CHAPTER 2

Before You Begin Production

This chapter is an attempt to corral in one place some of the production and technical questions to consider before you even begin your movie. The discussion that follows ties together topics that are addressed separately and often in more detail in later chapters; use the index if any terms are unfamiliar.

Particularly in moviemaking, we live in a transitional time with enormous changes between how things used to be done, how they’re done now, and how they’ll be done in the near future. Knowing the history, staying alert to current developments, and keeping an eye to “future proofing” your production are all important parts of planning your path.

Before you begin a project, you have to make some fundamental choices about what methods and equipment you’ll use. The number of options in terms of financing, formats, camera settings, editing procedures, software, and distribution can be oppressive, and many people feel bewildered by them. Some of these choices can affect how the movie gets made, how it looks, its cost, and where you can show it when you’re done. But keep in mind that the technical and media landscape today is so advanced and so flexible that even if you go with a less-than-optimal choice or set a switch on your camera the wrong way, you’ll probably be fine in the long run.

GETTING YOUR MOVIE OFF THE GROUND

Germinating the Idea

You have a great idea for a movie, be it fiction or documentary. Perhaps there’s an article, story, or novel you think would make a great film. Or maybe you have a personal relationship to something or someone interesting, or special access to unfolding or historical events.

How do you turn your dream of a movie into a reality? There is no set route, and getting a film made involves plenty of detours, dead ends, rejections, and successes. Depending on your ambitions and your means, you may need a lot of money and a large organization, or you may be working in the DIY (do-it-yourself) mode, made increasingly feasible by low-cost HD equipment. Even for large-scale pro-
ductions, producers often have to do a lot on their own before getting support for a project.

A narrative film may begin with an idea or a treatment, which outlines the characters and plot. You may need to write a *spec script* (speculative—written before any deal is in place) as a way to get the project going. If you want to base a screenplay on an existing novel or short story, you need to *option* the story from the rights holder (see p. 742).

A documentary might begin with research, a written proposal, and often some preliminary footage (more on this below). Documentaries may also involve securing rights to books, or getting permission from individuals, institutions, or government agencies before filming.

It’s important to write about your idea, in part to clarify in your own mind what you’re trying to do. Make yourself answer the tough questions and get specific about your vision—that specificity can help you communicate with and inspire collaborators. Create a full, detailed proposal or treatment of the project, which you’ll need for various types of fundraising. Then condense it into a short, engaging version (no more than a few pages) for busy readers with short attention spans. See Developing the Project, p. 718, for more.

Work up a one- or two-sentence *logline* that captures the story in an intriguing way (do a Web search on “logline” to see many good and bad examples). Practice an *elevator pitch* that can get someone interested in less than a minute. This forces you to be clear and succinct, both of which are essential. Practice a longer pitch you might give an executive if you had ten minutes on the phone or in person.

Some people like to blog, create websites, post videos, tweet, or do other types of online promotion at the early stages of a project. Others guard their ideas until the production’s really under way. It’s up to you to decide when publicity might help.

**Working Backward from Distribution**

Some people create movies for their private use, but for most filmmakers, the goal is not just to make a film but to get it *seen*. How that happens depends in part on the choices you make: aesthetic, practical, technical, and commercial. There are many gatekeepers along the way who will decide whether to finance, buy, or show your movie. Depending on your goals, these may include funders, festivals, distributors, theater bookers, broadcasters, galleries, businesses, or school systems. Each will have certain expectations that influence whether they accept or reject your project. So when you’re starting out, it helps to consider the end product you’re aiming for.

Perhaps the single most important question you can ask is: Who is your core audience? Who is going to be most interested in your project and support it when you’re making it and when it’s done? Who is going to forward your emails, join your Twitter feed, share links to your blog, or help you crowdfund on sites like Kickstarter (see Chapter 17)? If you can identify your audience and engage them, you’re on your way.

Educate yourself about the world you want to work in. Research what projects have been successful recently in whatever area of filmmaking you’re interested in. Read case study articles (“how we made our movie”) to learn about what kinds of
financing, technology, or production methods were used. Go to festivals and theaters to see what’s current. Visit museums and galleries. Watch TV. Get a sense of production values of successful films and how audiences respond. Read the “trades”—industry papers, magazines, and websites—to find out about what kinds of projects are getting produced and distributed.

