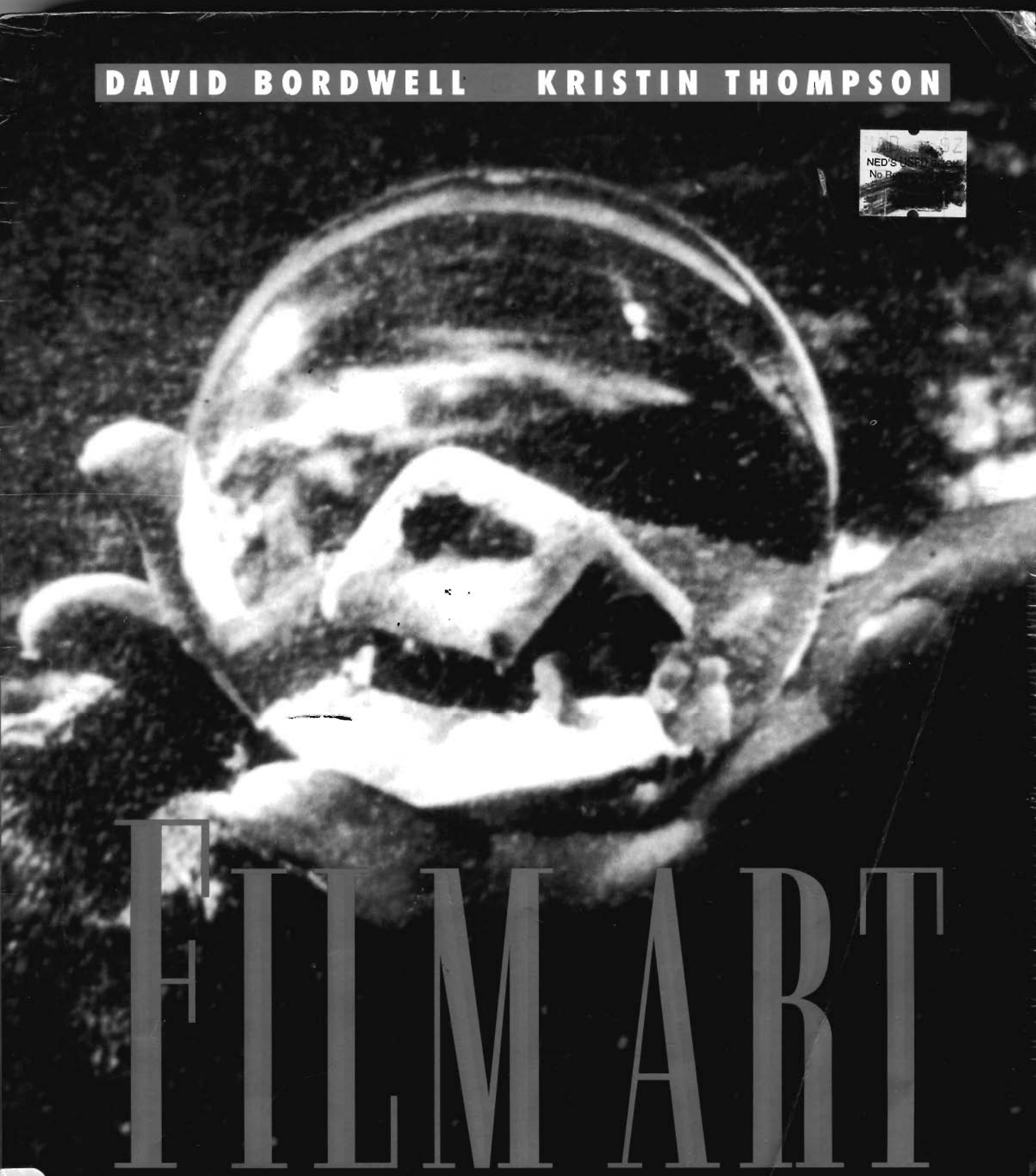
DAVID BORDWELL KRISTIN THOMPSON



FILM ART

AN INTRODUCTION FIFTH EDITION

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FILM ART: AN INTRODUCTION

2 3 4 5 6 7 8 9 0 VNH VNH 9 0 9 8 7 6

ISBN 0-07-006634-5

This book was set in Bodoni Book by Ruttle, Shaw & Wetherill, Inc.
The editors were Cynthia Ward, Nancy Blaine, and Curt Berkowitz;
the designer was Joan E. O'Connor;
the cover was designed by Karen K. Quigley;
the production supervisor was Paula Keller.
Von Hoffmann Press, Inc., was printer and binder.

Library of Congress Cataloging-in-Publication Data

Bordwell, David.

Film art : an introduction / David Bordwell, Kristin Thompson.—5th ed.

p. cm.

Includes bibliographical references and index.

ISBN 0-07-006634-5

1. Motion pictures—Aesthetics. I. Thompson, Kristin, (date). II. Title.

PN1995.B617 1997

791.43'01—dc20 96-5174

INTERNATIONAL EDITION

When ordering this title, use ISBN 0-07-114073-5.

PART I

TYPES OF FILMMAKING, TYPES OF FILMS

ONE

THE WORK OF FILM PRODUCTION

We all know that films are like buildings, books, and symphonies—artifacts made by humans for human purposes. Television news programs and cable stations reveal technical details of production with segments on "The Making of . . ." and behind-the-scenes interviews with cast and crew members. Yet, sitting in a darkened theater watching an enthralling movie, we may find it difficult to remember that what we are seeing is not a natural object, like a flower or an asteroid. Cinema is so captivating that we tend to forget that movies are *made.* An understanding of the art of cinema depends initially on a recognition that a film is produced by both machines and human labor.

Technical Factors in Film Production

Watching a film differs from viewing a painting, a stage performance, or even a slide show. A film presents us with *images* in *illusory* motion. What creates this sense of "moving pictures"?

For cinema to exist, a series of images must be displayed in rapid succession. A mechanism presents each image for a very short period and inserts a brief interval of blackness between the images. If slightly different images of the same object are displayed under these conditions, physiological and psychological processes in the viewer will create the illusion of seeing a moving image.

What are these processes? Since the nineteenth century, a prime candidate has been the process of "persistence of vision," the phenomenon by

which an image lingers on the retina for a fraction of a second after the source has vanished. But this does not in itself explain why we would see movement rather than a succession of still images. Twentieth-century research has shown the problem to be more complex. We still do not know for certain how illusory movement is generated by cinema, but at least two features of the human visual system seem to be involved.

First is what is called *critical flicker fusion,* a term that describes the results of increasing the rate at which a light is flashed. Under film projection conditions, if a beam of light is broken more than 50 times per second, the viewer no longer sees pulses or bursts but rather an illusion of continuous light. A film is usually shot and projected at a rate of 24 frames per second. The projector shutter breaks the light beam once as a new frame is moving into place and once while that frame is held still within the gate. Thus each frame is actually projected onto the screen twice. This raises the number of flashes to the threshold of flicker fusion. Early silent films were shot at a lower rate (often 16 or 20 frames per second), and until engineers devised shutters that could break the beam more than once per frame, the projected image had a pronounced flicker. Hence the early slang term for movies, "flickers," which survives today when people call a film a "flick."

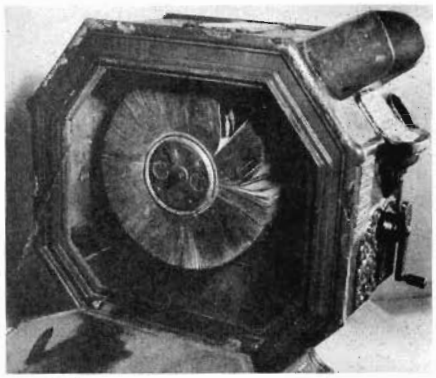

Fig. 1.1

A second factor in creating cinema's illusion is *apparent motion.* This is the tendency of human vision to see movement when in fact there is none. In 1912, the Gestalt psychologist Max Wertheimer discovered that when two side-by-side lights were flashed at certain intervals, viewers perceived not two flashing lights but a single moving light. (The same effect can be seen on many neon advertising signs.) For a time researchers hypothesized that the viewer might be using some process of unconscious thought in creating the illusion of movement. Recent experimental work, however, suggests that apparent motion may owe something to specific "motion analyzers" in the human visual system. Any displacements, whether real or only projected on a screen, may automatically cause certain cells in the eye or brain to attribute movement to the stimuli.

Critical flicker fusion and apparent motion are quirks of our visual system. They are rarely triggered by naturally occurring events. Humans have devised particular machines to create the conditions for cinematic perception.

Fig. 1.2

First, the images must be displayed in a *series.* They might be on a row of cards, as in the Mutoscope (Fig. 1.1), and flipped past the viewer to create the illusion of movement. More commonly, the images are inscribed on a strip of some flexible material. Optical toys such as the Zoetrope put their images on strips of paper (Fig. 1.2), but cinema as we know it uses a strip of celluloid as support for the series of images, which are called *frames.* If the images are to be put on a strip of film, cinema usually requires three machines to create and display those images. All three share a basic principle: A mechanism controls how light is admitted to the film, advances the strip of film a frame at a time, and exposes it to light for the proper interval. The three machines are:

1. *The camera* (Fig. 1.3). In a light-tight chamber, a drive mechanism feeds the motion picture film from a reel (a) past a lens (b) and aperture (c)

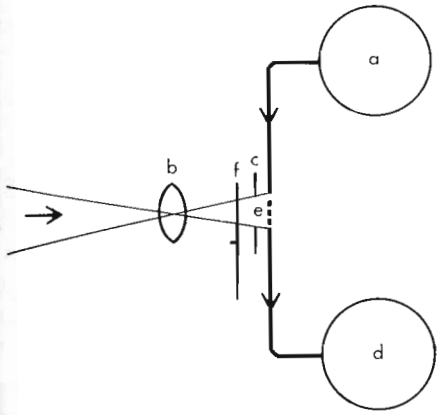

Fig. 1.3 The camera

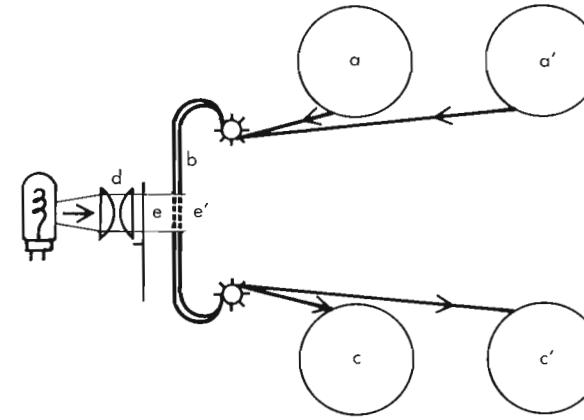

Fig. 1.4 The contact printer

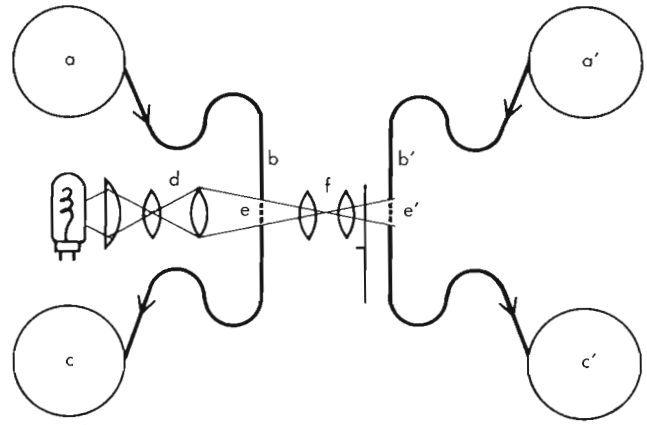

Fig. 1.5 The optical printer

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 standard shooting rate for sound film is 24 frames per second (25 in some European productions).

2. *The printer* (Figs. 1.4, 1.5). Printers exist in various designs, but all consist of light-tight chambers that drive a negative or positive roll of film from a reel (a) past an aperture (b) to a take-up reel (c). Simultaneously, a roll of unexposed film (a′, c′) moves through the aperture (b or b′), either intermittently or continuously. By means of a lens (d), light beamed through the aperture prints the image (e) on the unexposed film (e′). The two rolls of film may pass through the aperture simultaneously. Figure 1.4 diagrams a printer of this sort, called a *contact printer*. Contact printers are used for making work prints and release prints, as well as for various special effects that combine portions of images filmed separately.

