

The Cinematographer on Cinematography

As cinematographer, I am the director's confidante and collaborator in the creative process. I am also responsible to the producer to work quickly and in a fiscally responsible manner. I must lead the crew in the execution of my vision. And, through it all I must ply my craft to find the symbiosis between sheer mechanics and the subconscious emotional rhythms of the imagery I create.

Cinematography is writing with light in motion and the cinematographer is the principle author of this literature. When making a film, the cinematographer translates the vision he or she shares with the director and the production designer onto film. It has been truthfully said that the cinematographer is the co-author of any film.

Cinematography is an evolving language – it speaks to audiences across language and cultural divides in ways that mere words cannot. As a language, cinematography has syntax and grammar. Remember, however, that it is evolving, and in many ways it evolves more quickly and with fewer restrictions than conventional language.

Over the years "rules" or conventions have developed which are frequently followed; and yet, rules were meant to be broken. By understanding the conventions and making informed and instinctive decisions, we have in our arsenal unlimited possibilities for cinematic expression.

Cinematography requires the consideration of countless details and yet it can be distilled into a few simple principles. In essence, cinematography is about communicating on both conscious and subconscious levels to the audience.

The Six Components to Cinematography

There are six (6) components to cinematography. As you become more informed, more practiced, more experienced in shooting films, you will learn that there are only six components, but the more you learn, the more you learn that you do not know. There may be only six components, but knowledge and understanding of their depth and totality is without limits, and so cinematography is a lifetime pursuit.

The six components are: Camera Placement, Lens Selection, Movement, Composition, Lighting and Exposure.

Before I continue, I will elaborate. These are all inter-related and each decision along the way in one component, affects the decisions regarding the other components. The possibilities are infinite. Also – there are directorial components, which are not actually within the province of the cinematographer, but which often involve the cinematographer. Namely, "blocking actors" which is the responsibility of the director, often involves the cinematographer, as blocking choices will also affect the cinematography and the choices the cinematographer makes.

Finally, let me include post processes and lab procedures with Exposure. Because afterall, the choices you make in exposure will affect, and will in turn be affected by the choices you make at the lab regarding development and printing or telecine.

As you grow more comfortable making the decisions that are required withing these six components, you will discover that within these components there is great depth – infinite possibilities – but still all those possibilities fall within this framework.

These are the province of the cinematographer.

Before I continue, I should mention that not all cinematographers work the same way. You will have to find the methodology that works best for you. Here's how I approach my work.

Preparation

Each time I begin a project, I start with one fundamental principle: Cinematography exists in context and its only purpose is to serve the material. The cinematography must never overwhelm the material. To borrow a phrase from cinematographer, Freddie Francis, BSC, "There are three types of photography, good photography, bad photography and the right photography."

I begin with the script or in the case of non-scripted material, the concept or theme. I try to start each project fresh, as if it is my first, looking for the best way to mount the material. From this I devise a plan, based on my conversations with the director and production designer regarding how to best realize the desired results within the allotted schedule and budget.

I prefer to walk the locations and sets with the director and have him or her tell me the story, to describe the scene at each location, as well as the scenes that immediately precede and follow the scene at that location. This enables me to listen to how the director tells the story. I can then discern what is most important to him or her.

Often there is an overall mood or tone, or perhaps a clear visual arc is uncovered through our discussions. I tend toward whatever inspires and touches my subconscious.

I analyze each moment to determine the best way to create the emotional rhythms that build and release tension. I consider how each shot will fit into the tapestry of the finished product. The director, production designer and I discuss the ideas that we believe will add to the overall success of the project.

When we begin scouting locations or building sets, I consider the architectural layout for both the design elements which will contribute to our film; and for pragmatic considerations which will affect our schedule and budget.

As each department head is hired onto the project, I communicate my concerns as they relate to their respective departments.

At this stage of the process, my goal is to plan as much as possible and communicate with everyone clearly so we can be prepared to face the unforeseen challenges that lie ahead.