The point is not to imitate what’s successful at the moment (though Hollywood has made an industry of that). Hopefully, you’ll make your film as fresh and original as you can. In fact, people who pattern their work too closely on recently successful films often find that the public and the gatekeepers are looking for something completely different by the time their film comes out. Short-term trends about what’s hot can prove meaningless because for most projects there’s a delay of months or years between when you plan the movie, when (if ever) you get funding, when it’s completed, and when (if ever) it finds distribution. Entire genres go through cycles from hot to not (“What, another vampire film?” or “There were two docs on solar power already this year.”). Look for things that inspire you and give you ideas, then take your best guess about what the world will be like when you make and finish your film.

The world is a global marketplace, so find ways that your project can appeal to audiences outside your own country. This might influence how you approach the story, the actors you cast, where you film, or what festivals you apply to.

Achieving theatrical distribution has been a mark of success for fiction films and many documentaries as well, but the theatrical marketplace, particularly for independent films, is in turmoil. High marketing costs and low fees have driven many indie distributors and filmmakers out of business. A theatrical rollout can get you reviews in major papers and media outlets, which can be great, but there are lots of expenses for HD masters or film prints, ads, and sometimes an indie film will even need to guarantee a rental fee to the theater. So even if you’re aiming for theaters, you should focus just as much on other distribution channels, which may ultimately contribute more to your bank account. Again, knowing your core audience and engaging them is crucial to making money in the new distribution models.

When it comes to technology, there are a lot of options to choose from. If you’re planning for a particular type of distribution (say, cable or broadcast television) there will be criteria about what formats are acceptable and certain technical specs that must be met. Many broadcasters have websites with production requirements and things like standard program lengths.1

Are there long-term technical trends that might affect your film? For example, broadcasters such as PBS in the U.S. now require that all submissions be in HD (though they will still accept some SD material upconverted to HD). Even if you shoot in HD, various broadcasters may have strict rules about which cameras and formats they’ll accept and which they consider subpar. If you hope to sell your movie, you’ll want to be prepared.

New forms of distribution create new markets and income streams. Keep an ear to the ground for what’s coming so you can take advantage. Distribution contracts

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1. Such as the PBS Red Book in the United States, available online, which details policies and deliverables.
sometimes refer to “formats now known or hereafter devised” as a way to lay claim to developments yet to come. In theory, the Internet can fully democratize distribution, removing the gatekeepers altogether. However, while posting your film on a website may make it available to viewers, there are still the hurdles of attracting an audience and trying to make a living from your work. Some things don’t change, and whenever money is involved, the gatekeepers are never far behind; filmmakers will always need to find a way to work with them.

**WORKING IN 3D.** Along with a third dimension, 3D adds a host of further challenges and concerns. All realms—aesthetic, practical, technical, and commercial—are touched by the decision to fashion a story, whether dramatic or documentary, low-budget or Hollywood summer tent pole, in 3D space. Advances in digital cinema like smaller, more affordable cameras are making 3D production accessible in ways never before imagined. As consumers purchase more 3D camcorders and TVs, 3D is reaching into the mainstream. For a serious filmmaker, shooting in 3D means a lot more than simply using two cameras instead of one—there’s a lot to learn about the basics of 3D perception and good stereoscopy. These subjects can easily fill a book and so will be touched upon lightly in this one. See p. 396 for more on filming and exhibiting in 3D.

**Finding Funding and Support**

Many nonfilmmakers fantasize that the filmmaker’s life is one of endless creativity, with satisfying days filled with one artistic experience after another. There may be a few filmmakers who live like that, but for most, moviemaking involves seemingly short periods of real creative work and seemingly endless amounts of business. And when it comes to business, the biggest item is often finding money for the next project.

“Independent filmmaking” is usually defined as working outside a studio or other large organization that bankrolls and controls your work. But even if you’re on salary with a large corporation, you’ll probably still need to convince others to fund your project. Raising money can be one of the most arduous and painful parts of making a movie.

How you go about finding money depends on the type of project. Generally, the more elements of the project you can set in place before going to a funder, the better it will look. This is especially important if you don’t have a track record.

Fiction films benefit enormously from having recognizable names in the cast and crew. Getting a well-known actor to commit to a role or getting a successful filmmaker to sign on as executive producer can help you draw in other talented people and increase interest in the film. To lure a key actor, create a juicy role that will let that actor show his or her range. It may take months or even years to get a known actor to read a script that has no money behind it, but if you’re offering a brilliant role, you have something of real value.