Alternatively, light coming through the original may be beamed to the unexposed roll through lenses, mirrors, or prisms [as in (f) in Fig. 1.5]. This

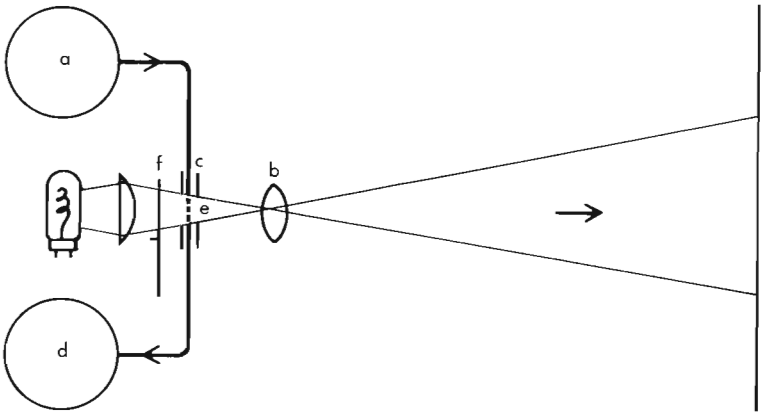

Fig. 1.6 The projector

sort of printer is known as an *optical printer* and is used for rephotographing camera images, for making prints of different gauges, and for certain special effects, such as freeze-frames.

3. *The projector* (Fig. 1.6). A drive mechanism feeds the exposed and developed 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. For the movement effect to occur, the film must display at least 12 frames per second; the shutter must also block and reveal each frame at least twice in order to reduce the flicker effect on the screen. The standard projection rate for sound film is 24 frames per second, with the shutter displaying each frame twice.

Camera, printer, and projector are all variants of the same basic machine. Both the camera and the projector control the intermittent movement of the film past a light source. The crucial difference is that the camera gathers light from outside the machine and focuses it on the film, whereas in the projector the machine produces the light which shines through the film onto a surface outside. The printer combines both other devices. Like a projector, it controls the passage of light through exposed film (the original negative or positive). Like a camera, it focuses light to form an image (on the unexposed roll of film).

The filmmaker can create *non*photographic images on the film strip by drawing, punching holes, etching, or painting. Most filmmakers, however, have relied on the camera, the printer, and other photographic technology. Thus the images that we see in movement are usually created photographically. Like photographic film, motion picture film consists of a transparent *base,* which supports an *emulsion* (layers of gelatin containing light-sensitive materials). Black-and-white film emulsion contains grains of silver halide. When light from the environment strikes them, it sets off a chemical reaction which makes the crystals cluster together to form tiny specks. Billions of these specks are formed on each frame of exposed film. Taken together, these specks comprise a latent image which corresponds to the density of light in the scene filmed. Chemical processing makes the latent image visible as a

configuration of black grains on a white ground. The resulting image is either a negative one, from which positive prints can be struck, or a positive one (called a *reversal image*).

Color film emulsion consists of three additional gelatin layers, each containing a chemical dye sensitive to a primary color: red, green, or blue. During exposure and development, the silver halide crystals create an image by reacting with the dyes and other organic chemicals in the emulsion layers. With color negative film, the developing process yields an image that is complementary to the original color values. Color reversal processing yields a positive image with colors conforming to the original scene. Most professional filmmaking uses negative emulsion so as to allow better control of print quality and larger numbers of positive prints to be made. The reversal process is chiefly confined to amateur work.

In order to run satisfactorily through camera, printer, and projector, the strip of film is perforated along one or both edges, so that small teeth (sprockets) in the machines can seize the perforations (sprocket holes) and pull the film at a uniform rate and smoothness. The film strip also usually reserves space for a sound track. All these features of the physical film have been standardized around the world. The width of the film strip is called the *gauge* and is measured in millimeters (mm). Although many gauges have been experimented with, the internationally standardized ones are Super 8mm, 16mm, 35mm, and 70mm.

Super 8mm (Fig. 1.7) was for several decades a popular gauge for amateurs and experimental filmmakers, but portable video formats have largely eclipsed it in recent years. Figure 1.8 shows 16mm film, which is used for both amateur and professional film production. Most film study courses show 16mm prints of films. The standard professional gauge is 35mm, and most commercial theaters show 35mm prints. Figures 1.9 and 1.10 show frames from *On the Waterfront* and *Jurassic Park* respectively. Another pro-

Fig. 1.7 Super 8mm

Fig. 1.8 16mm

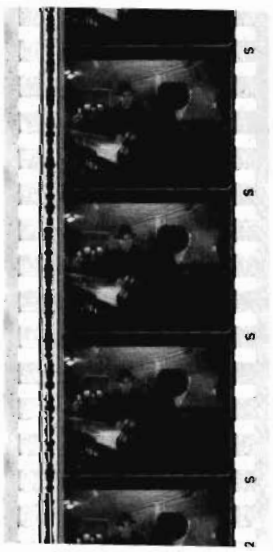

Fig. 1.9 35mm

Fig. 1.10 35mm

Fig. 1.11 70mm

Fig. 1.12 Imax system

fessional gauge is 70mm film, which has since the 1950s been used for spectacle-centered projects (e.g., Fig. 1.11, frames from *The Hunt for Red October*).

Usually image quality increases with the width of the film because a larger picture area yields more definition and detail. All other things being equal, 35mm provides significantly better picture quality than does 16mm, and 70mm is superior to both. The largest picture area currently available for public screenings is that offered by the Imax system. The film is 70mm

gauge, but the images run horizontally along the film strip, allowing each image to be ten times larger than 35mm and triple the size of 70mm (Fig. 1.12). This enables the image to be projected on a very large screen with no loss of quality.

The print we see of a film, however, may not be in the gauge of the original. Most films studied in cinema courses were originally shot in 35mm but are shown in 16mm. During the 1950s and 1960s, several films were produced and shown in 70mm, but even archives seldom show them in that gauge today. Often, quality deteriorates when a film shot on one gauge is transferred to another. Thus a 35mm print of Keaton's *The General* will almost certainly be photographically superior to a 16mm print, whereas a film shot on Super 8 will look fuzzy and grainy if printed and projected in 35mm. Independent filmmakers who work in 16mm face the problem of blowing up their negative so as to minimize loss of photographic quality in the theatrical gauge of 35mm.

Not all transfers among gauges compromise quality. Today films released in 70mm are shot on 35mm negative film. Due to improved film stocks, there is no significant decline when the image is blown up to 70mm. Also, a format known as Super 16mm has an improved image quality if blown up to 35mm.

Usually recorded sound accompanies the images. The sound track may be either *magnetic* or *optical.* In the magnetic type, one or more strips of magnetic recording tape run along the film's edges. During projection, the film's track is "read" by a sound head similar to that on a tape recorder. The 70mm frames in Figure 1.11 have a stereophonic magnetic sound track (running along both edges of the film strip).

An optical sound track encodes sonic information in the form of patches of light and dark in a parallel line running alongside 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 which are translated back into electrical impulses and then into sound waves. In the first decades of sound filmmaking, the sound was recorded optically during production, but now it is recorded on magnetic tape, then optically transferred onto film late in the production process.

At present, most film prints shown in theaters and colleges have optical sound tracks. An optical sound track usually encodes the sound as *variable area,* a wavy contour of black and white within the sound strip. The 16mm frames in Figure 1.8 have a variable-area optical sound track on the right side; the 35mm strip in Figure 1.9 utilizes a variable-area optical track running down the left.

A film's sound track may be monophonic or stereophonic. The 35mm film strip in Fig. 1.9 has a monophonic optical track, whereas the 35mm strip in Fig. 1.10 has a stereophonic track, indicated by the two dark squiggles running down the left side. Some stereophonic or multichannel sound uses a digital format. To reproduce digital sound in the theater, the projector scans marks running along the film's perforations or between the picture area and the optical sound track. An example of the latter system is shown in our *Jurassic Park* strip (Fig. 1.10). Here the information encoded on the film controls a digital compact disc of the sound track.

Specific machines, then, create a film from a raw material—a photochemically sensitive strip of perforated celluloid of some standardized gauge, with picture and sound information imbedded in it. Important as technology is, however, it is only part of the story.

SOCIAL FACTORS IN FILM PRODUCTION

Machines don't make movies by themselves. Film production transforms raw materials into a product through the application of machinery *and* human labor. But human labor may be organized in different ways, and the options are affected by economic and social factors.

Most films go through three general phases of production.

1. *Preparation.* The idea for the film is developed and usually committed to paper in some form. At this phase, the filmmaker or filmmakers begin to acquire funds to make, publicize, and distribute the film.
2. *Shooting.* At this stage, images and sounds are created on the film strip. More specifically, the filmmaker produces *shots.* A shot is a series of frames produced by the camera in an uninterrupted operation. The filmmaker also records or creates sounds to accompany the shots.
3. *Assembly.* At this stage, which may overlap with the shooting phase, the images and sounds are put together in their final form.

Not every film goes through every step. A home movie might involve very little preparation and might never undergo any final assembly. A compilation documentary might not require the shooting of any new footage, only the assembly of existing clips from libraries and archives. On the whole, though, most films go through these production phases.

The organization of production tasks at each phase can vary significantly. It is possible for one person to do everything: plan the film, finance it, perform in it, run the camera, record the sound, and put it all together. More commonly, though, different tasks are assigned to different people, making each job more or less specialized. This is the phenomenon of *division of labor,* a process that occurs in most of the tasks any social group undertakes. Various jobs are assigned to different individuals. Even a single job may be broken down into smaller tasks, which then may be assigned to specialists. In the framework of filmmaking, the principle of division of labor yields different *modes,* or social organizations, of film production and different *roles* for individuals within those modes. The overall preparation, shooting, and assembly stages remain, but they take place within different social contexts.

MODES OF PRODUCTION: THE STUDIO PROCESS

We can conveniently start by looking at the most detailed and specialized division of labor—that present in the *studio* mode of production. This will allow us to trace the amazing variety of tasks that a film can require. We will

Fig. 1.13

then be in a better position to understand how those tasks can be accomplished in other modes of production.

A studio is a company in the business of manufacturing films. The most famous examples are the studios that flourished in Hollywood between the 1920s and the 1960s—Paramount, Warner Bros., Columbia, and so on. Under the classic studio system, the company owned its own filmmaking equipment and an extensive physical plant, and it retained most of its workers on long-term contract. (In Fig. 1.13, a World War II–era publicity photo, MGM studio head Louis B. Mayer, front row center, shows off his stable of contract stars.) The studio central management planned the projects, then delegated authority to individual supervisors, who in turn assembled casts and crews from the studio's pool of workers.

The classic studio system has frequently been compared to industrial assembly line manufacture, in which a manager supervises a number of workers, each repeating a particular task at a rigid rate and in fixed order. The analogy suggests that the Hollywood studios of the 1930s cranked out films the way that General Motors turned out cars. But the analogy is not exact, since each film is different, not a replica of a prototype. A better term for studio mass-production filmmaking is probably *serial manufacture.* Here skilled specialists collaborate to create a unique product while still adhering to a blueprint prepared by management.

The centralized studio production system remains viable in some parts of the world (such as China and Hong Kong) and for some types of film (especially animated films). But the American production companies of today

do not manufacture films so much as acquire them. Each film is planned as a unique "package," with director, actors, staff, and technicians gathered specifically for this project. The studio may have contractual relations with a prized director, star, or producer, but any particular film starts with the creation of a particular package around free-lance workers. The production company may own a physical plant which can be used for the project, as some of the surviving studios do, but in most cases the producer rents or acquires facilities for the project. The producer will also subcontract particular tasks to other firms, such as special-effects companies.

Despite the growth of the package system, however, the specific production stages and the assignment of roles remain similar to what they were in the heyday of more centralized studio production.

THE PREPRODUCTION PHASE

In studio filmmaking, the preparation phase is known as *preproduction.* At this point, two roles emerge as most critical: that of producer and that of writer.