Early preproduction is a wonderful period of time, in that every possibility exists as potential. There are no limits to what we can dream; but, that is all about to change. The closer we get to production, the more we have to be prepared for the realities of budget and schedule. Of course we still need to find the best way to affect the emotional response in our audience demanded by the material, but now, we have to become more pragmatic in our approach. The key lies in knowing what we want. When we know "Why" we have made a choice, the "How" becomes crystal clear.

Execution

On the first day of principal photography the director and actors are on set and a whole new energy comes to the piece. We decide that a scene which we had planned to shoot one way will work better shot in a different way. We can make this decision because we are secure in knowing "Why".

Many unexpected circumstances require us to change gears and try spontaneous approaches to the material. Often we do this with wonderful results.

The key to being able to adjust and remain flexible lies in the preparation. We are free to follow our instincts because we have put in so much work to fully understand the material.

Even when storyboards have been drawn, we rarely use them. They can serve an initial purpose in assisting the beginning dialogue between the director, production designer and myself, but once production begins, they are usually put away (except when shooting action sequences or when communicating to a second unit director and dp).

The Brain

The demands on a cinematographer are such that they require him/her to rely on both the left and right hemispheres of the brain. The cinematographer is a craftsperson who occaisionally achieves art through the successful execution of his/her craft.

The left hemisphere is concerned with gathering and processing information. During preproduction I prepare lists for the production manager:

- Film Order- which emulsions and in what quantity
- Camera Order-what camera package and accessories will we need throughout the shoot
- Special Equipment-what special equipment will we need and for which scenes and on which day in the current schedule
- Crew-who will be my key crew members: first camera assistant, gaffer, key grip, dolly grip? On what days do I anticipate needing additional crew?
- Special Considerations-anything that I think is important enough to be taken into consideration when scheduling

I also prepare lists for myself.

- Scene/Shot Breakdown-thoughts or ideas for how I plan to handle each scene, including any moments of particular importance
- Filmstock Breakdown-which filmstocks I plan to employ for each scene or sequence, based on emotional content and rhythms
- Location Considerations-detail information about each location and any anticipated technical obstacles
- Story Arc-at a glance reminder of where in the progression of events, key scenes lie
- Conceptual Ideas-thoughts on the use of craft to enhance the subtext and themes of the film

During production, I must manage the available resources efficiently. This includes crew, equipment, and time. Being organized is critical.

It is also my responsibility, in conjunction with the script supervisor, to ensure that the shots we shoot will edit together seemlessly. I therefore keep a watchful eye in order to avoid any shots that may present editorial difficulties.

The right hemisphere is creative. It enables us to function on an instinctive level, free from the constraints of convention.

When production starts the right brain takes over. I have digested the information and theoretical concepts that were discussed throughout preproduction, and now in the throws of principle photography, I do not lean on my lists as a crutch. Instead, I rely on my eyes and instincts to guide me.

I have found that my instincts for each project come as the natural result of immersing myself in the material. It is because of my left brain preparation, that I have the freedom to allow my right brain to take over.

So far, this approach has served me well.

Nuts and Bolts

My role as a cinematographer is to create and implement the photographic visual design for the film. In fulfilling these responsibilities I must also serve as the director's collaborative partner and ally; and, manage the technical resources at my disposal within the constraints of time and budget.

The successful execution of my responsibilities requires that I am committed to each project from the day I begin preproduction to the day I complete supervising the color timing of the answer print or the telecine, whichever come later. This includes my participation in any optical or digital processes that are necessary to realizing the photographic integrity of the completed work.

Every decision I make is predicated on the context of the theme, story and subtext of the material and each choice will have an impact on the other options being considered.

Recording Medium

Each recording medium exhibits its own aesthetic characteristics that can be exploited to achieve the desired emotional or psychological effect.

Beyond simply choosing between film and video, one can choose among the many formats available. Different mediums, formats and emulsions can be mixed to achieve your results.