2. And even on the Internet there are gatekeepers. As discussed in Chapter 17, with distribution such as iTunes, Netflix, and VOD, it’s very hard for a filmmaker to make a deal directly without first going through an aggregator (middleman).
Documentarians sometimes seek out endorsements from well-known people or sign up a group of advisers or consultants to lend credibility to the proposed project. Funders—be they film studios, broadcasters, or foundations—love nothing more than sure bets. They want to minimize their risk by putting money into projects that seem likely to offer a return on their investment (in the case of a foundation, return may be measured not in dollars but in visibility or community outreach). This is why money tends to go to established producers or to fund projects that resemble previously successful projects (hence the production of Hit Film: The Sequel). If you’re new to the business, or trying to do something new, you’ll have an uphill battle. In this case, you may find that funders will support you only after the project is fairly far along or has received other backing (“first money” is always the riskiest).

Sometimes you can obtain seed or development money to develop the proposal or script, begin serious fundraising, or do other preproduction work. Be aware that in some situations when you receive development funds you may be required to give up some or all ownership or control of the project.

If it’s feasible to shoot selected scenes of a drama or documentary, you can improve your chances a lot by preparing a short trailer (coming-attractions promo) or sample reel. Some people put together short excerpts with narration, to describe the project and pique interest. For a drama, sometimes a slick theatrical trailer is made to give investors a sense of how the film might be marketed. Another approach is simply to edit together a few scenes, which may better indicate the movie’s style and the director’s ability. For a documentary, you can go a long way with a few scenes that show emotion, conflict, and compelling characters. Increasingly, broadcasters and funders insist on seeing footage or a sample reel from the project before they’ll put down money, particularly for documentaries.
One of the biggest questions is when to share the project. Though you may have a clear idea of what the movie will look like and how great it will be, funders can be stunningly unimaginative when it comes to sharing that vision. Examples are legion of successful movies that collected a thick pile of rejection letters along the rocky road to completion. Often, the same funding sources have to be approached more than once before they say yes. But before you approach any potential funder or investor, think hard about whether the script or project is really ready. Surely there are movies that have been bankrolled by distributors on the basis of an unpolished rough cut; but there are probably far more examples of projects that were shown before they were presentable and ended up turning off the very people the filmmakers hoped to entice. Everyone in the business has a stack of scripts, proposals, and sample reels to look at. In a crowded marketplace, you often have only one shot at many potential backers, so be sure you’re taking your best shot.

Working Backward from the Budget

As you move toward actually producing the project, you’ll need an estimated budget that states how much money you need and details how you plan to spend it. For fiction films, an experienced producer or production manager creates a budget based on the script. Documentaries can sometimes be hard to predict, especially if you’re filming ongoing events (your main character is trying to stop oil drilling in a nature preserve—how long will that take?). For all types of films, the initial budget is based on estimating the number of shooting days, salaries for crew (and actors, if any), locations, travel, editing time, special effects, and so on.

You can think of the estimated budget as a tool for fundraising and a tool for planning the production. But there’s an ongoing dynamic that often follows this sequence: (1) you determine how much money you need to do the project; (2) you go out and discover that the amount you can raise is less—often a lot less; (3) you reconfigure your plan so you can get it done on a smaller budget.

You can help yourself from the outset by looking closely at every element in the script or plan and asking what can be cut without deeply compromising the film. Can you reduce the number of scenes, characters, or locations (some films, like Reservoir Dogs, restrict the action mostly to one setting)? Can you be creative with art direction and make the same location work for several unrelated scenes? Can you take a walk-and-talk dialogue scene in which characters wander through a busy mall and restage it in an empty park or a doorway so it can be done faster and with a smaller crew? Look for ways you can leverage things you own or have access to (cars, props, locations) by writing them into the script.

While some independent films, both fiction and documentary, have been impressive for accomplishing a slick, high-budget look with very little money, far more have been successful by embracing a no-frills, low-budget aesthetic and focusing on storytelling and characters. If you’re operating with limited resources, put them into crafting a compelling, well-told story and don’t be overly concerned with “production value.”

With experience you’ll learn where it makes sense to scrimp and where it doesn’t. Many filmmakers have learned the hard way the true costs of not taking enough time on the set to get good lighting; not trying to fix poor audio on the spot (which
may be unfixable later); or using nonprofessional equipment that creates problems in postproduction.

Often, movies are started with less than the full budget in hand, with hopes of raising the rest later. Filmmakers figure they’ll get something \textit{in the can} (that is, through production but not necessarily all the way through postproduction) and worry about finishing funds later. This may be the only way to get into production, and if done responsibly it can be a smart strategy. Particularly if you don’t have a strong track record (but even if you do), it allows you to show backers, distributors, and broadcasters something concrete before they commit to a project.