The role of the *producer* is chiefly financial and organizational. She or he may be an "independent" producer, unearthing film projects and trying to convince production companies or distributors to finance the film. Or the producer may work for a studio and generate ideas for films. A studio may also hire a producer to put together a particular package.

The producer's job is to develop the project through the script process, to obtain financial support, and to arrange for the personnel who will work on the film. During shooting and assembly, the producer usually acts as the liaison between the writer or director and the company that is financing the film. After the film is completed, the producer will often have the task of arranging the distribution, promotion, and marketing of the film and of monitoring the paying back of the funds that underwrite the project.

Outside Hollywood, a single producer may take on all these tasks, but in the contemporary American film industry the producer's work is further subdivided. The *executive producer* is usually remote from the day-to-day process, being the individual who arranged the financing for the project or obtained the literary property. Subordinate to the executive producer is the *line producer.* She or he is the actual organizer of the film, monitoring phases of production. The line producer is assisted by an *associate producer,* who acts as a liaison with laboratories or technical personnel.

The chief task of the *writer* is to prepare the script. Sometimes the writer will set the process in motion by sending a script to his or her agent, who submits it to an independent producer or a production company for consideration. Alternatively, an experienced screenwriter meets with a producer in a "pitch session," where the writer can propose several ideas that might become scripts. And sometimes the producer or the director has an idea for a film and hires a script writer to work it up. The latter course of action is particularly common if the producer, ever on the lookout for ideas, has bought the rights to a novel or play and wants it *adapted* into a film.

Fig. 1.14

The script goes through several stages. These stages include a *treatment*, a synopsis of the action; one or more full-length scripts; and a final version, the *shooting script*. Extensive rewriting is common. Often the director will want to reshape the script. For example, in the original script of *Witness* the protagonist was Rachel, the Amish widow with whom police detective John Book falls in love. The romance, and Rachel's confused feelings about Book, formed the central plot line. But the director, Peter Weir, wanted to emphasize the clash between pacifism and violence. So William Kelley and Earl Wallace revised their script to emphasize the mystery plot line and to center the action on Book, whose investigation draws urban crime into the peaceful Amish community.

Even the shooting script is seldom identical to the finished film. It is often altered during the shooting phase. During the filming of the 1954 *A Star Is Born*, the scene in which Judy Garland sings "The Man That Got Away" was reshot at several points in the production, each time with different dialogue supplied by the script writer, Moss Hart. Script scenes that have been shot may also be condensed, rearranged, or dropped entirely in the assembly stage. Figure 1.14 is a publicity still for Alfred Hitchcock's *Notorious*, showing a scene which was eliminated from the final film. (Indeed, the actress sitting next to Cary Grant does not appear in the film at all.)

If the producer or director finds one writer's script unsatisfactory, other writers may be hired to revise it. As you may imagine, this often leads to conflicts about which writer or writers deserve screen credit for the film. In the American film industry, these disputes are adjudicated by the Screen Writers' Guild.

As the script reaches its final state, the executive producer has been

arranging the film's finances. He or she has sought out a director and perhaps also stars to make the package a promising investment. The producer must now prepare a budget spelling out *above-the-line costs* (the costs of literary property, script writer, director, and cast) and *below-the-line costs* (the expenses allocated for the crew, the shooting and assembly phases, insurance, and publicity). The sum of above- and below-the-line costs is called the *negative cost* (that is, the total cost of producing the film's master negative). In 1994, the average Hollywood negative cost ran to about $35 million, with advertising and print costs adding about $15 million more per picture.

The producer, or the line producer, must also prepare a daily schedule for shooting and assembling the film. This will be done with an eye on the budget. For example, since the film will be shot out of continuity, all shots using a certain setting or certain personnel can be filmed during one stretch of time. If a star is forced to join the production late or leave it at intervals, the producer must plan to "shoot around" the performer. Keeping all such contingencies in mind, the producer and his or her staff are expected to come up with the most efficient schedule of several weeks or months that juggles cast, crew, locations, and even seasons and geography.

THE PRODUCTION PHASE

In Hollywood parlance, the shooting phase is frequently called *production,* even though "production" is also the term for the entire process of making a film.

Although the *director* is often involved in preproduction, he or she is primarily responsible for overseeing the shooting and assembly phases. Traditionally, the director puts the script on film by coordinating the various aspects of the film medium. Within most film industries, the director is considered the single person most responsible for the look and sound of the finished film.

Because of the specialized division of labor in large-scale production, many aspects of the task of shooting the film must be delegated to other workers who consult with the director.

1. In the preparation phase, the director has already begun work with the *set* unit, or *production design* unit. This is headed by a *production designer*. The production designer is in charge of visualizing the film's settings. This unit creates drawings and plans that determine the architecture and the color schemes of the sets. Under the production designer's supervision, an *art director* supervises the construction and painting of the sets. The *set decorator,* often someone with experience in interior decoration, modifies the sets for specific filming purposes, supervising a staff who finds props and a *set dresser* who arranges things on the set during shooting. The *costume designer* is in charge of planning and executing the wardrobe for the production. A *location scout* may find settings which the art director will incorporate into the film.

Working with the production designer, a graphic artist may be assigned to produce a *storyboard,* a series of comic-strip-like sketches of the shots in each scene, including notations about costume, lighting, camera work, and

other matters. Figure 1.15 is taken from the storyboard for Hitchcock's film *The Birds.* Most filmmakers do not storyboard every scene, but action sequences and shots using special effects and complicated camera work tend to be storyboarded in detail. In such instances, the storyboard gives the cinematography unit and the special-effects unit a preliminary sense of what the finished shots should look like. Before shooting *Godfather III,* Francis Ford Coppola had his storyboard videotaped, with extras' voices supplying the dialogue. Some films may use computer-generated storyboards to "previsualize" stunts or special effects.

Fig. 1.15

2. During the shooting, the director relies on what is called the *director's crew.* This includes:

a. The *script supervisor,* known in the classic studio era as a "script girl." (Today one-fifth of Hollywood script supervisors are male.) The script supervisor is in charge of all details of *continuity* from shot to shot. The script supervisor keeps track of details of performers' appearance (in the last scene, was the carnation in the left or right buttonhole?), props, lighting, movement, camera position, and the running time of each scene.

b. The *first assistant director,* who, with the director, plans out each day's shooting schedule and sets up each shot for the director's approval.

c. The *second assistant director,* who is the liaison among the first assistant director, the camera crew, and the electricians' crew.

d. The *third assistant director,* who serves as messenger for director and staff.

e. The *dialogue coach,* who feeds performers their lines and speaks the lines of offscreen characters during shots of other performers.

f. The *second unit director,* who films stunts, location footage, action scenes, and the like, at a distance from where principal shooting is taking place.

3. The most publicly visible group of workers is the *cast.* The cast likely includes *stars,* well-known players assigned to major roles and likely to attract audiences. Figure 1.16 shows 1930s star Greta Garbo in a *screen test,* a procedure used to determine casting and to try out lighting, costume, makeup, and camera positions in relation to the actor. The cast also includes *supporting players,* or performers in secondary roles; *minor players;* and *extras,* those anonymous persons who pass by in the street, come together for crowd scenes, and fill distant desks in large office sets. One of the director's major jobs is to shape the performances of the cast. Most directors will spend a good deal of time explaining how a line or gesture should be rendered, reminding the actor of the place of this scene in the overall film, and helping the actor create a coherent performance. The first assistant director usually works with the extras and takes charge of arranging crowd scenes.


Fig. 1.16

On some productions, more specialized cast members require particular coordination. *Stunt persons* will probably be supervised by a *stunt coordinator;* professional dancers will work with a *choreographer.* If animals join the cast, they will be handled by a *wrangler.* (*Mad Max beyond Thunderdome* carries the memorable credit line "Pig Wrangler.")

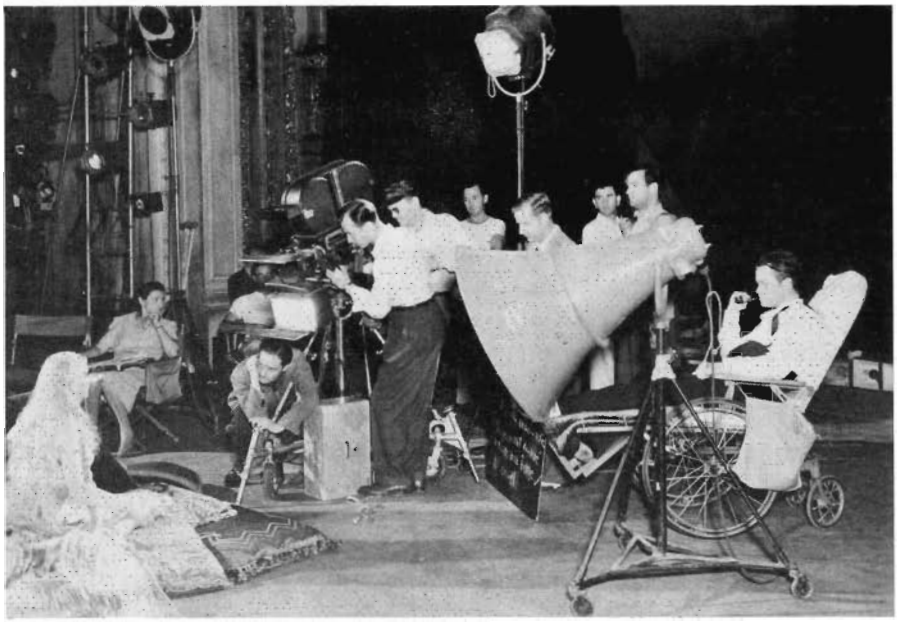

Fig. 1.17

4. Another unit of specialized labor is the *photography unit.* The leader here is the *cinematographer,* also known as the *director of photography* or *DP.* The cinematographer is an expert on photographic processes, lighting, and manipulation of the camera. He or she consults with the director on how each scene will be lit and filmed. In Figure 1.17, on the set of *Citizen Kane,* Orson Welles directs from his wheelchair on the far right, cinematographer Gregg Toland crouches below the camera, and actress Dorothy Comingore kneels at the left. (The script supervisor is in the background left.)

The cinematographer supervises:

a. The *camera operator,* who runs the machine and who may also have assistants to load the camera, adjust and follow focus, push a dolly, and so on.

b. The *key grip,* the person who supervises the *grips.* These workers carry and arrange equipment, props, and elements of the setting and lighting.

c. The *gaffer,* the head electrician who supervises the placement and rigging of the lights. In Hollywood production the gaffer's assistant is called the *best boy.*

5. Parallel to the photography unit is the *sound unit.* This is headed by the *production recordist* (also called the *sound mixer*). The recordist's principal responsibility is to record dialogue during shooting. Typically the recordist will use a portable tape recorder, several sorts of microphones, and a console to balance and combine the inputs from various microphones. The recordist will also attempt to tape some ambient sound when no actors are speaking. These bits of "room tone" will later be inserted to fill pauses in the dialogue.

The recordist's staff includes:

a. The *boom operator,* who manipulates the boom microphone and conceals radio microphones on the actors.

b. The "*third man,*" who places other microphones, lays sound cables, and is in charge of controlling ambient sound.

Some productions have a "sound designer" who enters the process during the preparation phase and who, like the production designer, plans a "sonic style" appropriate for the entire film.

6. A *special-effects* unit is charged with preparing and executing process shots, miniatures, matte work, computer-generated graphics, and other technical shots. Figure 1.18 shows a miniature used in the making of *The Comedians.* During the planning phase, the director and the production designer will have determined what effects will be needed, and the special-effects unit consults with the director and the cinematographer on an ongoing basis.

7. A miscellaneous unit includes a *make-up staff,* a *costume staff, hairdressers,* and *drivers* (who transport cast and crew).

8. During shooting, the producer is represented by a unit often called the *producer's crew.* This consists of the *production manager,* also known as the *production coordinator* or the *associate producer.* This person will manage daily organizational business, such as arranging for meals and accommodations. A *production accountant* (or *production auditor*) monitors expenditures, a *production secretary* coordinates telephone communication among units and with the producer, and *production assistants* (PAs) run errands. Newcomers to the film industry often start out working as production assistants.