Film Formats include: 65mm, 35mm anamorphic, Super 35mm. 35mm, Super 1.85, 16mm anamorphic, Super 16mm, 16mm and Super 8mm

Film Emulsions include: Kodak EXR color negative stocks, Kodak Vision color negative stocks, Kodak Vision II color negative stocks, Kodak color reversal stocks, Kodak black and white negative or reversal stocks, Fuji Eterna color negative stocks and Fuji color reversal stocks

Video Formats include: High Definition Digital Video (24p or 1080i or 720p) Digi-Beta, DV Cam, DVC Pro, Beta SP or any number of consumer formats.

Within each video format, different cameras exhibit different imaging characteristics.

Additionally, there exist many post production processes which can be used to selectively alter the look of the captured image. When selecting a recording medium, one must also take into consideration the end result and all the intermediate steps necessary to achieve the look desired.

From a practical standpoint, I also consider the intended purpose of the finished project, the target audience and the budget. On some projects, the decision to use film or video is predetermined and the issue becomes deciding which format will best serve the objectives of the project.

Blocking the Action

Blocking is the process of determining where the actors will be in a scene. Will they be moving or not? If they move, when will they move, how fast and where will they stop? Will the camera move or will the action happen within a static frame?

The actors and camera need to be blocked before any other decisions can be made. One cannot place the camera, select a focal length, dress the set or light until one knows where the action will occur. Although the the action is blocked through the lens, in conjunction with placing the camera and selecting the lens, the beginning stages of blocking are about the actors, the scene and what works for them. Once the broad strokes are ironed out, the camera is introduced and the details regarding camera placement, lens selection, movement and lighting are determined.

Camera Placement

Where one decides to place the camera is as fundamental and significant a decision that can be made.

While placing the camera might seem to be as simple as putting it "over there", there is more to it than that. From a practical standpoint, camera placement will have an effect on lens selection, composition, lighting and blocking.

Camera placement determines the perspective or vantage point of the audience. The two basic considerations are: 1) camera to subject distance; and, 2) lens height.

The subconscious psychological response of the audience to camera position is powerful. It will affect the audience's perception of both two dimensional and three dimensional spatial relationships. It will affect their perception of movement within the composition. It will determine whether the audience feels involved in the action or isolated from it, whether they feel like participants or voyers.

With each new camera position, regardless of whether the camera is stationary or moving, I consider the intention of the shot as it is designed to fit into the tapestry of the finished film. Sometimes my choices are deliberate and at other times they are instinctual. But they are always grounded in the themes, subtext and rhythms of each film.

Lens Selection

Once I know what the shot will be, I place the camera with a specific lens in mind. The director will want to look at it and either approve the shot or suggest a change.

I like to watch another blocking rehearsal of the action with the camera and lens in place, some adjustment to the camera placement or lens selection may be necessary. This is not a rehearsal for performance – this is strictly about the mechanics of executing the shot that is needed for that moment in the film.

The main consideration when selecting a particular lens is the field of view or the width of the angle that the camera sees. Wider lenses have a wider field of view and longer lenses have a narrower field of view. This is usually closely linked to camera placement and together they determine the size of the image.

The optical distortions that many attribute to the characteristics of wide angle and telephoto lenses are not actually a function of the focal length of the lens. They are rather the result of the relative camera position in relationship to the subject. And, in some instances the result of specific optical design considerations for particular lenses. I keep this in mind as it reminds me of the importance of determining the right camera position for each shot. Simply changing the lens does not give the same effect as does changing the camera's position.

Lighting

Light plays the most fundamental role in the mythology of every culture on Earth.

When lighting, as in all other aspects of cinematography, I consider the content of the material, the theme, the rhythm, the subtext. No single shot exists by itself, but rather all the images in a film exist in sequences, dependant upon one another. It is therefore my responsibility to consider the context within the film as well as the individual shot.

I use light and shadows to give meaning, create mood, reveal texture, build depth and affect the audience on subconscious levels.