Nevertheless, there can be pitfalls to this approach. Filmmakers may have the strategy of paying the minimum for things out of pocket with the hope of getting a distributor to pick up finishing costs at the end. Keep in mind that most expenses that are “paid” by the distributor are usually deducted from your share of the film’s revenue (often with interest charges tacked on), so you’re really choosing between paying now or being paid less later.

Avoid the temptation to finance your project on credit cards. The press may love stories of films that started on credit cards and went on to success, but no one talks about the far greater number of projects that left their makers with crippling debt when they went unsold.

For more on budgeting, fundraising, and distribution, see Chapter 17.
FORMATS FOR THE BIG SCREEN AND THE SMALL(ER) SCREEN

The past sixty years have seen a war of technology between the big screen (theaters) and the small screen (TV). When television started stealing audiences from the theaters in the 1950s, cinema fought back with widescreen formats (see below), 3D, and multichannel surround sound. Now widescreen TV is common, 3D TV is gaining ground, and flat-screen TVs have increased in size to the point that some can provide a more cinemalike viewing experience in the home. Even a blockbuster Hollywood film will be seen by far more people sitting on couches at home than by audiences in theater seats. Even so, only the theater offers the communal experience of watching a movie with a large group, on an enveloping screen in a dark room, away from the distractions of daily life.

The term “small screen” used to be understood as meaning broadcast television typically viewed on a modest-sized box in the living room. Now screens for personal viewing range from enormous wall-mounted displays to 10-inch tablets to inch-wide cell phones. The source of the programming can be OTA (over the air), satellite, cable, DVD, Blu-ray, hard drives, the Web, or any number of other storage and transmission technologies. For a filmmaker, it’s hard to know where or how your work will be seen or how you should prepare for that. The coming years will no doubt see new types of displays and viewing habits, and even if you’re producing mainly for one, you’ll want to take other viewing technologies into account.

Though it may be possible to work in one format exclusively, today it’s more common to shoot in one or more formats, edit in another, and release the movie in several others. It helps to consider the three stages of the filmmaking process separately, while also keeping in mind the whole.

1. **Acquisition.** How will you record picture and sound? Will you shoot video or film? Which format(s); which camera?
2. **Postproduction.** How will you edit? What kinds of picture or sound manipulations will you need to do? What technologies will you use?
3. **Distribution.** Where do you want to show the movie? What kind of steps do you need to take in advance to be sure the movie is suitable for these outlets?

**Theatrical Exhibition**

Projection on a large screen puts great demands on the image because any defects, shakiness, or lack of focus will be greatly enlarged and have the potential to disturb the viewing experience. Traditionally feature films for theaters were shot in 35mm film. For the feature film industry, this has meant that many of the tools and techniques of production and postproduction were geared toward 35mm (or even larger film formats).

Historically speaking, the 35mm standard has played an important role for audiences worldwide. Even if they can’t describe why the picture looks the way it does, people have associated Hollywood movies with the feel of 35mm in terms of the...
tonal range, clarity of the image, frame rate, lenses, and other aspects (see The “Look” of the Movie, below). Obviously, films shot in 35mm can look very different from one another and may employ a variety of film stocks, lenses, or filters in order to achieve different looks. But there are certain qualities in common—qualities that have been deeply intertwined with our collective experience of seeing fictional movies in theaters. It’s worth noting that the 35mm film image has various characteristics that aren’t by definition “good”—things like graininess, unsteady projection, and motion artifacts (jerkiness during fast pans or wagon wheels that appear to spin backward).

Fig. 2-3. Large-screen projection puts particular demands on image and sound quality. (Film-Tech.com)

Today, more and more features are shot digitally, and our visual and cultural reference points are evolving. Not very long ago, audiences could easily recognize when a production was shot on video, but with many of today’s digital cameras, audiences and even professionals often don’t know if the movie they’re watching originated in digital or on film. Professional digital cinema cameras employ sensors the same size as 35mm film cameras (see below) and use the same lenses. Moreover, digital image quality is highly adjustable and can take on many different looks. Of course, not all digital cameras and recording formats are equal, and some digital movies, especially when shown on large screens, do reveal artifacts or flaws in the image.