All this coordinated effort, involving perhaps hundreds of workers, results in many thousands of feet of exposed film and recorded sound-on-tape. Every shot called for in the script or storyboard or decided on by the director usually has several *takes,* or unique versions, of that shot. For instance, if the finished film requires one shot of an actor saying a line, the director may

Fig. 1.18

shoot several takes of the speech, each time asking the actor to vary the expression or posture. Not all takes are printed, and probably only one of those becomes the shot included in the finished film.

In shooting, the separate shots are often filmed "out of continuity"—that is, in the most convenient order. If a family's home is to be seen at both the beginning and the ending of the film, it is easier and cheaper to photograph all shots in the home at one time. Sometimes this constraint can help the film. For *Diner* Barry Levinson filmed all the diner scenes last, hoping that the actors had come to know each other well and could give more natural performances than they could at the beginning of the shoot. Lawrence Bender, producer of Quentin Tarentino's controversial *Reservoir Dogs*, scheduled the most conventional scenes to be shot first, so that the initial screenings of footage would increase the backers' confidence in the project.

Because shooting usually proceeds out of continuity, the director and crew must have some way of labeling each take. During filming, one of the cinematographer's staff holds a *clapboard* up before the camera at the start of each shot. The clapboard records the production, scene, shot, and take. The clapboard's hinged arm makes a cracking sound that helps the editor to synchronize sound and picture later. (See Fig. 1.19, from Jean-Luc Godard's *La Chinoise*. The white "X" marks this as the exact frame with which the cracking sound should synchronize.) Thus every take is identified for future reference. A more advanced method of synchronization involves automatically fogging the frame just as the take starts, while a tone is sent to the audiotape recording the sound.

Fig. 1.19

In the course of filming, most directors and technicians follow an organized procedure. Assume that a scene is to be filmed. While crews set up the lighting and test the sound recording, the director rehearses the actors and instructs the cinematographer. The director then supervises the filming of a *master shot*. The master shot records the entire action and dialogue of the scene. There may be several takes of the master shot. Then portions of the scene are restaged and shot in closer views or from different angles. These other shots are called *coverage*, and each of them may require many takes. Contemporary practice is to shoot a great deal of coverage, occasionally by using two or more cameras filming at the same time. The script supervisor checks to ensure that continuity details are consistent within coverage shots.


Fig. 1.20

When special effects are to be included, the shooting phase must carefully plan for them. In many cases actors will be filmed against neutral blue backgrounds so that their figures may be inserted into footage shot elsewhere. (This process is called *matte work* or *composite work*.) Or the director will film performers with the understanding that other material will be composited into the frame. For the climax of *Jurassic Park*, the actors were shot in the set of the visitor center's rotunda, but the velociraptors and the tyrannosaurus rex were computer-generated images added later (Fig. 1.20).

POSTPRODUCTION

Members of the film industry today call the assembly phase of filmmaking *postproduction*. Yet this phase does not begin simply when shooting is com-

SOME TERMS AND ROLES IN FILM PRODUCTION

The rise of "packaged" productions, pressures from unionized workers, and other factors have led producers to credit everyone who worked on a film. (The credits for *Who Framed Roger Rabbit?* contained 771 names.) Moreover, the specialization of mass-production filmmaking has created its own jargon. Some of the most colorful terms ("gaffer," "best boy") are explained in the text. Here are some other terms that you might see in a film's credits.

ACE: After the name of the editor; abbreviation for the American Cinema Editors, a professional association.

ASC: After the name of the director of photography; abbreviation for the American Society of Cinematographers, a professional association. The British eqivalent is the BSC.

Additional photography: A crew shooting footage apart from the *principal photography* supervised by the director of photography.

Casting director: Searches for and auditions performers for the film.

Clapper boy: Crew member who operates the clapboard that identifies each take.

Dialogue editor: Sound editor specializing in making sure recorded speech is audible.

Dolly grip: Crew member who pushes the dolly that carries the camera, either from one setup to another or during a take for moving camera shots.

Foley artist: A sound-effects specialist who creates sounds of body movement by walking or by moving materials across large trays of different substances (sand, earth, glass, and so on). Named for Jack Foley, a pioneer in postproduction sound.

Greenery man: Crew member who chooses and maintains trees, shrubs, and grass in settings.

Lead man: Member of set crew responsible for tracking down various props and items of decor for the set.

Loader: Member of photography unit who loads and unloads camera magazines, as well as logging the shots taken and sending the film to the laboratory.

Matte artist: Member of special-effects unit who paints backdrops which are then photographically incorporated into a shot in order to suggest a particular setting.

Model maker: (1) Member of production design unit who prepares architectural models for sets to be built. (2) Member of the special-effects unit who fabricates scale models of locales, vehicles, or characters to be filmed as substitutes for full-size ones.

Optical effects: Laboratory workers responsible for such effects as fades and dissolves, as well as matte shots and other special photographic processes.

Property master: Member of set crew who supervises the use of all *props*, or movable objects, in the film.

Publicist, Unit publicist: Member of producer's crew who creates and distributes promotional material regarding the production. The publicist may arrange for press and television interviews with the director and stars, and for coverage of the production in the mass media.

Scenic artist: Member of set crew responsible for painting surfaces of set.

Steadicam operator: Camera operator responsible for making shots with the gyroscopically balanced body rig patented as the Steadicam.

Still photographer: Member of crew who takes photographs of scenes and "behind-the-scenes" shots of cast members and others. These photographs may be used to check lighting or set design or color, and many will be used in promoting and publicizing the film.

Timer, Color timer: Laboratory worker who inspects the negative film and who adjusts the printer light to achieve consistency of color across the finished product.

Video assist: The use of a video camera mounted alongside the motion picture camera to check lighting, framing, or performances. In this way, the director and the cinematographer can try out a shot or scene on tape before committing it to film.

pleted. Postproduction staff members work steadily, if sometimes behind the scenes, throughout shooting.

Before the shooting has begun, the director or producer has probably hired an *editor* (also known as the *supervising editor*). This person has the responsibility of cataloguing and assembling the various takes produced during shooting.

Because each shot usually exists in several takes, because the film is shot out of continuity, and because the master-shot/coverage approach yields so much footage, the editor's job can be a vast one. A 90-minute 35mm feature, which comprises about 8000 feet of film, may have been carved out of 500,000 feet of exposed footage. For this reason, postproduction on major Hollywood pictures has become a lengthy process. Sometimes several editors and assistants will be brought in.

Typically, the editor receives the processed footage from the laboratory as quickly as possible. This footage is known as the *dailies*, or the *rushes*. The editor inspects the dailies, leaving it to the *assistant editor* to synchronize image and sound and to sort the takes by scene. The editor will meet with the director to examine the dailies or, if the production is filming far away, the editor will call to inform the director of how the footage looks. Since retaking shots is costly and troublesome, constant checking of the dailies is important for spotting any problems with focus, exposure, framing, or other visual factors.

As the footage accumulates, the editor assembles the shots into a *rough cut*—the film loosely strung in sequence, without sound effects or music. Some films are notorious for having gargantuan rough cuts: That of *Heaven's Gate* ran over six hours, that of *Apocalypse Now* seven and a half. Still, even the average rough cut is significantly longer than the finished film. From this the editor, in consultation with the director, builds a *fine cut*, or *final cut*. The material not used comprises the *outtakes*.

Until the mid-1980s, editors cut and spliced the *work print*, footage printed from the camera negative. In trying out their options, editors were obliged to rearrange the shots physically. Now many films are edited electronically. The dailies are transferred to videotape, then to laserdisc or to a hard drive. The editor enters notes on each take directly into a computer database. Such electronic editing systems, usually known as *nonlinear* systems, permit random access to the entire store of footage. The editor can call up any shot, paste it alongside any other shots, trim it, or junk it. Some systems allow special effects and music to be tried out as well. Although nonlinear systems have speeded up the process of cutting, the editor usually asks for a work print of key scenes in order to check for color, details, and pacing.

While the editor, director, and staff are shaping a final cut, a *second unit* may be shooting footage to fill in certain spots. Another specialized unit will be preparing superimposed titles, to be used in the opening and perhaps elsewhere in the film. Further laboratory or special-effects work may also be necessary. Computers may erase the wires holding "flying" players aloft or increase the size of crowds by reduplicating a patch of a shot. Digitally generated imagery can be used to cover mistakes in shooting. After Brandon

Lee's demise interrupted filming of the *The Crow,* digital compositers copied his image from certain scenes and inserted it into sequences filmed after his death.

Once the shots are arranged in something approaching final form, the *sound editor,* also known as the *sound effects editor,* takes charge of building up the sound track. With the editor, the director, and the composer, the sound editor goes through the film and chooses where music and effects will be placed, a process known as *spotting.* The sound editor may have a staff whose members specialize in recording or cutting dialogue, music, or sound effects.

One of the sound editor's principal duties is supervising the rerecording of dialogue after filming. This has become known as *automated dialogue replacement* (ADR for short). Although dialogue is recorded on the set, this may serve only as a guide track. Then the actors are brought into the sound studio to rerecord their lines (a process called *dubbing,* or *looping*). In addition, if there is a recording error or muffled line in the original recording, dubbing is used to replace it. Nonsynchronized dialogue, such as the babble of a crowd, will also be added. In addition, the sound editor will loop alternative lines of dialogue that eliminate phrases that may be found offensive; this sanitized track will be used in broadcast television and airline versions of the film.

The sound editor also adds sound effects. Most of the sound effects the audience hears in a studio-produced film are not recorded at the moment the image is shot. The sound editor draws on a library of stock sounds, utilizes effects recorded "wild" on location, and creates particular effects for this film. Sound editors routinely manufacture footsteps, cars crashing, doors closing, pistol shots, a fist thudding into flesh (often produced by whacking a watermelon with an axe). In *Terminator 2,* for example, the sound of the T-1000 cyborg passing through cell bars is that of dog food sliding slowly out of a can.

Like picture editing, sound editing has been greatly assisted by computer technology. Now the editor can store recorded sounds in a database, classifying and rearranging them in any way desired. A sound's qualities can be modified digitally—clipping off high or low frequencies, changing pitch, reverberation, equalization, or speed. The boom and throb of underwater action in *The Hunt for Red October* were slowed down and reprocessed from such mundane sources as a diver plunging into a swimming pool, water bubbling from a garden hose, and the hum of Disneyland's air-conditioning machinery. One technician on the film calls digital editing "sound sculpting."

During the spotting of the sound track, the film's *composer* has entered the assembly phase as well. Reviewing a fairly advanced cut of the film, the composer decides, along with the director and sound editor, where music should be inserted. The composer then compiles cue sheets that list exactly where the music will go and how long it should run. The composer proceeds to write the score, although she or he will probably not orchestrate it personally. While the composer is working, the rough cut will be synchronized with a "temp dub," musical accompaniment from preexisting sources that approximates the sort of music that will eventually be written. With the aid of a

"click track," which synchronizes the beat of the music to the finished film, the score will be recorded and form part of the sound editor's material.

All these sounds are recorded on different pieces of magnetic tape. Each person's voice, each musical passage, and each sound effect may occupy a separate track. At a final mixing session, the director, editor, and sound-effects editor put dozens of such separate tracks together into a single master track on 35mm magnetic film. The sound specialist who performs the task is the *rerecording mixer.* Often the dialogue track is organized first, then sound effects are balanced with that, and then music is added to create the final mix. Often there will need to be equalization, filtering, and other adjustments to the track. Once fully mixed, the master track is transferred onto sound recording film, which encodes the magnetic sound as optical sound.

The film's *camera negative,* which was used to make the dailies and the work print, is normally too precious to serve as the source for final prints. Instead, from the camera negative footage the laboratory draws an *interpositive,* which in turn furnishes an *internegative.* This negative footage is assembled in accordance with the final cut and becomes the source for future copies. Then the master sound track is synchronized with it.

The positive prints, complete with picture and sound, are called *answer prints.* The producer, director, and cinematographer check the answer print for exposure, color values, and other qualities. If they are dissatisfied, an adjusted answer print is made. Once an answer print has been approved, *release prints* are made for distribution. These are the copies shown in theaters.

