditions that emerged—telling fictional stories, recording actual events, animating objects or drawings, experimenting with pure form—aimed to give viewers experiences they couldn't get from other media. Men and women discovered that they could use cinema to shape those experiences in various ways. Suppose we center the actors so they command the frame space? Suppose we cut up a scene into shots taken from several angles? Suppose we move the camera to follow the actors? Learning from one another, testing and refining new choices, filmmakers developed skills that became the basis of the art form we have today.

Thinking like a filmmaker is all very well, you might say, if you want a career in the business. What if you just want to enjoy movies? We think that you can appreciate films more fully if you're aware of how creative choices shape your experience. You've probably looked at some making-of bonuses on DVD versions of films you love, and some of those supplements have increased your enjoyment. We enhance our appreciation of *The Social Network* or *Inception* when we know something of the filmmakers' behind-the-scenes discussion of character motivation and specific line readings. We can always get more out of the films we see, and thinking about the filmmakers' choices helps us to understand why we respond as we do.

This is why we start our survey of film art by looking at the process of film production. Here we can see, in very tangible ways, the sorts of options available to people working in this medium. In every chapter that follows, we invoke what film artists have said about the ways they've chosen to solve creative problems.

Throughout this book, we focus on the two basic areas of choice and control in the art of film: form and style. **Form** is the overall patterning of a film, the ways its parts work together to create specific effects (Chapters 2 and 3). **Style** involves the film's use of cinematic techniques. Those techniques fall into four categories: mise-en-scene, or the arrangement of people, places, and objects to be filmed (Chapter 4); cinematography, the use of cameras and other machines to record images and sounds (Chapter 5); editing, the piecing together of individual shots (Chapter 6); and sound, the voices, effects, and music that blend on a film's audio track (Chapter 7). After examining the various techniques, Chapter 8 integrates them in an overview of film style.

In later chapters, we discuss how form and style differ among genres and other types of films (Chapters 9–10). We consider how we can analyze films critically (Chapter 11) and how film form and style have changed across history, offering filmmakers different sets of creative choices (Chapter 12). In all, we'll see how through choice and control, film artists create movies that entertain us, inform us, and engage our imaginations.

Art vs. Entertainment? Art vs. Business?

The term "art" might put some readers off. If cinema originated as a mass medium, should we even use the word? Are Hollywood directors "artists"? Some people would say that the blockbusters playing at the multiplex are merely "entertainment," but films for a narrower public—perhaps independent films, or foreign-language fare, or experimental works—are true art.

Usually the art/entertainment split rests on a value judgment: Art is serious and worthy; entertainment is superficial. Yet things aren't that simple. Many of the artistic resources of cinema were discovered by filmmakers working for the general public. During the 1910s and 1920s, for instance, many filmmakers who simply aimed to be entertaining pioneered new possibilities for film editing.

As for the matter of value, it's clear that popular traditions can foster art of high quality. Shakespeare and Dickens wrote for broad audiences. Much of the greatest 20th-century music, including jazz and the blues, was rooted in popular traditions. Cinema is an art because it offers filmmakers ways to design experiences for viewers, and those experiences can be valuable regardless of their pedigree. Films for audiences both small and large belong to that very inclusive art we call film or cinema.

Sometimes, too, people consider film *art* to be opposed to film as a *business.* This split is related to the issue of entertainment, since entertainment generally is sold to a mass audience. In most modern societies, however, no art floats free from economic ties. Novels good, bad, and indifferent are published because publishers and authors expect to sell them. Painters hope that collectors and museums will acquire their work. True, some artworks are funded through subsidy or private donations, but that process, too, involves the artists in financial transactions.

Films are no different. Some movies are made in the hope that consumers will pay to see them. Others are funded by patronage (an investor or organization wants to see the film made) or public money. (France, for instance, generously subsidizes film projects.) Crowdfunding sites such as Kickstarter offer another alternative. You might make short videos for YouTube or Vimeo at little cost, but if you hope to make a feature-length digital movie, you face the problem of paying for it. If you can't profit from your film, you may still hope that the project will lead to a job.

The crucial point is that considerations of business don't necessarily make the artist less creative or the project less worthwhile. Money can corrupt any activity, but it doesn't have to. In Renaissance Italy, painters were commissioned by the Catholic Church to illustrate events from the Bible. Michelangelo and Leonardo da Vinci worked for hire, but we revere their artistry.