When lighting a scene, I consider:

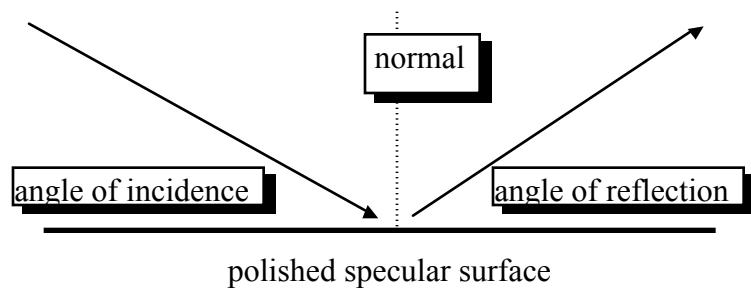
- the purpose of the light
- the shadows
- the number of lights - is there one or more than one
- is it natural or artificial-
- is it motivated from a source or not
- the direction - does it come from the front, the side, the back, below, above
- the quality of light - is it hard or soft
- the color of light - what is its hue - how saturated is it - is it warm or cool - how will its color affect the perception of contrasting hues in the frame
- I also consider the pragmatic considerations of the location, the film stock, negative density, camera placement, lens selection and the time allotted in the schedule.

When lighting the most important tools I have are my eyes. Light behaves in specific ways and I need to understand how light acts and reacts, but I need to "see" the effects I am creating. My meter helps me maintain consistent negative density, but my eyes are essential in my being able to create the illusion I am after in translating the three dimensional scene before me onto the two dimensional medium that is film. I use my eyes to position and shape the light, determine its quality and color, to evaluate all that I see and do not see.

There are a few fundamental principles regarding light that are always in my mind, not in the front blocking my emotional response to images I am creating, but in the back, helping to inform the decisions I am making:

They are *Snell's Law* and *The Law of Inverse Square*.

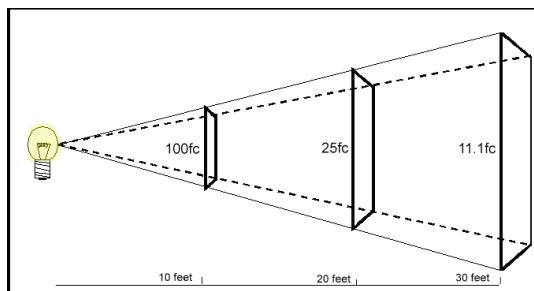
Snell's law holds true for all reflected light. That is the angle of incidence equals the angle of reflection. Incident light is the light which falls upon a subject and reflected light is the light that is not absorbed by the subject, but which bounces off and which enables us to see the subject.



Law of Inverse Square

Light from a point source falls off in inverse proportion to the square of the difference in the distance between two points.

If actor 1 is a distance x from a light source and actor 2 is twice as far from the light source or $2x$, then actor 1 will be illuminated to a level four times brighter than actor 2.



In other words, if a light provides 100 foot candles at a distance of 10 feet from the source, at 20 feet (or double the distance from the source) the light will give off 25 foot candles or $\frac{1}{4}$ the intensity.

As the distance doubles, the inverse of the square of the distance between the source and the subject equals $(1/2 \times 1/2)$ or $\frac{1}{4}$. As the distance triples, the intensity of light will be cut to 11.1 fc or $1/9$ th the level because $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$.

Why is this? Consider. If a square surface of 1ft x 1ft is illuminated to 100 fc at a distance of 10 feet from the light source. At a distance of 20 feet, the same amount of light is now spread over a 4ft x 4ft square area. The light on a 1ft x 1 ft section of that area is $\frac{1}{4}$ of what it was at 10 feet. At 30 feet, the light now spreads over a 9ft. x 9ft area so the light is $\frac{1}{9}$ th what it was at 10 feet. What does this mean? One can see that this demonstrates that light falls off most rapidly when a subject is close the light source and falloff is less severe when the subject is farther from the light source. (The change in intensity is greater between 10 feet and 20 feet than it is between 20 feet and 30 feet.)

There are times when shooting that it is desirable to exploit the rapid falloff of light that comes from using smaller sources close to the action. At other times it may be preferable to use larger lighting units, farther from the action so the fall off will not be as apparent.

Your style selection will have to be based on the content and theme of each scene as you pre-visualize the "look" you want to create.