In contemporary Hollywood practice, the work of production does not end with the final theatrical version. In consultation with the producer and director, the postproduction staffs prepare airline and broadcast television versions of the film. In some cases, particular versions may be prepared for different countries. The European version of David Lynch's *Wild at Heart* contained footage that was believed to be too violent for American audiences, and Sergio Leone's *Once Upon a Time in America* was completely rearranged for its American release because its American producers considered the original plot too complicated. At the same time, laboratory personnel, often working with the director and the cinematographer, may transfer the film to a master videotape, which will form the basis of videocassette and laserdisc versions. This video transfer process often involves new judgments about color quality and sound balance.

The studio mode of production is characterized by a minute breakdown of labor. With this comes an attempt to control every aspect of the filmmaking process by means of paper records. At the start there will be versions of the script; during shooting reports will be written on camera footage, sound recording, special-effects work, and laboratory results; in the assembly phase there will be logs of shots catalogued in editing, and a variety of cue sheets for music, mixing, looping, and title layout. Once planning and execution are committed to paper, the production workers can control, or at least adjust to, unplanned events.

This is never wholly successful. Every case study of a large-scale studio production will attest to the compromises, accidents, and foul-ups that plague

the process. Weather may throw the shooting off schedule. Disagreements about the script may result in a director's being fired. Last-minute changes demanded by the producer or director may require that some scenes be reshot. Studio production is a constant struggle between the desire to plan the film completely and the inevitable "noise" created by the sheer complexity of such a detailed division of labor.

Many fictional films, such as *Singin' in the Rain*, have been made about the studio mode of production. Some films set their action at particular phases of the process. Federico Fellini's *8½* concerns itself with the preparation, or preproduction, stage of a film that is abandoned before shooting starts. François Truffaut's *Day for Night* takes place during the shooting phase of a production marred by the death of one of the cast. The action of Brian De Palma's *Blow Out* occurs during the sound editing process of a low-budget slasher movie.

INDEPENDENT PRODUCTION

Not all films that use the studio mode of production are large-budget projects financed by major companies. Many so-called "independent" films are made in similar ways, though on a smaller scale.

For example, very low-budget "exploitation" filmmaking (so called because it "exploits" sensational material) tailors its product to a particular market, such as home videocassette rentals. The independent exploitation film, often a horror film or teenage sex comedy, may have a budget as low as $100,000. Nonetheless, the production roles are parceled out in ways which roughly conform to mass-production practices. Because of cost constraints, however, many tasks may be carried out by amateurs, students, friends, and relatives. And in such circumstances people often double up on jobs: the director might produce the film and write the script as well, the picture editor might cut sound as well.

To take an extreme example, Robert Rodriguez made *El Mariachi* as an exploitation film for the Spanish-language video market. The twenty-one-year-old director functioned as producer, scriptwriter, cinematographer, camera operator, still photographer, and sound recordist and mixer. Rodriguez's friend Carlos Gallardo starred, co-produced, and co-scripted; he also served as unit production manager and grip. Gallardo's mother fed the cast and crew. *El Mariachi* wound up costing only about $7000.

The label "independent production" also covers low-budget projects that seek to go beyond the exploitation market. Often regionally based, these films may find success with wide audiences, as did Robert Townsend's *Hollywood Shuffle*, Richard Linklater's *Slacker*, and Kevin Smith's *Clerks*. In these more ambitious low-budget efforts, a small staff and crew fulfill the production functions of the studio model. And trimming costs often stimulates the filmmaker's imagination. Charles Lane's *Street Stories* saved money on synchronized sound by including virtually no dialogue. In making *Just Another Girl on the IRT*, Leslie Harris used locations and available lighting in order to shoot rapidly (Fig. 1.21); she completed filming in just seventeen days.

Fig. 1.21

Some prominent mainstream filmmakers are considered "independents" because they work at budgets significantly below the industry norm. Oliver Stone's *Platoon* and Spike Lee's *School Daze* each cost $6 million. Although Quentin Tarentino's *Pulp Fiction* featured major stars, their willingness to accept reduced salaries kept the budget around $8 million. In Chapter 10, we will analyze one such project, Spike Lee's *Do The Right Thing* (pp. 393–399).

In this type of independent production, the director usually initiates the project and works with a producer to get it realized. As we would expect, these industry-based independents organize production in ways very close to the full-fledged studio mode. Nonetheless, because they require less financing, such independents can demand more flexibility and control in the production process. Woody Allen, for instance, is allowed by his contract to rewrite and reshoot extensive portions of his film after he has assembled an initial rough cut. In shooting *School Daze,* Lee was able to create an off-camera tension between performers portraying conflicting factions of African-American college students. Lee assigned each group's cast to separate living quarters, different meals, and different hairstyling treatments. "It's a very sensitive subject, class and color," reflected one actor. "And I think the majority of the people on the shoot thought they were beyond it. They were forced to examine it, though, and many realized they weren't as far removed from the subject as they thought." Lee's status as an independent allowed him to control the production circumstances in ways that he believed would benefit both the film and its personnel.

MODES OF PRODUCTION: INDIVIDUAL AND COLLECTIVE

Our survey of the studio mode of production demonstrates how precisely production tasks can be broken down. But not all filmmaking demands such a detailed division of labor. In general, two alternative modes of production treat the preparation, shooting, and assembly phases differently.

In *individual* film production the filmmaker functions as an artisan. He or she may own or rent the necessary equipment. Financial backing can be obtained on a film-by-film basis, and the production is generally on a small scale. The preferred format is 16mm. There is very little division of labor: The filmmaker oversees every production task, from obtaining financing to final editing, and will actually perform many of them. Although technicians or performers may make distinct contributions, the principal creative decisions rest with the filmmaker.

Documentary production offers many examples of the individual mode. Jean Rouch, a French anthropologist, has made several films alone or with a small crew in his efforts to document the lives of marginal people, often members of minorities, living in an alien culture. Rouch wrote, directed, and photographed *Les Maîtres fous* (1955), his first widely seen film. Here he examined the ceremonies of a Ghanian cult whose members lived a double life: Most of the time they worked as low-paid laborers, but in their rituals they passed into a frenzied trance and assumed the identities of their colonial rulers. Other documentary filmmakers work on a scale only somewhat larger

than that of Rouch. Frederick Wiseman, whose *High School* we examine in Chapter 11, produces, plans, and distributes his own films. During filmmaking he often serves as sound recordist while a cinematographer runs the camera.

Politically activist documentary offers another example of individual film production. Barbara Koppel devoted four years to the production stages of *Harlan County, U.S.A.*, a record of Kentucky coal miners' struggles for union representation. After eventually obtaining funding from foundations, she and a very small crew spent thirteen months living with miners during the workers' strike. A large crew was ruled out not only by Koppel's budget but also by the need to be absorbed as naturally as possible into the community. Koppel acted as sound recordist, working with cameraman Hart Perry and sometimes also a lighting person. Like the miners, the filmmakers were threatened with violence from strikebreakers. Some of these incidents were recorded on film, as when the driver of a passing truck fired a gun at the crew (Fig. 1.22).

Fig. 1.22

The individual mode of film production is also exemplified by the work of many experimental filmmakers. Maya Deren, one of the most important American experimentalists, made several films in the 1940s (*Meshes of the Afternoon, Choreography for Camera, Ritual in Transfigured Time,* Fig. 1.23) which she scripted, directed, performed in, and edited. In some cases the shooting was done by her husband, Alexander Hammid.

Fig. 1.23

A comparable example is the work of Stan Brakhage, whose films are among the most directly personal ever made. Some, like *Window Water Baby Moving* and *Scenes from under Childhood,* are lyrical studies of his family life; others, such as *Dog Star Man,* are mythic treatments of nature; still others, such as *23rd Psalm Branch* and *The Act of Seeing with One's Own Eyes,* are quasi-documentary studies of war and death. Funded by grants and his personal finances, Brakhage prepares, shoots, and edits his films virtually unaided. For a time, while he was working in a film laboratory, he also personally developed and printed his footage. The work of Brakhage, which now comprises over 150 films, demonstrates that in the individual mode of production the filmmaker can become an artisan, a solitary worker executing all the basic production tasks. In later chapters, we will be examining films by other artisanal experimental directors, such as Bruce Conner, Michael Snow, and Ernie Gehr.

In *collective* film production several film workers participate equally in the project. Like individual filmmakers, the group may own or rent its equipment. The production is on a small scale, and financing may come from foundations or members' personal resources. But although there may be a detailed division of labor, the group shares common goals and makes production decisions collectively. Roles may also be rotated: The sound recordist one day may serve as cinematographer on the next. The collective mode of production attempts to replace the authority vested in the producer and director with a more broadly distributed responsibility for the film.

Not surprisingly, the left-wing political movements of the late 1960s fostered many efforts toward collective film production. In France, several such groups were formed, the most noteworthy being SLON (an acronym for

a name that translates as Society for the Launching of New Works). SLON was a cooperative that sought to make films about contemporary political struggles around the world. Financed chiefly by television companies, SLON filmmakers often collaborated with factory workers in documenting strikes and union activities.

In the United States, the most famous and long-lived collective unit has been the Newsreel group, which was founded in 1967 as an effort to document the student protest movement. Newsreel attempted to create not only a collective production situation, with a central coordinating committee answerable to the complete membership, but also a community distribution network that would make Newsreel films available for local activists around the country. During the late 1960s and early 1970s, the collective produced dozens of works, including *Finally Got the News* and *The Woman's Film.* Newsreel branches sprang up in many cities, with those in San Francisco (now known as California Newsreel) and in New York (known as Third World Newsreel) surviving into the 1990s. After the mid-1970s, Newsreel moved somewhat away from purely collective production, but it retained certain policies characteristic of the collective mode, such as equal pay for all participants in a film. Important Newsreel films of recent years are *Controlling Interests, The Business of America* . . . (funded largely by American public television), and *Chronical of Hope: Nicaragua.* Members of Newsreel such as Robert Kramer, Barbara Koppel, and Christine Choy have gone on to work as individual filmmakers.

The catchall label of "independent filmmaking" thus includes not only small-budget filmmaking modeled on the studio mode but also individual production and collective production. The drawbacks of independent production consist chiefly in financing, distribution, and exhibition. Studios and large distribution firms have ready access to large amounts of capital and usually can ensure the distribution and exhibition of the films they decide to back. The independent filmmaker or group often has trouble gaining access to money and to audiences.

But many filmmakers believe the advantages of independence outweigh the drawbacks. Independent production can treat subjects that large-scale studio production ignores. Few film studios would have initiated Sayles's *Matewan,* and no film studio would have made Jim Jarmusch's *Stranger Than Paradise* or Harris's *Just Another Girl on the IRT.* Because the independent film does not need as large an audience to repay its costs, it can be more personal, more unusual, and perhaps more controversial. The filmmaker need not tailor the script to the Hollywood pattern. (Indeed, the independent filmmaker may not use a script at all.) Independent filmmaking thus often explores new possibilities of the film medium.

IMPLICATIONS OF DIFFERENT MODES OF FILM PRODUCTION

Since much of cinema's uniqueness rests on the technical and social factors that produce it, the modes and stages of film production have considerable

implications for the study of film as an art. For one thing, film production is tied to modes of production in the society as a whole. Because of the technological requisites of production, cinema began in the most highly industrialized societies—the United States, Germany, France, and England. In these countries filmmaking quickly became a business for both individual filmmakers and firms. Studio film production tends to occur when countries have achieved division of labor in other manufacturing industries. In American and European industry, for instance, the separation of production planning from execution had been accomplished by 1900, and the same separation emerged in the film industry in the subsequent decade.

Once film and equipment become more widely available, alternative modes of production are possible. With access to 16mm and portable video equipment, people can engage in individual and collective film production. But this access rests in turn on the existence of social groups that can afford to purchase such machines and that know how to operate them. Just as MGM could not have developed in the Middle Ages, so independent film production cannot indigenously spring up among preindustrial societies today. Film production has historically modeled its practices on economic production in other industries, and the overall economic nature of a society constrains the modes of film production which can develop there.

Finally, the mode of film production affects how we view the filmmaker as artist. This is the issue of authorship. Who, it is often asked, is the "author," the artist responsible for the film?