In this book we won't assume that film art precludes entertainment. We won't take the opposite position either, claiming that only Hollywood mass-market movies are worth our attention. Similarly, we don't think that film art rises above commercial demands, but we also won't assume that money rules everything. Any art form offers a vast range of creative possibilities.

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We examine an unusual problem and a director's unusual solution in "Problems, problems, Wyler's workaround."

As an art, film offers experiences that viewers find worthwhile—diverting, provocative, puzzling, or rapturous. But how do films do that? To answer that question, let's go back a step and ask: Where do movies come from?

They come from three places. They come from the imagination and hard work of the filmmakers who create them. They come from a complex set of machines that capture and transform images and sounds. And they come from companies or individuals who pay for the filmmakers and the technology. This chapter examines the artistic, technological, and business sides of how films come into being.

Creative Decisions in Filmmaking

In *Day for Night,* French filmmaker François Truffaut plays a director making a movie called *Meet Pamela.* Crew members bring set designs, wigs, cars, and prop pistols to him, and we hear his voice telling us his thoughts: "What is a director? A director is someone who is asked questions about everything."

Making a film can be seen as a long process of decision making, not just by the director but by all the specialists who work on the production team. Screenwriters, producers, directors, performers, and technicians are constantly solving problems and making choices. A great many of those decisions affect what we see and hear on the screen. There are business choices about the budget, marketing, distribution, and payments. Connected to those choices are the artistic ones. What lighting will enhance the atmosphere of a love scene? Given the kind of story being told, would it be better to let the audience know what the central character is thinking or to keep her enigmatic? When a scene opens, what is the most economical way of letting the audience identify the time and place? We can see how decisions shape the process by looking in more detail at a single production.

CREATIVE DECISIONS

To See into the Night in Collateral

Michael Mann's *Collateral,* released in 2004, is a visually striking psychological thriller set in Los Angeles in a single night. The mysterious Vincent (Tom Cruise) hires a cab driver, Max (Jamie Foxx), to drive him to several appointments. When Max learns that Vincent is a hired killer, he struggles to break their bargain and escape. But Vincent forces him to carry on as a getaway driver. In the course of the evening, the two men spar verbally and move toward a climactic chase and confrontation.

Mann and his crew made thousands of decisions during the making of *Collateral.* Here we look at five important choices: one that influenced the film's form and one each for our four categories of mise-en-scene, cinematography, editing, and sound. Several of these decisions involved new technologies that became standard production tools.

Scriptwriter Stuart Beattie originally set *Collateral* in New York City. In the screenplay, Max was a loser, hiding from the world in his cab and getting little out of life. Vincent was to goad him about his failures until Max had finally had enough and stood up to him. Once Mann came on board as director, he altered the plot in several ways. The setting became Los Angeles. Max became less a loser and more a laid-back, intelligent man content to observe the world from behind a steering wheel, endlessly delaying his plans to start his own limousine service. This more appealing Max becomes our point-of-view figure for most of the film. For example, we don't see the first murder but stay with Max in the cab until the shocking moment when a body hurtles down onto his cab roof. The story largely consists of Max's conflict with Vincent, so Mann's decision to change Max's traits altered their confrontations as well. In the finished film, moments of reluctant mutual respect and even hints of friendship complicate the men's relationship. Such decisions as these reshaped the film's overall narrative form.

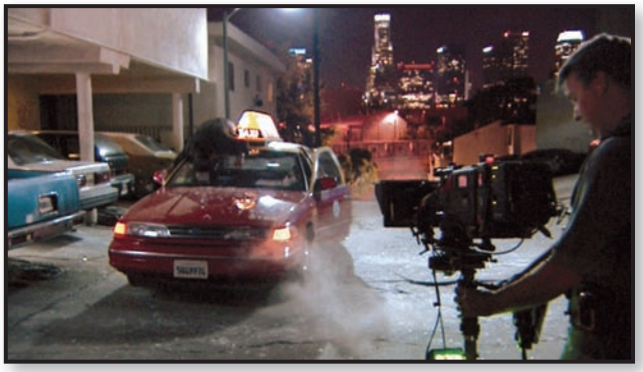
The switch to Los Angeles profoundly affected the film's style. For Mann, one of the attractions was that this tale of randomly crossing destinies took place almost entirely at night, from 6:04 P.M. to 4:20 A.M. He wanted to portray the atmospheric Los Angeles night, where haze and cloud cover reflect the city's lights back to the vast grid of streets. According to cinematographer Paul Cameron, "The goal was to make the L.A. night as much of a character in the story as Vincent and Max were."