From an artistic point of view, this is not to say that film, or the 35mm look, is better than other formats. The films of John Cassavetes that were shot with a hand-held 16mm camera would not be better if shot in 35mm. The look of a low-resolution cell phone camera may be perfectly suited to a scene or movie you’re shooting. Some people who shoot in digital have no interest in emulating Hollywood styles, or they may be seeking the unique possibilities of digital media. At the same time, as Hollywood moves toward digital, the grain and feel of the film image can sometimes seem almost old-fashioned compared to the latest digital cinema formats.
Whether you choose to shoot in digital or film, another set of issues arise when the movie is sent out for theatrical release. Traditionally most theaters showed features using 35mm film projectors. This meant that productions shot in 16mm had to be blown up to 35mm, and productions shot in video had to be transferred to 35mm film via the film-out process. For a low-budget production, this blowup or film-out often represented a significant portion of the budget. Today all Hollywood productions shot on 35mm film go through a digital intermediate (D.I.) process and undergo a film-out if 35mm prints are needed, so the film-out process may be involved regardless of what format you shoot in.

However, digital projection, also called digital cinema or D-cinema, is rapidly replacing 35mm print projection in theaters. Digital projectors operate at 2K and 4K resolution and offer theaters and producers lots of advantages, such as no longer needing to make heavy film prints to ship around the world. Digital projection is rock-steady and you’ll never sit through a screening with a scratched print. And of course there would be no rebirth of 3D in Hollywood without digital projection.

For filmmakers who shoot digital, being able to project digitally means not having to do an expensive film-out to 35mm. However, there are costs in preparing a Digital Cinema Package (DCP), which is the standardized set of encrypted files (impossible to pirate) for digital projection, which is distributed on a hard drive. Sometimes smaller theaters may instead project using Blu-ray players, which bring down costs for both the exhibitor and the producer. See p. 625 for more on DCPs, and p. 747 for their impact on distribution.

If you’re producing for theatrical exhibition, plan on an aspect ratio that’s at least 16:9 or wider (see p. 74). Theatrical projection, whether on film or digital, is standardized at 24 fps.

Digital Television

In 2009, American television switched from analog to digital broadcasting. Much of the rest of the world has already switched or will eventually convert to digital. Digital television (DTV) offers advantages to both consumers and broadcasters. Unlike analog TV, which is susceptible to ghosting and multiple images, DTV reception is crystal clear. (With digital broadcasting, the signal is either cleanly displayed or nothing is displayed—though occasionally digital errors do creep in.) DTV, like digital cable TV, is capable of transmitting a high definition channel and multiple standard definition channels in the same signal space, or bandwidth, as a single conventional analog TV channel. So broadcasters can offer several programs at the same time.

It’s important to remember that DTV does not necessarily mean high definition. As of this writing, broadcasters are offering both SD and HD channels, and millions of consumers are still using SD televisions with digital conversion boxes.

In the United States, the digital broadcast television standards are known as ATSC (after Advanced Television Systems Committee). As you can see in Fig. 2-4, ATSC standards include a variety of resolutions and frame rates in 4:3 and 16:9 aspect ratios. ATSC uses MPEG-2 video compression (the same codec used in DVDs, satellite, and digital cable TV) and Dolby Digital audio compression, capable of 5.1 audio channels (see Chapter 16).
ATSC FORMATS

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<th>Resolution</th>
<th>Frame Rates</th>
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<td>HIGH DEFINITION</td>
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<td>1920 x 1080</td>
<td>24p, 30p, 60i</td>
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<td>1280 x 720</td>
<td>24p, 30p, 60p</td>
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<td>STANDARD DEFINITION</td>
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<td>704 x 480</td>
<td>24p, 30p, 60i, 60p</td>
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Fig. 2-4. ATSC formats. Digital television broadcast in the United States includes these formats; 60i means 30 fps, interlaced. In former PAL countries, such as in Europe and Asia, HD frame sizes are the same, frame rates are 25p and 50i, and SD frame sizes conform to PAL standards (including 720 x 576).

American broadcasters have chosen different HD formats. For example, as of this writing, CBS, NBC, and HBO use 1080i for their high definition programming, while ABC, ESPN, and Fox use 720p. After undergoing MPEG-2 compression and broadcast compromises, it’s unlikely that home viewers can see a lot of difference between the two formats for most types of programming.

Meanwhile, 1080p at 24 and 30 fps is supported by some satellite services (like Dish Network and DirecTV), on-demand services (like Hulu), and devices like Blu-ray players, PlayStation, and Xbox. ESPN has announced sports programming in 1080p at 60 fps. In the future, it’s inevitable that 1080p will gain a greater foothold in broadcast.

For filmmakers, if you shoot in either 1080p or 720p formats, you should be in a good position to deliver for any type of broadcast, but be sure to explore individual broadcasters’ submission requirements.

Europe, Australia, and parts of Asia have adopted the DVB (Digital Video Broadcasting) set of standards. DVB-T (terrestrial) uses MPEG-2 compression, but also includes H.264 (MPEG-4 AVC) for delivery of both standard and high definition. For HD broadcasting, DVB offers the same common image formats (CIFs) as ATSC—1080i, 1080p, and 720p; however, in former PAL countries the field and frame rates are typically 50 and 25 instead of ATSC’s 60 and 30.