For some modes of film production, the question is easily answered. In individual production the author must be the solitary filmmaker—Stan Brakhage, Louis Lumière, yourself. Collective film production creates collective authorship; the author is the entire group (Third World Newsreel or SLON). The question of authorship becomes difficult to answer only when asked about studio production.

In the earlier instances authorship is defined by control and decision making, whether by an individual or a collective. But studio film production assigns tasks to so many individuals that it is often difficult to determine who decides what. Is the producer the author? In the prime years of the Hollywood studio system, the producer might have had little or nothing to do with shooting. The writer? Again, in Hollywood, the writer's script might be completely transformed in filming. So is this situation like collective production, with group authorship? No, since studio division of labor denies film workers common goals and shared decision making. Moreover, if we consider not only control and decision making but also "individual style," it must be admitted that certain studio workers leave recognizable and unique traces on the films they make. Cinematographers such as Hal Mohr and Gregg Toland, set designers such as Hermann Warm, costumers such as Edith Head, choreographers such as Michael Kidd—the contributions of these people stand out within the films they made. So where does the studio-produced film leave the idea of authorship?

In recent years the most commonly accepted solution has been to regard the director as the "author" of most studio films. Although the writer prepares a script, that script does not define the finished film, since later phases of

production can modify the script beyond recognition. (Indeed, writers are famous for complaining about how directors mutilate scripts.) In general, the director's role comes closest to orchestrating all of those stages of production which most directly affect how a movie looks and sounds.

For a director to orchestrate the labor of shooting and assembly does not mean that he or she is expert at every job or even overtly orders this or that. Within the studio mode of production, the director can delegate tasks to trusted and competent personnel; hence the tendency of directors to work habitually with certain actors, cinematographers, composers, and so on. Alfred Hitchock reportedly sat on the set during filming, never looking through the camera's viewfinder. Yet he sketched out every shot beforehand and thoroughly explained to his cinematographer what he wanted. Even in the assembly phase, the director can exercise remote-control power. Most Hollywood studios did not permit the director to supervise the editing of the film. But John Ford, for example, got around this by simply making only one take of each shot whenever possible, with very little overlap of action from shot to shot. By precutting the film "in his head," Ford gave the editor the bare minimum and had no need to set foot in an editing room. Finally, the importance of the director's role is confirmed by the recent trend for the director to operate on a free-lance basis, organizing his or her chosen project.

For all of these reasons, in the rest of this book we will generally identify the director as the worker responsible for the film in question. There are exceptions, but usually it is through the director's control of the shooting and assembly phases that the film's form and style crystallize. These two aspects of a film are central to film art and thus to the concerns of the rest of this book.

Film production requires some division of labor, but how that division is carried out, and how power is allocated to various roles, differs from project to project. The process of film production thus reflects different conceptions of what a film is, and the finished film inevitably bears traces of the mode of production within which it was created.

AFTER PRODUCTION: DISTRIBUTION AND EXHIBITION

Film production has been our principal concern, but the social institution of cinema also depends on distribution and exhibition. Feature films are distributed through companies set up for this purpose, and most exhibition occurs within theater circuits. When a firm owns the production facility, a distribution company, and exhibition outlets, it is said to be *vertically integrated.* Vertical integration is a common business practice in most film-producing countries. In the 1920s, for example, Paramount already consisted of production and distribution branches, and it went on to buy and build hundreds of theaters, thus guaranteeing itself a market for its products. In 1948, United States courts declared vertical integration monopolistic, but in this country the major production firms have remained the most important

distributors. Recently some theater chains, such as Cineplex Odeon, have become involved in distribution.

Production has always affected exhibition and distribution. In the heyday of Hollywood, studios produced a variety of short films (cartoons, comedies, newsreels) which accompanied the feature film and made up a package with specific exhibition appeal. Nowadays the extra material on a cinema program is more likely to include advertisements, movie previews, announcements of no-smoking laws, and pleas for patrons not to litter the theater or talk during the film.

The way in which a theater exhibits a film can have a profound effect on our movie-going experience. Most patrons are aware that it is more rewarding to see a film made with a stereophonic sound track in a theater equipped with a stereophonic sound system, and so theaters add "in stereo" to their advertisements. Throughout cinema history, the individual exhibitor has controlled how the patrons see films. In the earliest days of the cinema, when films were only a few minutes long, the exhibitor could arrange a program in a certain order and might even lecture during some of the films. With the move to longer features in the 1910s and 1920s, some exhibitors found ways to squeeze in an extra show or two a day—by having the projectionist either cut out portions of the print or run the hand-cranked projector a bit faster than standard speed.

The introduction of sound discouraged such practices, but we should not assume that today we always see the film exactly as its makers intended. For one thing, since the 1950s, films have been shot in a variety of shapes, or *aspect ratios*. Some are very wide rectangles, others slightly narrower, and some are closer to the shape of a television screen. Theater projectors are equipped with a variety of *aperture plates*, whose rectangular slots enable the film to be projected in various proportions. In Figure 1.24, from a 35mm print of *Beetlejuice*, you can see that the top of the set has been left unfinished. When the print is projected, the aperture plate conceals this portion of the image. The screen is also usually framed by a dark masking, which can be adjusted to match the shape of the image. Sometimes, however, projectionists do not bother to change their projector's plates or move the masking to suit the film. If you see a film that, say, cuts off the tops of the actors' heads, the problem is most likely in the projection, not in the original cinematographer's work.

Fig. 1.24

One reason why such mistakes occur is that in recent years theaters have tried to cut expenses by redefining the projectionist's job. In a "multiplex" cinema complex, a single projectionist might be responsible for supervising a half dozen films running simultaneously, from one central booth or from several. This works well as long as nothing goes wrong, but if the film goes out of focus, there may be no one in the projection booth to notice the problem for minutes on end. On the other hand, more and more theater chains are striving to improve the quality of their screenings, and many projectionists take immense pride in smoothly run shows. It is worth noticing which theaters provide the best presentation of films and trying to patronize them whenever possible.

Broadly speaking, there are three types of exhibition of new films in the

United States. Mainstream commercial cinemas are the most common, showing popularly oriented feature films. Films with a more limited appeal are more likely to show in "art houses," which cater to those interested in foreign-language films, feature-length documentaries, festivals of animation, independently produced films, and the like. Like mainstream commercial theaters, art theaters are oriented toward making a profit, and they do so by appealing to a steady, loyal audience in such places as large cities and college towns. Finally, small-budget independent and experimental films may be shown in very specialized exhibition situations. Museums and archives often sponsor film series, as do local filmmaking cooperatives. Virtually all such venues depend upon outside support—from grants, foundations, corporate sponsors, and the like—to supplement ticket sales.

Three comparable types of distributors supply these various exhibition sites. The large national distribution firms cater to the commercial cinemas. Smaller distributors may pick up independent productions or imported films for the art-house market. Experimental films also have their own alternative distribution system, consisting of outlets such as the Film-Makers' Cooperative in New York and Canyon Cinema in San Francisco.

These distinctions among types of exhibition and distribution are not hard and fast. A few art cinemas show experimental films as shorts before their features. Independent filmmakers may try to break into the studio distribution and exhibition structure, as Robert Rodriguez did with *El Mariachi* and Michael Moore did with *Roger and Me.* In recent years there has been a trend toward taking foreign films that are initially very successful in an art-house context and moving them into mainstream commercial cinemas for a second run; this has happened, for example, with the Mexican film *Like Water for Chocolate.* Italian director Bernardo Bertolucci's *The Last Emperor* ordinarily might have played in art cinemas, but its spectacular sets and costumes helped it get a wide release in commercial cinemas instead, and its subsequent sweep of the Oscar awards made it a considerable popular success.

Mainstream theaters, art houses, and venues for experimental cinema are all instances of *theatrical* exhibition. *Nontheatrical* exhibition includes screenings in viewers' homes, classrooms, hospitals, military institutions, public libraries, and similar circumstances.

FILM AND VIDEO

By far the most significant nontheatrical means of exhibition is video, in the form of broadcast, cable or satellite transmission, and home formats like videocassette and laserdisc. Since 1988, the American film industry has garnered twice as much income from nontheatrical video as from domestic theater returns. Because of the widespread use of this new exhibition format, we should recognize the important differences between film and video.

Certain differences depend on technological factors. Video images are created by bombarding light-sensitive phosphors on the surface of the monitor's picture tube. A "gun" at the rear of the tube scans the surface horizontally, rapidly activating the phosphors one by one. In North America, the

broadcast standard is established at 525 scan lines, each with about 600 separate points, or picture elements (pixels). (In practice, the number of lines available on a home television monitor is around 425.) In Europe, the standard is 625 scan lines.

Motion picture film can carry far more visual information than the standard video image. Estimates vary, but a 16mm color image offers the equivalent of at least 500 video scan lines, while 35mm positive film offers color resolution equivalent to over 2000 scan lines. Moreover, American-standard video has a total of about 350,000 pixels per frame, but 35mm color negative film has the equivalent of about 7 million. This should not be surprising. We can see the tiny flickering pixels on a video monitor, but on 35mm a grain of silver halide may support a distinct image point no bigger than four atoms!

Another disparity between film and video involves *contrast ratio*, the relation between the brightest area and the darkest area of the image. While the video camera can reproduce a maximum contrast ratio of 20:1, 35mm color film can reproduce a contrast ratio of over 100:1. As a result of these factors, the 35mm film image can display a much greater range of tonalities. When a film is transferred to video, engineers typically handle the narrower contrast ratio by lightening the image, thereby losing the richness of shadow areas. "The versions of *The Dead Zone* and *The Fly* that you find on video carry my name," observes director David Cronenberg, "and they are the films that I made, but I hate the way they look on tape. Too bright."

A film on video may fall prey to other defects as well. Video color is likely to smear, with sharp-edged reds and oranges particularly difficult to render. There is also the problem of "comet tailing," streaks of light that trail movements of objects against a dark background. Highly patterned clothing and closely packed horizontal stripes produce moiré, or "herringbone," oscillation in the picture.

There are other important differences between film and television. An obvious one is scale. A 35mm film image is designed to be displayed on a screen area of hundreds of square feet. Video images look faint and stippled when projected on even a 6-by-8-foot area. Another difference between the two media is long-term storage capacity. Film has been a notably perishable medium, but it can last far longer than videotape. By current estimates, images on a tape in the 1-inch format can start to degrade in 10 to 15 years, and images on a 1/2-inch videocassette may fall into jeopardy in half that time.

More than technological differences separate the two media. A video version of a film may have a different musical background than does the original, often because producers could not obtain the video rights to existing songs. Broadcast television habitually alters films, reediting them and reworking the sound tracks to eliminate potentially offensive dialogue. Sometimes the filmmakers shoot material solely for the broadcast versions of the film. The U.S. network broadcast of *The Silence of the Lambs* contained some alternate versions of shots seen in the theatrical version. Video "colorization" uses computer analysis to add color to black-and-white films. Broadcasters also utilize "time compression," speeding up the film past its original 24 fps

Fig. 1.25

Fig. 1.26

Fig. 1.27

so that more commercial advertising can be inserted. Broadcast and home-video versions sometimes present a "semi-squeezed" image that distorts faces and bodies in order to fit widescreen information onto the television screen.

The most widespread alteration of the original film comes in the process of "panning and scanning." Here a film made in a widescreen ratio is cropped to fit the narrower television frame. A controller decides what portions of the image to show and what to eliminate. When important action takes place at opposite ends of the widescreen frame, a computer-controlled scanning mechanism pans across the image. Since most films made after about 1955 have been intended to be shown in some wide format, pan-and-scan is very common. It can be seen on films that are broadcast and cablecast, as well as those available on home video.

Pan-and-scan processes are highly unfaithful to the original film. The moviegoer who sees *River of No Return* in a widescreen film print sees an image like that in Figure 1.25. The home-video viewer sees what is in Figure 1.26. Sometimes the results can be quite hilarious, as when the television image includes an actor's nose sticking into the frame. (See Fig. 1.27, from a 16mm television print of Douglas Sirk's *Tarnished Angels.*) To avoid such awkward compositions, panning and scanning will sometimes make separate shots out of what is actually a single shot. In any case, the video frame may eliminate up to 50 percent of the original image.