This was a major decision that created the film's look. Mann was determined not to use more artificial light than was absolutely necessary. He relied to a considerable degree on street lights, neon signs, vehicle headlights, and other sources in the locations where filming took place. To achieve an eerie radiance, his team came up with a cutting-edge combination of tools.

Digital Cinematography Certain choices about photographing *Collateral* were central to its final look and also dictated many other decisions. For example, at that time Hollywood productions employed cameras loaded with rolls of photographic film. Night scenes were shot using large banks of specialized spot- and floodlights. If the light was too weak, dark areas would tend to go a uniform black.

Mann and his cinematographers decided to shoot portions of *Collateral* on recently developed high-definition (HD) digital cameras. Those cameras could shoot on location with little or no light added to the scene **(1.1).** They could also capture the distinctive night glow of Los Angeles. As Mann put it, "Film doesn't record what our eyes can see at night. That's why I moved into shooting digital video in high definition—to see into the night, to see everything the naked eye can see and more. You see this moody landscape with hills and trees and strange light patterns. I wanted that to be the world that Vincent and Max are moving through."

1.1–1.3 Digital filming for *Collateral*. A digital camera shoots in a dim alley. As in many shots, the skyline of downtown Los Angeles figures prominently (1.1). An eerily glowing cityscape, with digital cinematography making a row of palm trees stand out against a dark sky (1.2). Vincent stalks one of his victims in a law library with huge windows overlooking the city (1.3). On regular photographic film, the streets and buildings would go uniformly dark, with only points of light visible.



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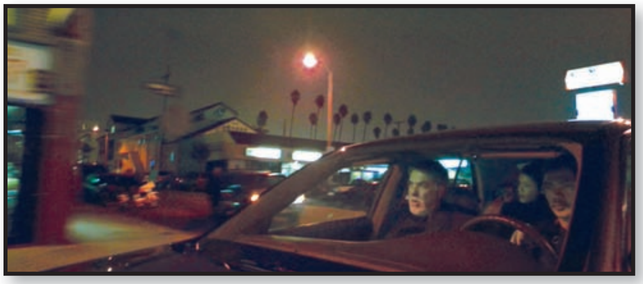

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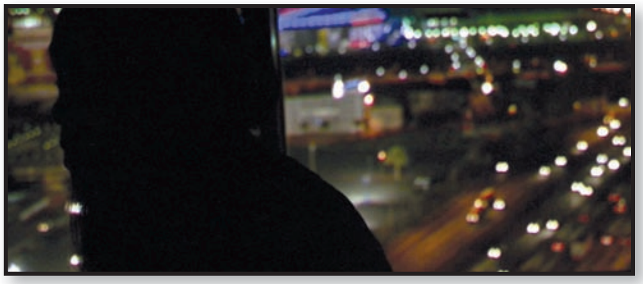

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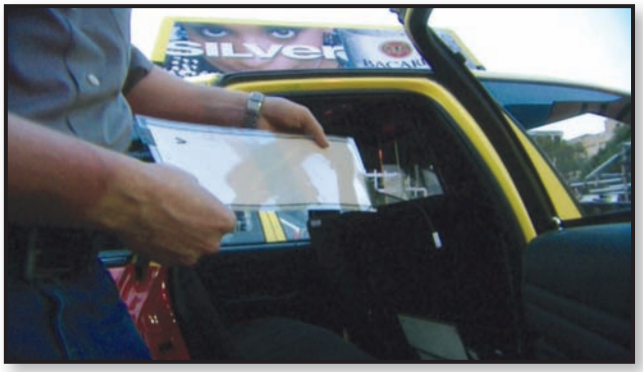
Cinematographer Dion Beebe enthused, “The format’s strong point is its incredible sensitivity to light. We were able to shoot Los Angeles at night and actually see silhouettes of palm trees against the night sky, which was very exciting” **(1.2).** In a particularly dark scene at the climax, the characters become visible only as black shapes outlined by the myriad lights behind them **(1.3).** The suspense is heightened as we strain to see the figures.

Custom-Made Lights Though digital cameras could pick up a great deal in dark situations, the audience needed to see the faces of the actors clearly. Much of the action takes place inside the taxi as Max and Vincent ride and talk. The actors’ faces had to be lit, but the filmmakers wanted to avoid the sense that there was artificial light in the cab.