Web and Mobile Delivery

Not very many years ago, people watched television only via over-the-air broadcasts. Then came cable TV, which could bring more channels to your home on a wire, and satellite TV, which could beam them down from space. With the Internet, we gained the ability to watch content from websites worldwide. In the early stages, we did this while sitting at our computers.

Now we have devices that can deliver programming from the Internet to the widescreen TV in our living room. These include Web-enabled televisions, Blu-ray players, and dedicated devices like Apple TV that can stream movies and TV shows purchased or rented from a wide range of providers. This form of distribution is
sometimes called “over-the-top TV” since it often comes into your house on the same cable furnished by a cable TV operator, but it effectively rides over that company’s programming and allows you to choose your own.

In a related development, movies and television can also be delivered to mobile phones and tablets, further fragmenting the way media are consumed. To take one example in the U.S., with a Netflix subscription you can stream part of a movie to your phone, go home, turn on your TV, and continue watching where you left off. Watching a movie on a phone, a tablet, or a laptop is a very different experience than seeing it in a theater or even on a big TV. Texture and details are lost, and scale and proportion are completely different. On the other hand, especially when using headphones, there can be a particular immediacy with a movie playing in your hand. Filmmakers tend to fall into two camps about mobile video: those who are horrified by the idea of people watching their work on a tiny screen amid the distractions of the street or a gym, and those who are thrilled about the potential of more distribution channels and revenue streams.

Over-the-top and on-demand services have the potential to seriously disrupt established modes of producing and consuming television and movies. For more on the financial implications for filmmakers, see Chapter 17.

**DVD and Blu-ray Discs**

VHS cassettes created a revolution in the 1970s by allowing consumers to watch movies at home on their own schedule. DVDs upped the ante in the mid-1990s with far better picture and sound quality, multiple languages, and extras—which killed off VHS. DVDs became a huge revenue source for films and TV shows.

DVDs are standard definition only and were joined, in 2006, by Blu-ray Discs.
(BDs) designed to handle both SD and HD content. When Blu-ray was introduced, many expected another explosion of revenue as consumers converted to the new high definition technology. But the convenience and quality of streaming video, coupled with consumer satisfaction with “good enough” DVD quality, slowed Blu-ray adoption and computer manufacturers hesitated to adapt costlier BD drives to laptops. As of this writing, DVDs and BDs maintain an 80/20 split in home distribution of movies on optical disc, with Blu-ray increasingly gaining share. Further gains for Blu-ray are expected as prices fall, disc capacities increase, and Blu-ray 3D grows popular.

THE “LOOK” OF THE MOVIE

How a movie looks has an enormous impact on what the movie means to the audience. As Marshall McLuhan said, “The medium is the message,” and without a doubt the medium itself plays a large part in how we understand a movie’s content and experience its emotional impact. There are cultural traditions that associate certain technologies and styles with certain types of movies. As discussed above, the dramas we’re used to seeing in theaters have been closely associated with the look of 35mm film (even if many of them are now produced digitally). Hollywood films are typically shot with a large crew, careful lighting, and sophisticated dollies and other equipment to move the camera smoothly. In contrast, television news stories typically have the look of handheld video, often shot with harsh, camera-mounted lights. Clearly, there is a noticeable difference in terms of the emotional feel and texture of the two formats/looks.

In a simplistic way, the crisp, bright video look makes news and sports feel “real.” But the same look can make TV dramas (like soap operas) seem “fake”—that is, instead of allowing the audience to enter into the dramatic world the show is trying to create, the video image makes us aware of the “reality” of a bunch of actors walking around on sets. Higher-budget dramas were traditionally shot on film in order to capture a richer, softer feel that allows viewers to “suspend disbelief” and enter into the fictional world of the movie. Today, productions done with digital cameras that are well lit and carefully shot can capture a very similar rich look.

Over time, certain looks and styles can become clichés. At one time, so many documentaries were shot using grainy 16mm film and shaky handheld camerawork that their look became associated with “documentary.” When fiction films try to simulate a documentary look they often resort to shaky handheld camerawork and bad lighting. Meanwhile, documentary forms have evolved, and many nonfiction films have beautiful lighting and fluid, elegant camerawork.

Styles are continually being borrowed and traded between different genres of filmmaking. As technologies and tastes develop, an ever wider range of looks and styles become possible. How audiences interpret those looks and styles keeps changing too, as new films explore different combinations.