All of which is not to say that motion pictures should not be watched on video. Video copies of films are very convenient to use, widely accessible, and comparatively inexpensive. Video has aroused viewers' interest in a wider range of films than is available in local theaters. If a film is no longer in circulation or is prohibitively expensive to rent, watching it on video is usually better than not seeing it at all.

And some video formats are superior to others. A VHS videocassette offers only about 200 lines of resolution and seldom respects the film's original image proportions. Laserdisc video offers much improved image quality (400 or more lines). Laserdisc versions also sometimes approximate widescreen compositions by putting black bands at the top and bottom of the screen ("letterboxing"). In addition, the digital sound track of laserdisc versions, offering stereophonic and surround channels, far exceeds the quality of videocassette and 16mm film. True, there are problems with the laserdisc format: Often the letterboxing does not recapture the full width of the original,

and only the CAV disc format allows the viewer to stop at a single film frame and examine it. Nevertheless, the laserdisc format is currently the most preferable video approximation to the original film.

A video version can be useful in film study, but we suggest that it serves best as an adjunct to a film copy. Ideally, the first viewing of a film should be in a film-exhibition situation, and close analysis should be done using a film print. If a print is unavailable for study, the scholar or student can utilize a laserdisc version. While a videocassette can give some idea of a film's visual qualities, it remains chiefly valuable for examining dialogue, music, performances, script construction, and similar factors.

As the television image improves, chiefly through the development of high-definition video, it may compete with 16mm (see Notes and Queries). Like all media technologies, video has advantages as well as disadvantages, and in studying film, we need to be aware of both.

NOTES AND QUERIES

THE ILLUSION OF MOVEMENT IN THE CINEMA

Most people are surprised to learn that for much of the time that a film is running, the screen is completely dark. At 24 frames per second, a projected film advances one frame every 42 milliseconds. (A millisecond is a thousandth of a second.) Since the shutter breaks the projector beam twice—once while the film is moving, once while it is stationary—each frame is actually shown twice during that 42-millisecond interval. Each of the two displays is on the screen for 8.5 milliseconds, with 5.4 milliseconds of darkness between each one. During a film that lasts a hundred minutes, the audience is sitting in total darkness for almost forty minutes! We do not, however, perceive the brief intervals of darkness because of critical flicker fusion and apparent-motion processes within our visual system.

A useful introduction to visual perception is John P. Frisby, *Seeing: Illusion, Brain and Mind* (New York: Oxford University Press, 1980). A technical treatment of the illusion of movement in film is offered in Julian E. Hochberg, "Representation of Motion and Space in Video and Cinematic Displays," in Kenneth R. Boff, Lloyd Kaufman, and James P. Thomas, eds., *Handbook of Perception and Human Performance,* vol. 1, "Sensory Processes and Perception" (New York: Wiley, 1986), chap. 22. Stuart Liebman uses the perceptual mechanisms of illusion to analyze an experimental film in "Apparent Motion and Film Structure: Paul Sharits' *Shutter Interface,*" *Millennium Film Journal* **1**, 2 (Spring–Summer 1978): 101–109.

THE TECHNICAL BASIS OF CINEMA

André Bazin suggests that humankind dreamed of cinema long before it actually appeared: "The concept men had of it existed so to speak fully armed in their minds, as if in some platonic heaven" [*What Is Cinema?* vol. 1 (Berkeley: University of California Press, 1967), p. 17]. Still, whatever its

distant antecedents, the cinema became technically feasible only in the nineteenth century.

Motion pictures depended on many discoveries in various scientific and industrial fields: optics and lens making, the control of light (especially by means of arc lamps), chemistry (involving particularly the production of cellulose), steel production, precision machining, and other areas. The cinema machine is closely related to other machines of the period. For example, engineers in the nineteenth century designed machines that could intermittently unwind, advance, perforate, advance again, and wind up a strip of material at a constant rate. The drive apparatus on cameras and projectors is a late development of a technology which had already made feasible the sewing machine, the telegraph tape, and the machine gun. The nineteenth-century origins of film are even more apparent today; compare cinema technology's mechanical and chemical basis with image systems such as television, holography, and "virtual reality," which depend on electronics, lasers, and computer imaging, respectively.

On the history of film technology, see Barry Salt's *Film Style and Technology: History and Analysis* (London: Starword, 1992); David Bordwell, Janet Staiger, and Kristin Thompson's *The Classical Hollywood Cinema: Film Style and Mode of Production to 1960* (New York: Columbia University Press, 1985); and many essays in Elisabeth Weis and John Belton, eds., *Film Sound: Theory and Practice* (New York: Columbia University Press, 1985). Primary sources of technological information are included in Raymond Fielding, ed., *A Technological History of Motion Pictures and Television* (Berkeley: University of California Press, 1967). Douglas Gomery has pioneered the economic history of film technology: for a survey, see Robert C. Allen and Douglas Gomery, *Film History: Theory and Practice* (New York: Knopf, 1985). In *Basic Motion Picture Technology* (New York: Hastings House, 1975), L. Bernard Happé includes some historical background; the book as a whole constitutes a solid introduction to the technical basis of cinema. The most comprehensive and up-to-date reference book on the subject is Ira Konigsberg, *The Complete Film Dictionary* (New York: New American Library, 1987). An entertaining appreciation of film technology is Nicholson Baker's essay "The Projector," *New Yorker* (March 21, 1994): 148–152.

MODES OF FILM PRODUCTION

Many "how-to-do-it" books discuss basic stages and roles of film production. Especially good are William B. Adams, *Handbook of Motion Picture Production* (New York: Wiley, 1977); Lenny Lipton, *Independent Filmmaking* (San Francisco: Straight Arrow, 1972); and Kris Malkiewicz, *Cinematography*, 2d ed. (New York: Prentice-Hall, 1989). Steven Bernstein's *The Technique of Film Production* (London: Focal Press, 1988) reflects contemporary British practice.

There are many informative discussions of the studio mode of production as it currently exists in the United States. Good recent ones are Alexandra Brouwer and Thomas Lee Wright, *Working in Hollywood: 64 Film Professionals Talk about Moviemaking* (New York: Crown, 1990) and Roy Paul

Madsen, *Working Cinema: Learning from the Masters* (Belmont, Calif.: Wadsworth, 1990). Jason E. Squire's *The Movie Business Book*, 2d ed. (New York: Simon & Schuster, 1992) is a comprehensive guide to the state of the industry today. An outstanding reference work is Harvey Rachlin's *TV and Movie Business: An Encyclopedia of Careers, Technologies and Practices* (New York: Crown, 1991).

Entire books have been devoted to particular tasks within production. On the work of the producer, see Paul N. Lazarus III, *The Film Producer* (New York: St. Martin's, 1992). On production design see Vincent LoBrutto, *By Design: Interviews with Film Production Designers* (Westport, Conn.: Praeger, 1992). The details of organizing preparation and shooting are explained thoroughly in Alain Silver and Elizabeth Ward's *The Film Director's Team: A Practical Guide for Production Managers, Assistant Directors, and All Filmmakers* (Los Angeles: Silman-James, 1992).

Storyboarding is extensively discussed in Steven D. Katz, *Film Directing Shot by Shot: Visualizing from Concept to Screen* (Studio City, Calif.: Wiese, 1991). Several "Making of" promotional books include examples of storyboarding; see in particular Don Shay and Jody Duncan, *The Making of "Jurassic Park"* (New York: Ballantine, 1993).

Boston's Focal Press has published a series of useful handbooks to various specialities, including Pat P. Miller, *Script Supervising and Film Continuity* (1986); Marvin M. Kerner, *The Art of the Sound Effects Editor* (1989); and Dan Carlin, Sr., *Music in Film and Video Productions* (1991).

Norman Hollyn's *The Film Editing Room Handbook* (New York: Arco, 1984) offers a detailed account of traditional assembly procedures. Newer video- and computer-based methods are discussed in Michael Rubin, *Nonlinear: A Guide to Electronic Film and Video Editing*, 2d ed. (Gainesville: Triad, 1992) and in Thomas Ohanian, *Digital Nonlinear Editing: New Approaches to Editing Film and Video* (Boston: Focal Press, 1993). On sound editing, see Vincent LoBrutto, *Sound-on-Film: Interviews with Creators of Film Sound* (Westport, Conn.: Praeger, 1994); our quotation on p. 21 is derived from p. 225. Special effects are covered in a richly designed magazine, *Cinefex*.

The craft of contemporary screenwriting is discussed in Syd Field, *Screenplay: The Foundations of Screenwriting* (New York: Delta, 1979); Linda Seeger, *Making a Good Script Great* (New York: Dodd, Mead, 1987); Michael Hauge, *Writing Screenplays that Sell* (New York: HarperCollins, 1988); Andrew Horton, *Writing the Character-Centered Screenplay* (Berkeley: University of California Press, 1994); and Ken Dancyger and Jeff Rush, *Alternative Scriptwriting: Writing Beyond the Rules* (Boston: Focal Press, 1991).

Several recent books explain the financing, production, and sale of independent low-budget films. The most serious and wide-ranging are David Rosen and Peter Hamilton, *Off-Hollywood: The Making and Marketing of Independent Films* (New York: Grove Weidenfeld, 1990) and Renée Harmon, *The Beginning Filmmaker's Business Guide* (New York: Walker, 1994). Two entertaining how-to guides are Rick Schmidt, *Feature Filmmaking at Used-Car Prices* (New York: Penguin, 1988), and John Russo, *Making Movies: The Inside Guide to Independent Movie Production* (New York: Dell, 1989). Les-

sons from a low-budget master are available in Roger Corman's *How I Made a Hundred Movies in Hollywood and Never Lost a Dime* (New York: Random House, 1990). A sample passage: "In the first half of 1957 I capitalized on the sensational headlines following the Russians' launch of their Sputnik satellite. . . . I shot *War of the Satellites* in a little under ten days. No one even knew what the satellite was supposed to look like. It was whatever I said it should look like" (pp. 44–45).

Several useful magazines treat independent cinema in the United States and elsewhere: *The Independent, Filmmaker,* and *Visions.*

Many contemporary scholars have researched the history of production practices. For the American film industry we have economic accounts such as Douglas Gomery's *The Hollywood Studio System* (London: Macmillan, 1985), which deals with production in relation to distribution and exhibition. Bordwell, Staiger, and Thompson's *The Classical Hollywood Cinema* (cited in the previous section) discusses the history of studio production practices and their relation to the development of American industry. On screenwriting, a historical overview is Tom Stempel, *FrameWork: A History of Screenwriting in the American Film* (New York: Continuum, 1988). Pat McGilligan has collected reminiscences of script writers in *Backstory: Interviews with Screenwriters of Hollywood's Golden Age* (Berkeley: University of California Press, 1986) and *Backstory 2: Interviews with Screenwriters of the 1940s and 1950s* (Berkeley: University of California Press, 1991).

Anecdotal biographies and chatty memoirs of stars, directors, producers, and other personnel offer some insight into historical aspects of production. But there are some excellent detailed case studies of the making of particular films. See Rudy Behlmer, *America's Favorite Movies: Behind the Scenes* (New York: Ungar, 1982); Aljean Harmetz, *The Making of "The Wizard of Oz"* (New York: Limelight, 1984); François Truffaut's "Diary of the Making of *Fahrenheit 451,*" in *Cahiers du cinéma in English* **5, 6,** and **7** (1966); Ronald Haver, *"A Star is Born": The Making of the 1954 Movie and Its 1985 Restoration* (New York: Knopf, 1988); Stephen Rebello, *Alfred Hitchcock and the Making of "Psycho"* (New York: Dembuer, 1990); John Sayles, *Thinking in Pictures: The Making of the Movie "Matewan"* (Boston: Houghton Mifflin, 1987); and Julie Salamon, *The Devil's Candy: "The Bonfire of the Vanities" Goes to Hollywood* (Boston: Houghton Mifflin, 1991). Most of Spike Lee's productions have been documented with published journals and production notes; see, for example, Spike Lee, *Uplift the Race: The Construction of "School Daze"* (New York: Simon & Schuster, 1988) and *Do The Right Thing: A Spike Lee Joint* (New York: Simon & Schuster, 1989). Our quotation on p. 24 comes from p. 85 of the former.