To create a soft, diffuse light, the filmmakers tried an innovative approach: electroluminescent display (ELD) panels. The technology had been used in digital watches and cellphones, but it had never been employed in filming. Flexible plastic panels of various sizes were custom made, all with Velcro backings that would stick to the seats and ceiling of the cab **(1.4, 1.5).** These ELD panels could then be turned on in various combinations. Although they look bright in Figure 1.5, the effect on the screen was a soft glow on the actors. In a shot like Figure **1.6,** we might simply take it for granted that the light coming through the windows and the glow of the dashboard panel are all that shines on the characters. Such dim illumination on the faces allows the lights visible through the windows to be brighter than they are, helping to keeping the city “as much of a character in the story as Vincent and Max were.”

Here’s a case where an artistic decision led to new technology. Since *Collateral* was made, a similar lighting technology, the light-emitting diode (LED) has become common in flashlights, auto tail lights, scoreboard displays, and computer monitors. Specially designed LED units have become central to film production. Mann’s team solved a problem in mise-en-scene, and a new option was added to the menu available to other filmmakers.



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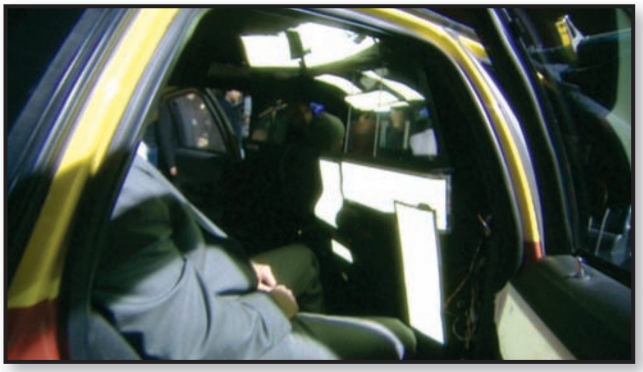

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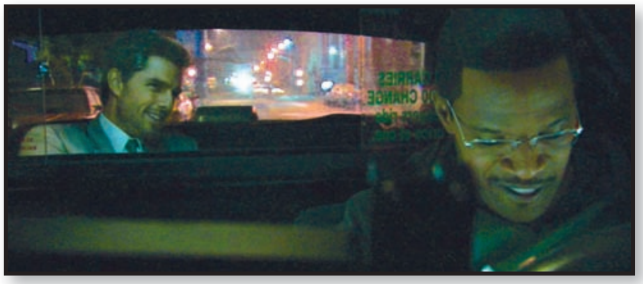


1.6

1.4–1.6 Unobtrusive lighting. One of the ELD panels specially made for illuminating the cab interior (1.4). Several ELD panels were attached to the back of a seat to shine on Tom Cruise as Vincent (1.5). The units created a dim glow on the actors (1.6).

Seamless Editing *Collateral* contains several dynamic action scenes, including a spectacular car crash. The plan was for a cab going nearly 60 miles per hour to flip, then bounce and roll several times before coming to rest upside down. If we put ourselves in the filmmakers' place, we can imagine their options about how to show the crash.

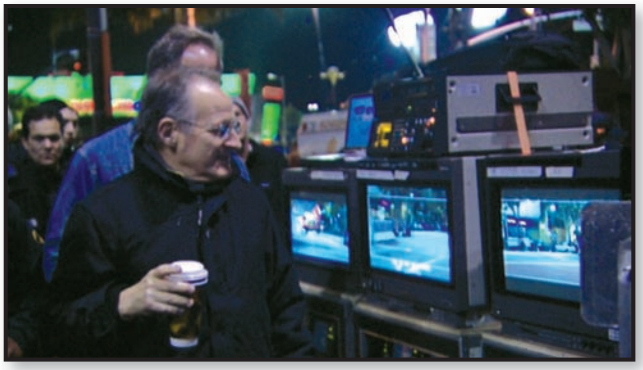
Mann's team could have put the camera in a single spot and swiveled it to follow the car rolling past. That might have been a good idea if the scene showed us the crash through the eyes of an onlooker whose head turns to watch it. But there is no character witnessing the crash.