Movement

The ultimate decision to move the camera is the director's domain, though I do suggest movement when appropriate. I work with the director on blocking the actors and creating the camera movement that is appropriate for each moment as it fits into the sequence. The considerations are many, and they all stem from the fundamental question which asks, "What is the purpose for this scene? This shot? This beat?" (again we are asking the "Why?") Once the intention of the moment is understood, the other considerations almost answer themselves.

- Do we want the movement to be motivated by the on screen action, or should it be motivated by the subtext?
- Should the camera's movement be limited to panning and tilting, or should it be mobile?
- Should the camera be mounted on a dolly? a Steadicam? a crane? a vehicle? or handheld?
- Should the camera remain static allowing the actors to move within the frame?

Composition

The arrangement of objects in space is the sum result of all the other considerations that go into designing a shot. At the same time, the intended composition will help in answering many of the questions that must be considered when deciding between recording mediums, camera placement, lenses, lighting and movement. Additionally, when the camera is moving, the composition must be determined at each moment (for each frame exposed) as the visual elements change position in relationship to one another and to the camera.

Here are a few paintings which should help to illustrate some principles of composition:

New York Movie



In this painting, Edward Hopper uses light to define space. At first glance, our eye is drawn to the woman who by her uniform looks to work at the theater. She stands alone, deep in thought. She is separated from the audience by strong vertical lines in the form of architectural details. The light draws our attention to her. Her gaze, pushes ours back to the theater, but the strong vertical lines stop us, and rivet our attention on her.

Though we are aware of the light of the movie screen in the background on the left side of the painting, we cannot look at it without being drawn back to the brighter yellow light near the usherette. We are aware of the few patrons rimmed in the glow from the screen. But this painting is very clearly about the solitude of the usherette at this moment.

Summer Evening



Edward Hopper's naturalistic approach in lighting, composition and the young couple's body language, enables the viewer to almost feel the warmth of the summer night.

The foreground shadows define the three dimensional space of the front porch. The soft glow in the window reveals texture and shows us that there is more to this world than the front porch, while the hard white light casts dark shadows which are filled subtly by ambient light bouncing off the various surfaces.

The light falls off rapidly once it passes the boundaries of the porch, revealing only a hint of detail in the yard beyond. This helps to focus our attention on the couple.

By lighting from within the scene, Edward Hopper draws us into the picture, past the shadowy foreground, up onto the porch.

The lighting and composition provide us with plenty to look at as we scan the painting from left to right, but our eye comes to rest on the woman, who is herself at rest, leaning on the rail. If we are inclined to continue past her, the man's gaze, redirects ours back onto her.

Pont Europe



In this painting, Gustave Caillebotte uses line to direct the viewer's gaze. While there is rich detail throughout the image, one's eye first falls upon the man and woman walking toward us. Then when we try to look at the other details, we are directed back to this couple, and more specifically to her. Even though we can see through the structure of the bridge into the background, there is little there to attract our interest.

Consider the parallel lines of the bridge, which point to the woman as they recede into the distance. Notice the building, set against the dark sky, on the rear left side of frame which points to the man. His eyeline, a continuation of the line of the building directs our look to the woman. The brightly lit clouds in the distance, draw our attention, then point like an arrow back to her. Even the dog's path leads us to the woman.

Notice the balance of highlights and shadows. The bright clouds in the sky, off set by the patch of sunlight which falls in the foreground, revealing the shadowy structure of the bridge. While the sunlight illuminates the man, the woman is hidden in shadows, with the sunlight only lighting the lower part of her dress. Her position slightly behind his, also might indicate that she is hiding from him, and maybe from us.

We are directed to look at this woman by all the visual components and yet, she remains hidden from us, peaking our curiosity and compelling us to look at her with even more determination.

Paris: A Rainy Day



In this painting, Gustave Caillebotte contrasts the soft, shadowless light of an overcast and rainy day with the deep shades of the clothing the people are wearing. The soft light brings out the subtle details of tone and texture, particularly in the foreground subjects.