There are fewer studies of individual and collective film production, but here are some informative works. On Jean Rouch, see Mick Eaton, ed., *Anthropology—Reality—Cinema: The Films of Jean Rouch* (London: British Film Institute, 1979). The makers of *Harlan County, U.S.A.,* and other independent documentaries discuss their production methods in Alan Rosenthal, *The Documentary Conscience: A Casebook in Film Making* (Berkeley: University of California Press, 1980). Maya Deren's work is scrutinized in P. Adams Sitney, *Visionary Film: The American Avant-Garde, 1943–1978,* 2d

ed. (New York: Oxford University Press, 1979). Stan Brakhage ruminates on his approach to filmmaking in *Brakhage Scrapbook: Collected Writings* (New Paltz, N.Y.: Documentext, 1982). For information on other experimentalists, see Scott MacDonald, *A Critical Cinema: Interviews with Independent Filmmakers* (Berkeley: University of California Press, 1988) and David E. James, *Allegories of Cinema: American Film in the Sixties* (Princeton: Princeton University Press, 1989).

Collective film production is the subject of Guy Hennebelle, "*SLON:* Working Class Cinema in France," *Cinéaste* **5,** 2 (Spring 1972): 15–17; Bill Nichols, *Newsreel: Documentary Filmmaking on the American Left* (New York: Arno, 1980); and Michael Renov, "Newsreel: Old and New—Towards an Historical Profile," *Film Quarterly* **41,** 1 (Fall 1987): 20–33. Collective production in film and other media is discussed in John Downing, *Radical Media: The Political Experience of Alternative Communication* (Boston: South End Press, 1984).

The relation between modes of film production and social organization as a whole has been explored very little. Ian Jarvie's *Movies and Society* (New York: Basic Books, 1970) compares methods of socialization in studio film production with those in other areas of life. A good introduction to twentieth-century modes of production is Harry Braverman's *Labor and Monopoly Capital* (New York: Monthly Review Press, 1974).

For a detailed study of contemporary film distribution, see Suzanne Mary Donahue, *American Film Distribution: The Changing Marketplace* (Ann Arbor: UMI Research Press, 1987). Issues of reception are addressed in Bruce A. Austin's *Immediate Seating: A Look at Movie Audiences* (Belmont, Calif.: Wadsworth, 1988). Douglas Gomery's *Shared Pleasures: A History of Moviegoing in America* (Madison: University of Wisconsin Press, 1992) offers a history of exhibition.

■ PRODUCTION STILLS VERSUS FRAME ENLARGEMENTS

A film may live in our memory as much through still photographs as through our experience of seeing the movie. These photographs are typically of two sorts. The photograph may be a copy of a single frame of the finished film, as it exists on the film strip. Such a copy is usually called a *frame enlargement.* Most photographs from the film, however, are *production stills*—that is, photographs made while the film is being shot. Typically production stills are used for publicizing the film in newspapers and magazines, but they are also used in many books on motion pictures.

Production stills are usually photographically sharper than frame enlargements, and they can be useful for studying details of setting or costume. Unfortunately, they differ from the image on the film strip. Usually the photographer rearranges and relights the actors and takes the still from an angle and distance not comparable to that shown in the finished film. Frame enlargements therefore offer a much more faithful record of the finished film.

For example, both Figures 1.28 and 1.29 have been used to illustrate discussions of Jean Renoir's *Rules of the Game.* Figure 1.28 is a production still in which the actors have been posed. It is not, however, faithful to the

Fig. 1.28

Fig. 1.29

finished film. Figure 1.29 shows the actual shot in the film. The frame enlargement reveals that Renoir uses the central doorway to present action taking place in depth. Here, as often happens, a production still does not capture important features of the director's visual style.

Virtually all of the photographs in this book are frame enlargements.

■ AUTHORSHIP

On what grounds may we say that a director is the "author" of a studio-produced film? Three possibilities seem to be available.

Author as production worker. This is the concern of this chapter. Some film scholars believe that the director of a studio film cannot be the author unless he or she seeks to fulfill every major role personally. (An example is Charles Chaplin, who was producer, writer, director, composer, and star of his later films.) Other scholars maintain that although the director cannot perform all those tasks, he or she must at least have overt veto control at every stage of production (as, say, Jacques Tati and Federico Fellini did). In the view of still other scholars, the director's role provides the closest thing to a grasp of the totality of the shooting and assembly phases. Not that the director can do everything or make every choice, but the director's role is defined as a synthetic one, combining the participants' contributions into a whole. This is the position we have taken in this book. A defense of the "director as orchestrator" view may be found in V. F. Perkins's *Film as Film* (Baltimore: Penguin, 1972), chap. 8.

Author as personality. In France in the 1950s young writers grouped around the magazine *Cahiers du cinéma* began to discover traces of "personal style" in Hollywood films. Attributing this personality to the director, they stressed the "Howard Hawks" flavor (love of action and professional stoicism), the "Alfred Hitchcock" flavor (suspense but also a brooding Catholic guilt), and so on. This became known as the *politique des auteurs*, the "position of being for authors." The idea was taken up by Andrew Sarris in a series of now famous essays. "The strong director imposes his own personality on a film" [*The American Cinema* (New York: Dutton, 1968), p. 31]. Auteurism also became an evaluative method, enabling the *Cahiers du cinéma* critics and Sarris to rank auteurs against nonauteurs. (Sarris: Fred Zinnemann has only a superficial "personal commitment" to direction, David Lean's *Doctor Zhivago* is a work of "the most impeccable impersonality.")

The *politique des auteurs* made a major step toward our understanding of film as art, but according to this conception, what constitutes "personality"? Film form and style? Certain preferred themes, stories, actors, genres? Anglo-American auteur criticism has tended to speak of the director's "personal vision" and recurrent "concerns." For a vigorous statement, see William Cadbury and Leland Poague, *Film Criticism: A Counter Theory* (Ames: Iowa State University Press, 1983). The major progenitor of this emphasis is Robin Wood's remarkable body of work on various directors; he defends his stance in *Personal Views* (London: Gordon Fraser, 1976).

Author as a group of films. In reaction to the notion of "personality," some have suggested that we regard the idea of the "author" as simply a critical construct. On this account, the critic would group films by *signature* of director, producer, screenwriter, or whatever. Thus *Citizen Kane* could belong to the "Orson Welles" group *and* to the "Herman Mankiewicz" group *and* to the "Gregg Toland" group, and so on. The critic would then analyze the patterns of relations within a given group. This would mean that certain aspects of *Citizen Kane* interact with aspects of other films directed by Welles, or of other films written by Mankiewicz, or of other films photographed by Toland. The "author" is no longer a person, but, for the sake of analysis, a system of relations among several films bearing the same signature. Peter Wollen develops this idea in *Signs and Meanings in the Cinema* (Bloomington: Indiana University Press, 1972). This approach, of course, could be applied to independent works as well as to studio-produced films.

The 1960s and 1970s saw a great many disputes over the concept of authorship, such as the argument between proponents of the "director as auteur," led by Andrew Sarris (in *The American Cinema* and elsewhere) and proponents of the "screenwriter as auteur," led by Richard Corliss [in *The Hollywood Screenwriters* (New York: Avon, 1972) and *Talking Pictures* (New York: Penguin, 1974)]. It is interesting that the Sarris-Corliss disagreement does not distinguish among author as production worker, as personality, or as critical label, so at times the two critics are not talking about the same thing. After the initial interest in authorship in the cinema, many critics have taken a step back to differentiate and compare assumptions as we have here. John Caughie's useful anthology *Ideas of Authorship* (London: Routledge & Kegan Paul, 1981) and Steve Crofts's "Authorship and Hollywood," *Wide Angle* **5,** 3 (1983): 16–22, both categorize various approaches to authorship. Despite the difficulties and varieties of approach, some version of the director-as-author position remains probably the most widely shared assumption in film studies today. Most critical studies of cinema put the director at center stage.

A detailed consideration of how the personal life of the independent filmmaker can be a source of creative material is P. Adams Sitney, "Autobiography in Avant-Garde Film," *Millennium Film Journal* **1,** 1 (Winter 1977–78:) 60–105.

FILM AND VIDEO

Detailed comparisons of film and video technology can be found in Harry Mathias and Richard Patterson, *Electronic Cinematography: Achieving Photographic Control over the Video Image* (Belmont, Calif.: Wadsworth, 1985) and Richard H. Kallenberger and George D. Cvjetnicanin, *Film into Video* (Boston: Focal Press, 1994). See also Tim Lucas, *The Video Watchdog Book* (Cincinnati: Video Watchdog, 1992); our quote from David Cronenberg on p. 31 comes from p. 223 of this book.

On using video to help plan shots during production, the Polish director Andrzej Wajda remarks: "For a director who has grown up with and been formed by film, video is a technique that offers no resistance. The lighting is

always sufficient, the camera movement incredibly light and facile—too facile—and what is more, if you don't like what you just did you can simply erase it and start again from scratch, which means the possibilities are infinite. This means you work without tension, without the familiar atmosphere of being on the edge, constantly at risk. The problem, of course, is that that tension, that sense of risk, is precisely what characterizes the work in a good film" [Wajda, *Double Vision: My Life in Film,* trans. Rose Medina (New York: Holt, 1989), pp. 43–44].

John Belton has written several essays on pan-and-scan practices; two of the most informative are "Pan and Scan Scandals," *The Perfect Vision* **1,** 3 (Indian summer 1987): 40–49, and "The Shape of Money," *Sight and Sound* **56,** 3 (Summer 1987): 170–174. Three contemporary filmmakers discuss the relation of cinema to video in Roger Ebert and Gene Siskel, *The Future of the Movies: Interviews with Martin Scorsese, Steven Spielberg, and George Lucas* (Kansas City, Mo.: Andres and McMeel, 1991).

The boundaries between cinema and video are blurring in several ways. Several well-established directors are moving into television (following the precedent of Alfred Hitchcock, whose television series ran from 1955 to 1962). Francis Ford Coppola revised and melded his first two *Godfather* films to create a vehicle designed for network broadcast. Steven Spielberg's *Amazing Stories* and David Lynch's *Twin Peaks* marked the entry of the "film-brat" generation into series television. Since then Oliver Stone, Woody Allen, and Paul Schrader have filmed programs for the small screen. Spike Lee, John Sayles, Martin Scorsese, and other filmmakers direct television commercials and music videos. A "video look" influenced by commercials and MTV clips has been prominent in such recent films as *Reality Bites* and *The Crow.*

Debate on the technological relations between film and television currently centers on high-definition video. In 1981, the Japanese broadcasting company NHK demonstrated a video system composed of 1125 lines, a remarkable gain in sharpness and detail. Several different high-definition TV (HDTV) systems were then developed. Some cable, satellite, and broadcast transmissions in Europe and Japan utilized one or another HDTV system. In the fall of 1988, the United States Federal Communications Commission announced that any high-definition system to be used in broadcast must be compatible with the 525-line standard. This seems to have increased competition among different incompatible systems, with the result that a compromise system of moderate quality may be adopted in the United States, perhaps one utilizing 1050 lines.

Some form of digital HDTV is likely to emerge in the 1990s, perhaps one designed for flat liquid-crystal screens rather than for orthodox tube monitors. Although HDTV will improve the video image significantly, any system currently under consideration falls short of the quality available on 35mm color film. Furthermore, most HDTV systems utilize a 1.77:1 aspect ratio, which will pose problems in reproducing the compositions of many films. In addition, film technology will continue to advance; today's 16mm stocks have the quality of 35mm stocks of a decade ago.

For a valuable overview of HDTV's past and prospects, see Jean-Luc Renaud, "Towards Higher Definition Television," in *Future Visions: New Technologies of the Screen,* Philip Hayward and Tana Wollen, eds. (London: British Film Institute, 1993), pp. 46–71. A nontechnical summary is offered in Seth Shostak, "HDTV: Defining the Future of Broadcasting and Film?" *American Cinematographer* **72,** 8 (August 1991): 55–60.

On the overall relation between the U.S. film industry and television, see Tino Balio, ed., *Hollywood in the Age of Television* (Boston: Unwin Hyman, 1990) and Janet Wasko, *Hollywood in the Information Age: Beyond the Silver Screen* (London: Polity, 1994).