The filmmakers decided to generate excitement by showing several shots of the car rolling, each taken from a different point along the trajectory of the crash. One option would have been to use several cabs and execute numerous similar crashes, each time filmed by a single camera that would be moved between crashes from place to place to record the action from a new vantage point. Such a procedure would have been very expensive, however, and no two crashes would have taken place in exactly the same way. Splicing together shots from each crash might have created discrepancies in the car's position, resulting in poor "matches on action," as we'll term this technique in Chapter 6.

Instead, the team settled on a technique commonly used for big action scenes. Along the cab's path were stationed multiple cameras, all filming at once **(1.7).** The economic benefits were that only one car had to be crashed and the high expense of keeping many crew members working on retakes was reduced. Artistically, the resulting footage allowed the editing team to choose portions of many shots and splice them together in precise ways **(1.8, 1.9).** The result is an exciting stream of shots, each taken from farther along the taxi's path.

Music in Movements Composers are fond of saying that their music for a film should serve the story so well that the audience doesn't notice it. For *Collateral,* Mann wanted James Newton Howard to score the climax so as to not

1.7–1.9 Editing a car crash. On location after the execution of the car crash in *Collateral,* director Michael Mann surveys digital monitors displaying shots taken by multiple cameras covering the action (1.7). The result: A seamless continuation of the cab's movement. A shot taken from one camera shows the car flipping over, its hood flapping wildly (1.8) is followed by a cut to another shot, taken from a camera placed on the ground and continuing the same movement, now with the vehicle rolling toward the viewer (1.9). This particular camera was placed in a very thick metal case.



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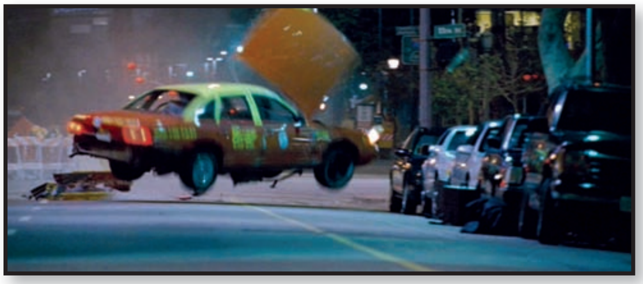

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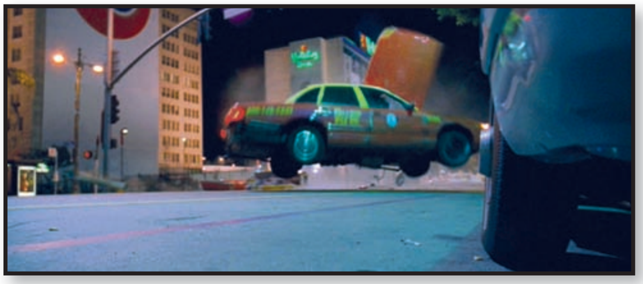


1.9

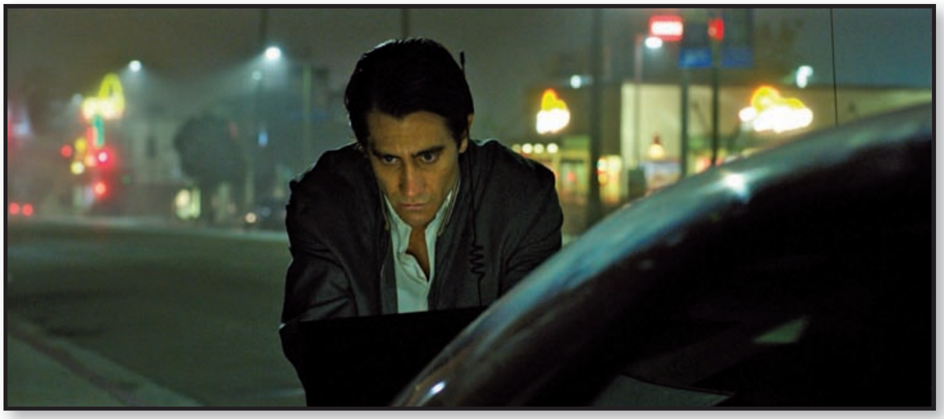
build up excitement too quickly. According to Howard, "Michael was very clear about the climax taking place in three movements." "Movements" as a term is usually applied to the parts of a symphony, a concerto, or a sonata. Thus the idea was that the score for this last part of the film should play a major role in shaping the progression and rhythm of the action.