Allow the bright sky and general backlit feel to draw your eye into the distance. Notice how the rain and fog which constitute atmospheric diffusion, soften the details and mute the shadows into shades of gray. The natural diffusing quality of this light helps to reduce the saturation in all the colors, creating a very subtle palette.

Linear perspective and the use of multiple planes of interest help to lend a three dimensional quality to this painting. The increasing sense of atmospheric diffusion one notices in the deepest parts of the background also contribute to this illusion. As you look into the distance, see the corner building point like an arrow, directing your eye back to the couple in the foreground. Follow the couple's gaze and it takes you back to the corner building, through the many planes of visual interest.

See the man who's back is cropped by the right side of the frame. His movement frozen in time. This compositional element, in conjunction with the visual tension created between the circuitous flow of visual interest from the couple in the foreground to the corner building, back to the couple, all coupled with the fact that everyone we see is in mid-step and not at rest, add to the impression that this painting is alive with movement.

Scolls



Gustave Caillebotte uses linear perspective to direct our eye. We begin by noticing the splash of color reflected in the water in the lower right corner of frame. From there, our eyes move to the scoll, to the person, then to each successive scoll in line until we find ourselves looking into the distant background.

After the final scoll, we notice the patch of sunlight which stands out against the almost black shadows of the trees. We are then free to follow either shore line until we find ourselves once again in the foreground.

By cropping the bow of the first scoll, and including just the tip of one additional paddle, the artist tells us that there is more to this scene than we are being shown. We are made to feel the richness of the depth and breadth of the setting.

The Nightwatch



In this portrait, Rembrandt demonstrates the power of light and perhaps to a greater degree, the power of shadows.

At first glance, the viewer's eye is drawn to the two characters dressed in gold. They are the brightest subjects in the composition. But then Captain Frans Banning Cocq commands our attention. The Captain, dressed in black, wearing a red sash, is in the center of the frame. He is pushed forward through bold use of chiaroscuro.

The brighter characters help to draw the viewer's eye deep into the image, where it rebounds between the background and foreground details.

Even in the deepest shadows, Rembrandt maintained detail which provides texture and a sense of depth.

Some subscribe to a set of rules or compositional conventions. I prefer to feel each composition, to create it to fit the purpose for which I need to serve. In this way, the work avoids becoming stale and ultimately feels more organic. That said, there are times when some compositions do not serve the material and the cinematographer needs to know this, so that he/she can make the necessary adjustments.

Recording Medium

One of the considerations when selecting the recording medium is aspect ratio. In what width to height ratio do you intend to compose the images for a given project? When making this determination, I consider the content of the piece as well as the anticipated distribution medium. I also frequently use architectural elements as well as positive and negative space to alter the internal aspect ratio for any given shot.

Camera Angle

The angle of the camera in relationship to the subject will affect the composition. I consider the effects of linear perspective on depth perception when composing an image.

I also look at the juxtaposition of elements. Do I want to place the subject in the foreground, middle ground or background of the image? Do I want to shoot through foreground elements, or would the shot serve its purpose better if it was clean?

Lens Selection

The field of view will affect how much two and three dimensional information I can fit into the composition.

Lighting

I use light and shadow to build depth through chiaroscuro, define positive and negative space, control color contrast, and reveal texture. I then position these elements within the composition to either create balance or imbalance as the subject warrants. In this way, the composition works in conjunction with the lighting to help convey mood and subtext.

Depth of Field

My intended use of depth of field for any given project is grounded in my interpretation of the material and will affect my decisions regarding: the recording medium, camera placement, lens selection, blocking and lighting.

By balancing areas of sharp and soft focus within the frame, I can help to direct the viewer's attention. Or, by maximizing depth of field, I can exploit deep three dimensional space.

Decisions

There are a great many decisions that the cinematographer makes in the execution of his/her duties. Some are more general, and others focus on specific minutia. Each decision is inter-related and is informed by the others, while informing the others. In order to make the best decisions, the cinematographer must be at once a poet and a scientist. He/she must be adept at

plying the tools and craft of cinematography in the service of the material. But the payoff comes when all the elements work together perfectly – it is then that art can be achieved.