As a filmmaker, you have at your disposal many techniques and tools to create different looks and moods. The most important by far for the success of the movie are all the things that take place in front of the camera, including direction, performances, lighting, sets, and costumes. Then there are choices about how the movie is recorded (such as what camera, which lenses, what format) and the things done in
postproduction (including editing, sound work, color correction, and music). Of course, for some filmmakers, the concerns of story, content, cost, and convenience are so much more pressing than the look or visual style that they’ll shoot with whatever they can get their hands on, and they pay as little attention as possible to technique.

Quality is important. Many movies have been dragged down by inattention to the technical aspects of filmmaking. But for most audiences, the story comes first. If viewers feel emotionally or intellectually involved in a film, or simply find it entertaining, they can be very forgiving of an imperfect image. But if they’re not interested in the film, style alone won’t make them love it. For some films—experimental films, for example—style and texture can be especially important; even so, as you make stylistic choices, be sure they serve the film, not the other way around.

Let’s examine some of the factors that go into particular looks. Some of these things can be experimented with or changed on a shot-by-shot or scene-by-scene basis. Others you may need to commit to before you start shooting, and stick with that choice to the end.

THE IMPACT OF SENSOR SIZE AND FILM GAUGE

As we saw in Chapter 1, a digital video camera focuses the image that comes through the lens onto an electronic sensor (see Figs. 1-4, 1-9, and 2-6). Similarly, a film camera focuses the image on a piece of film (see Fig. 1-31). The size of that sensor or the gauge of the film can affect the recorded image in a number of ways.

Fig. 2-6. DSLR sensor from a Nikon D5100. The sensor size is Nikon DX, which is one of the APS-C formats. (Nikon, Inc.)
Digital video cameras are available in a wide range of sensor sizes (see Fig. 2-7). Some compact consumer or prosumer video cameras have sensors as small as ¼ inch or ⅜ inch. Many cameras used for news or television production have ½-inch or ⅝-inch chips (the latter has been a professional standard for years). DSLRs and digital cinema cameras have much larger sensors, including Four Thirds, APS-C, and full-frame 35mm, the same size as an image captured on film by traditional 35mm still cameras. Sensors in most digital cinema cameras are nearly identical in size to Super 35 motion picture film.

Fig. 2-7. Comparison of different sensor sizes. This diagram represents the physical area of the sensor when recording in a 16:9 format (and is enlarged for clarity). A number of digital cameras have sensors roughly the size of Super 35 film (in this chart, the Super 35 group loosely includes everything from the RED Epic X to APS-C and RED One). As of this writing, only certain DSLRs have “full-frame” 35mm sensors (including the Canon EOS 5D Mark II and EOS-1D X). Some cameras use only part of their sensor for some recording formats. Don’t confuse the physical recording area of the sensor with the number of pixels in a given digital format, which is shown in Fig. 1-7. (Steven Ascher)

There is a relationship between sensor size and pixels: for any given resolution—say, 1280 x 720—the smaller the sensor, the smaller the pixels need to be fit on it. If you envision each pixel (photosite) on the sensor as a tiny bucket that collects light, the bigger the sensor, the bigger each bucket can be. Bigger buckets have three advantages: they’re more sensitive (so you need less light to shoot), they have better dynamic range (they can handle scenes with greater range from dark to light), and they produce an image with less noise.

The sensor size also affects the relationship between a given lens and the recorded image. For any focal length lens (say, 50mm), a larger sensor will produce a wider angle of view (see Figs. 4-6 and 4-7). Another way of saying the same thing is that for the same angle of view, the camera with the larger sensor will require a lens with a longer focal length, which can result in shallower depth of field (more on this below and in Chapter 4). In terms of lenses, a large sensor may or may not be an advantage, depending on what you’re trying to do. In the case of film cameras, a larger-gauge film like 35mm will always have better image quality than a smaller-

3. Sensor sizes indicated as fractions of an inch are a diagonal measurement that comes from analog days when the target sensor fit inside a glass cylinder of that diagonal, so the sensor is slightly smaller than the stated size.

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gauge like 16mm, due to less grain and image defects. However, sensitivity will be the same if the same film emulsion is used. The relationship just described between lenses and sensor size applies to film gauges as well.

These topics are described in more depth below and in later chapters.

COLOR AND SENSITIVITY TO LIGHT

Digital and film cameras are tools for capturing an image of the world that can then be displayed on a screen. That screen image may look a lot like the scene as it appeared in real life, or it may look very different, depending in part on the camera, the way it is adjusted, and other factors. Many digital cameras are highly adjustable in terms of color and contrast; you can opt for more muted, pastel tones or go for more vibrant, saturated hues.