At the climax, Vincent is trying to kill a character who is important to Max, while Max tries frantically to save both himself and the other character. Howard and Mann called the first musical movement "The Race to Warn," since Vincent gets ahead of Max in running to the building where the potential victim is located. Despite the fact that both men are running and the situation is suspenseful, Howard avoids rapid rhythms. He begins with long-held string chords over a deep, rumbling sound, then adds sustained brass chords with a strong beat accompanying them. The music is dynamic but doesn't reach a high pitch of excitement.

The second movement, "The Cat and Mouse," accompanies Vincent getting into the building, turning off the electricity, and stalking his victim in near darkness (1.3). Again, the chords are slow, with ominous undertones, dissonant glides, and, at a few points, fast, eerie high-string figures as Vincent nears his goal. During the most suspenseful moments in the scene, when Vincent and his prey are in the darkened room, strings and soft, clicking percussion accompany their cautious, hesitant movements.

Finally, there is a swift chase sequence, and here Howard's score is louder and faster, with driving tympani in very quick rhythm as the danger grows. Once the chase tapers off, the percussion ends, and slow, low strings accompany the final quiet shots.

These decisions and many others affect our experience of *Collateral.* Thanks to the digital imagery and innovative lighting, we have a sense of characters moving through an eerie, unfamiliar-looking world. The editing of the crash allows the taxi to come hurtling toward the camera several times. The music accompanying the fast-chase/slow-stalking/fast-chase climax helps heighten the suspense and build the excitement. Creative decision making is central to every film, and *Collateral*



1.10 The legacy of *Collateral*. The sleazy news photographer protagonist of *Nightcrawler* pauses on the street to check some footage he has just shot. The dim light on his face comes entirely from the glow of his laptop and street lamps reflecting off his car.

stands out for making several unusual choices. *Collateral*'s innovative visual style showed later filmmakers what digital tools could do. Director Tony Scott replicated the HD sheen of the film in his *Déjà vu*. Cinematographer Robert Elswit's half-beautiful, half-creepy images for *Nightcrawler* **(1.10)** provide a similar look into the Los Angeles night.

Mechanics of the Movies

Filmmaking relies on technology and financing. First, filmmakers need fairly complicated machines. Anyone with a pen and paper can write a novel, and a talented kid with a guitar can become a musician. Movies demand much more. Even the simplest home video camera is based on fiendishly complex technology. A major film involves elaborate cameras, lighting equipment, multitrack sound-mixing studios, sophisticated laboratories, and computer-generated special effects.

Partly because of the technology, making a movie also involves businesses. Companies manufacture the equipment, other companies provide funding for the film, still others distribute it, and finally theaters and other venues present the result to an audience. In the rest of this chapter, we consider how these two sides of making movies—technology and business—shape film as an art.

Illusion Machines

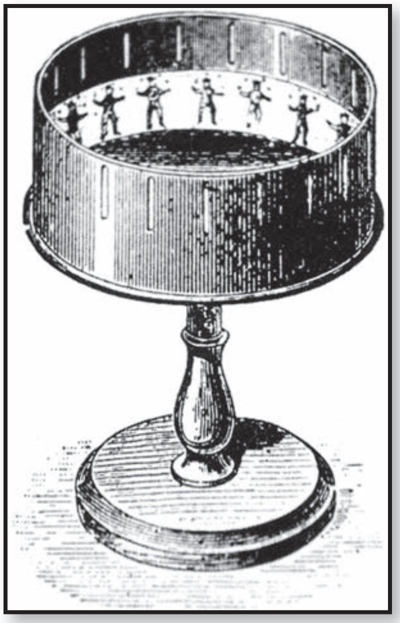
Moving-image media such as film and video couldn't exist if human vision were perfect. Our eyes are very sensitive, but they can be tricked. As anyone who has paused a DVD knows, a film consists of a series of *frames,* or still pictures. Yet we don't perceive the separate frames. Instead, we see continuous light and movement. What creates this impression?

For a long time people thought that the effect results from "persistence of vision," the tendency of an image to linger briefly on our retina. Yet if this were the cause, we'd see a bewildering blur of superimposed stills instead of smooth action. At present, researchers believe that two psychological processes are involved in cinematic motion: critical flicker fusion and apparent motion.

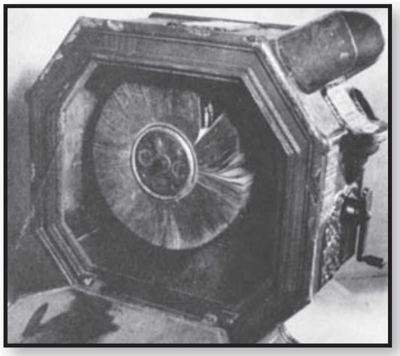
If you flash a light faster and faster, at a certain point (around 50 flashes per second), you see not a pulsating light but a continuous beam. A film is usually shot and projected at 24 still frames per second. The projector shutter breaks the light beam once as a new image is slid into place and once while it is held in place. Thus each frame is actually projected on the screen twice. This raises the number of flashes to 48, the threshold of what is called *critical flicker fusion.* Early silent films were shot at a lower rate (often 16 or 20 images per second), and projectors broke the beam only once per image. The picture had a pronounced flicker—hence an early slang term for movies, "flickers," which survives today when people call a film a "flick."

Apparent motion is a second factor in creating cinema's illusion. If a visual display is changed rapidly enough, our eye can be fooled into seeing movement. Neon advertising signs often seem to show a thrusting arrow, but that illusion is created simply by static lights flashing on and off at a particular rate. Certain cells in our eyes and brain are devoted to analyzing motion, brightness, and edges. Any stimulus presenting changes in those features tricks those cells into sending the wrong message.

Apparent motion and critical flicker fusion are quirks in our visual system, and technology can exploit those quirks to produce illusions. Some moving-image machines predate the invention of film **(1.11, 1.12).** Film as we know it came into being when photographic images were first imprinted on strips of flexible celluloid.



1.11



1.12

1.11–1.12 Early moving-image gadgets. The Zoetrope, which dates back to 1834, spun its images on a strip of paper in a rotating drum (1.11). The Mutoscope, an early-20th-century entertainment, displayed images by flipping a row of cards in front of a peephole (1.12).

Making Films with Photographic Film

Until the 2000s, cinema was almost entirely a photochemical medium. Most of the movies we use as examples in this book were shot on photographic film, as were nearly all the films that you watch on DVD or streaming. Although digital production has become common, some directors and cinematographers still prefer photochemical media. So we'll look first at motion pictures shot on film.

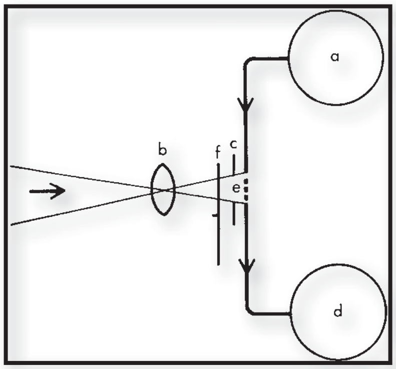
Physically, a photographically based film is a ribbon of still images, each one slightly different from its mates. That ribbon starts life as unexposed film stock in a camera. Eventually the finished movie is another strip of film run through a projector. Both the camera and the projector move the film strip one frame at a time past a light source. For a fraction of a second, the image is held in place before the next one replaces it. In a camera, the lens gathers light from the scene photographed, while a projector uses a light source to cast the images on the screen. In a sense, the projector is just an inverted camera **(1.13, 1.14).**

In filming, the most common shooting rate is 24 frames per second (fps), and in projection the same rate is usually maintained. In the 35mm format, the film whizzes through the projector at 90 feet per minute, meaning that a two-hour feature will consist of about two miles of film.

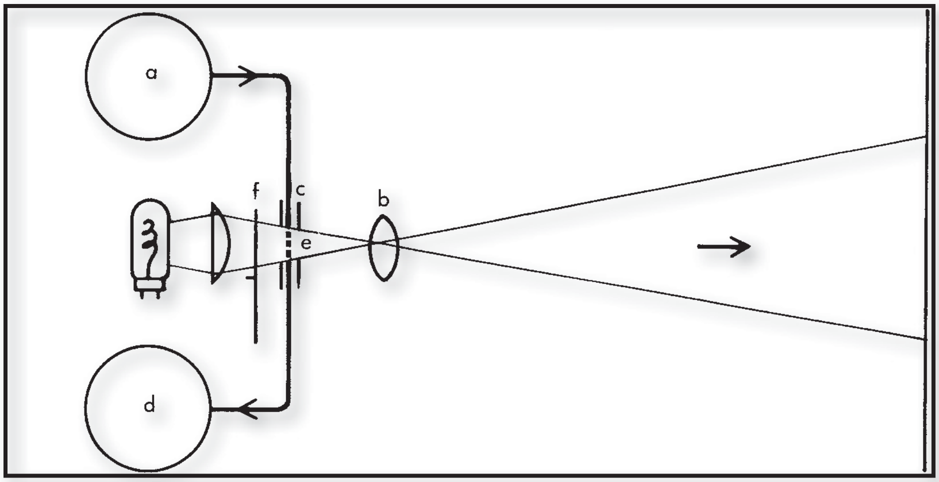
The film strip that emerges from the camera is usually a *negative.* That is, its colors and light values are the opposite of those in the original scene. For the images to be projected, a *positive* print must be made. This is done on another machine, the *printer,* which duplicates or modifies the footage from the camera. Like a projector, the printer controls the passage of light through film—in this case, a negative. Like a camera, it focuses light to form an image—in this case, on the unexposed roll of film. Although the filmmaker can create nonphotographic images on the film strip by drawing, painting, or scratching, most filmmakers in the predigital era have relied on the camera, the printer, and other photographic technology.