While it’s best to choose an overall look for a production or for a scene before you shoot, it is often not advisable to “bake in” anything too extreme. You’ll always have much better control over color in postproduction, and leaving camera settings fairly neutral allows you more flexibility in post. If you’re shooting film, different stocks are known for their palettes and inherent contrast. But again, fine-tuning color is best done in post.

Color and the response to light are complex topics and are discussed more in Chapters 5, 7, and 8. But it’s worth thinking about these things when deciding on the camera system you’ll use to shoot your movie. (“Camera system” in this sense is meant to include the whole package, including the camera, its internal adjustments, its lens, and the recording format or, for a movie camera, the film stock.)

Low-Light Shooting

Digital and film camera systems vary widely in their sensitivity to light. Some can record an acceptable image using the light level of a normal home or office; others require much brighter movie lights. The camera’s ability to handle low light can have a big impact on your production style and budget. If you can shoot with available light (whether it’s daylight or artificial) or a minimal amount of movie lights, you’ll be able to work faster, more efficiently, and more freely. Low-light sensitivity can make a huge difference if you need to shoot outdoors in the evening or on the street at night. Anytime you’re filming real people going about their lives, it’s far preferable to not have to light them. There are many times you’ll want to add lights for artistic reasons (more on this below), but if your camera can get enough basic exposure without a lot of added lighting, your shoot will be easier and you’ll have the option of capturing the natural feel of the locations where you shoot.

When you’re choosing a camera or a film stock, look into its low-light performance. Talk with knowledgeable people who have worked with it. As a rule of thumb, digital video cameras with larger sensors have better sensitivity than those with smaller chips. A video camera’s sensitivity depends in part on the frame rate (slower rate requires less light) and also whether you’re shooting progressive or interlace (interlace usually requires less light for the same frame rate). The camera manual or advertising may list the minimum amount of light needed (this may be indicated in light units called lux), or the camera may have an ISO rating (see
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p. 133). But ads and generalities aside, it’s worth doing tests to see how the camera actually performs.

Most video cameras have a gain setting that can increase low-light sensitivity; a little gain boost can often help, but too much gain can introduce electronic noise to the image. Similarly, there are high-speed film stocks designed for low-light shooting that tend to be grainier than other stocks. You may or may not object to the graininess.

With cameras that have detachable lenses, the choice of lens can make a big difference in how much light you need to shoot (see p. 168).

Handling High Contrast

Pay attention not just to the minimum amount of light the camera needs, but also to its ability to handle a wide range of brightness in a scene. Most scenes you’ll want to shoot contain areas that are much brighter or darker than other parts of the scene. All camera systems are significantly more limited than your eyes in being able to see details in both bright areas and shadows at the same time (see Fig. 7-16). Camera systems also vary in their ability to handle these high-contrast scenes. A film stock that can capture detail in shadows and bright areas at the same time is said to have wide latitude or exposure range. In video, the same thing can be described by saying the camera can handle a large dynamic range. In the past, film cameras had much greater range than video cameras. One of the giveaways that something is shot on video can be that the highlights (bright areas of the scene) are burned out, leaving bleached-out white areas. Today’s high-end digital cinema cameras are capable of tremendous dynamic range; some claim fourteen stops or more, which exceeds many film stocks.

Many digital cameras allow you to create customized picture profiles, in which you can adjust gamma and knee settings that affect how the camera captures highlights or shadow detail (see p. 198). Experiment with different settings to create different looks.

Wide dynamic range can make as much difference to the overall quality of the image as high resolution; look carefully at a camera’s dynamic range when buying or renting. The better your camera handles high-contrast scenes, the faster you’ll be able to work and the less lighting you’ll need. If the range of brightness in a scene is too great for your camera, there are a number of steps you can take (see p. 512).

It’s worth noting here that careful lighting can work wonders to elevate the image produced by a low-end camera, and poor lighting will look bad even with the priciest camera. For more on lighting (and the use of light from natural sources), see Chapter 12.

Color Versus Black-and-White

Today’s audiences expect color and may think of black-and-white as old-fashioned. However, because black-and-white is now relatively unusual, it can also command attention and feel stylish. Black-and-white films made in the “color era” have a unique place; for example, Martin Scorsese’s Raging Bull. Distribution for black-and-white movies is generally more difficult.

Part of the aesthetic challenge of black-and-white is to render the world through the range of gray tones from black to white. Lighting tends to be more difficult