If you were to handle the film that runs through these machines, you'd notice several things. One side is much shinier than the other. Motion picture film consists of a transparent plastic *base* (the shiny side), which supports an *emulsion,* layers of gelatin containing light-sensitive materials. On a black-and-white film strip, the emulsion contains grains of silver halide. Color film emulsion adds layers of chemical dyes that react with the silver halide components. In both cases, billions of microscopic particles form clusters of light, dark, and color corresponding to the scene photographed.

What enables film to run through a camera, a printer, and a projector? The strip is perforated along both edges, so that small teeth (called *sprockets*) in the machines can seize the perforations (sprocket holes) and pull the film at a uniform rate and smoothness. The strip also reserves space for a sound track.



1.13



1.14

1.13–1.14 Moving the film: Camera and projector. In a light-tight chamber (1.13), a drive mechanism feeds the unexposed motion picture film from a reel (a) past a lens (b) and aperture (c) to a take-up reel (d). The lens focuses light reflected from a scene onto each frame of film (e). The mechanism moves the film intermittently, with a brief pause while each frame is held in the aperture. A shutter (f) admits light through the lens only when each frame is unmoving and ready for exposure. The projector is basically an inverted camera, with the light source inside the machine rather than in the world outside (1.14). A drive mechanism feeds the film from a reel (a) past a lens (b) and aperture (c) to a take-up reel (d). Light is beamed through the images (e) and magnified by the lens for projection on a screen. Again, a mechanism moves the film intermittently past the aperture, while a shutter (f) admits light only when each frame is pausing.

The size and placement of the perforations and the area occupied by the sound track have been standardized around the world. So, too, has the width of the film strip, which is called the *gauge* and is measured in millimeters. For most of cinema history, commercial theaters used 35mm film, but other gauges also have been standardized internationally: Super 8mm, 16mm, and 70mm **(1.15–1.19).**

Usually image quality increases with the width of the film because the greater picture area gives the images better definition and detail. All other things being equal, 35mm provides significantly better picture quality than 16mm, and 70mm is superior to both. The finest photographic quality currently available for public screenings is that offered by the Imax system **(1.20).**

With the rise of digital filmmaking, 16mm has declined as an amateur gauge. If you take an introductory production course, you are more likely to shoot with a digital camera than a 16mm one. Yet a higher-quality version of the gauge, Super 16mm, still gets used in commercial films seeking to economize or to achieve a “documentary look.” Recent films utilizing Super 16mm include *The Wrestler, The Hurt Locker, Black Swan,* and *Moonrise Kingdom*. The comedy *The World’s End* combined 35mm and regular 16mm. Super 8 film is still occasionally used in professional production, usually to simulate home movies or television images; *Super 8* used both Super 16 and Super 8 to present the amateur footage shot by its young protagonists. Imax and other cameras employing 65mm film have been used for fiction films, including some scenes in *The Dark Knight, Inception, Mission Impossible: Ghost Protocol, Gravity,* and *Interstellar.*

The sound track runs along the side of the film strip. Magnetic tracks, consisting of magnetic tape running along the film strip (1.19), have virtually vanished. Most films today have an optical sound track, which encodes sonic information in the form of patches of light and dark running along the frames. During production, electrical impulses from a microphone are translated into pulsations of light, which are photographically inscribed on the moving film strip. When the film is projected, the optical track produces varying intensities of light that are translated back into electrical impulses and then into sound waves. The optical sound track of 16mm