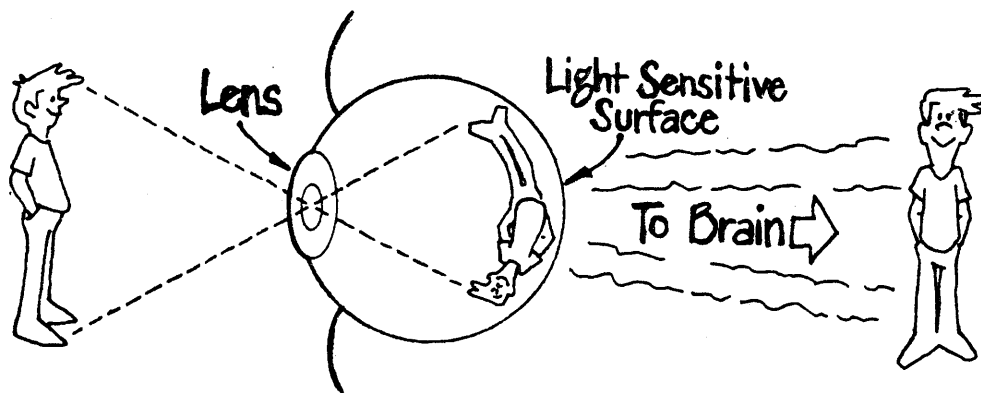


## 1. Basics

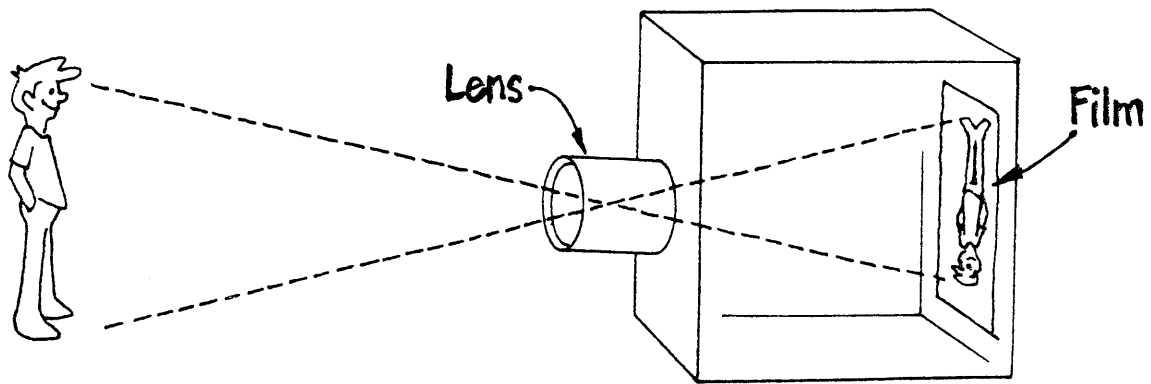
### THE CAMERA - HOW IT WORKS

The camera is an imperfect imitation of the human eye. Like the eye, it sees by means of a lens which gathers light reflected off objects. The lens directs this light onto a surface which senses the pattern formed by the differences in brightness and color of the different parts of the scene. In the case of the eye, this surface at the back of the eye sends the pattern of light to the brain where it is translated into an image which we "see."



*THE EYE GATHERS PATTERNS OF REFLECTED LIGHT WHICH THE BRAIN TRANSLATES INTO IMAGES WE SEE.*

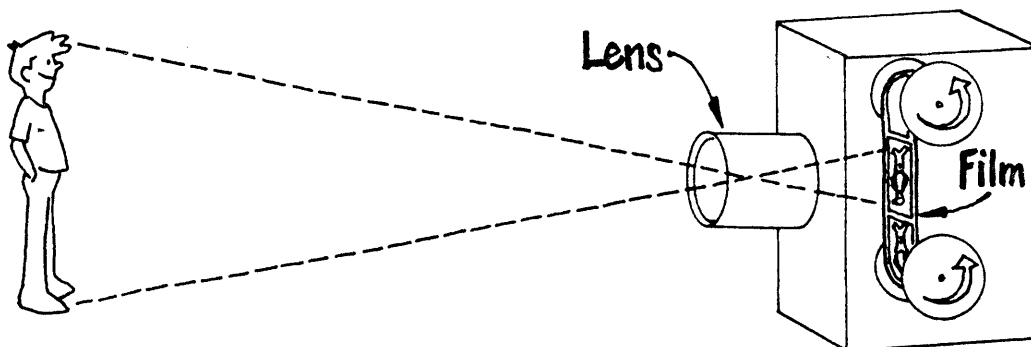
In the case of the camera, the lens directs the patterns of light onto a variety of sensitive surfaces. Still cameras record light patterns on film coated with light-sensitive chemicals. The chemicals react differently to different amounts and colors of light, forming a record, or image of the light pattern. After the film is processed in other chemicals, the image becomes visible.



*STILL CAMERAS RECORD LIGHT PATTERNS ON FILM COATED WITH LIGHT-SENSITIVE CHEMICALS.*

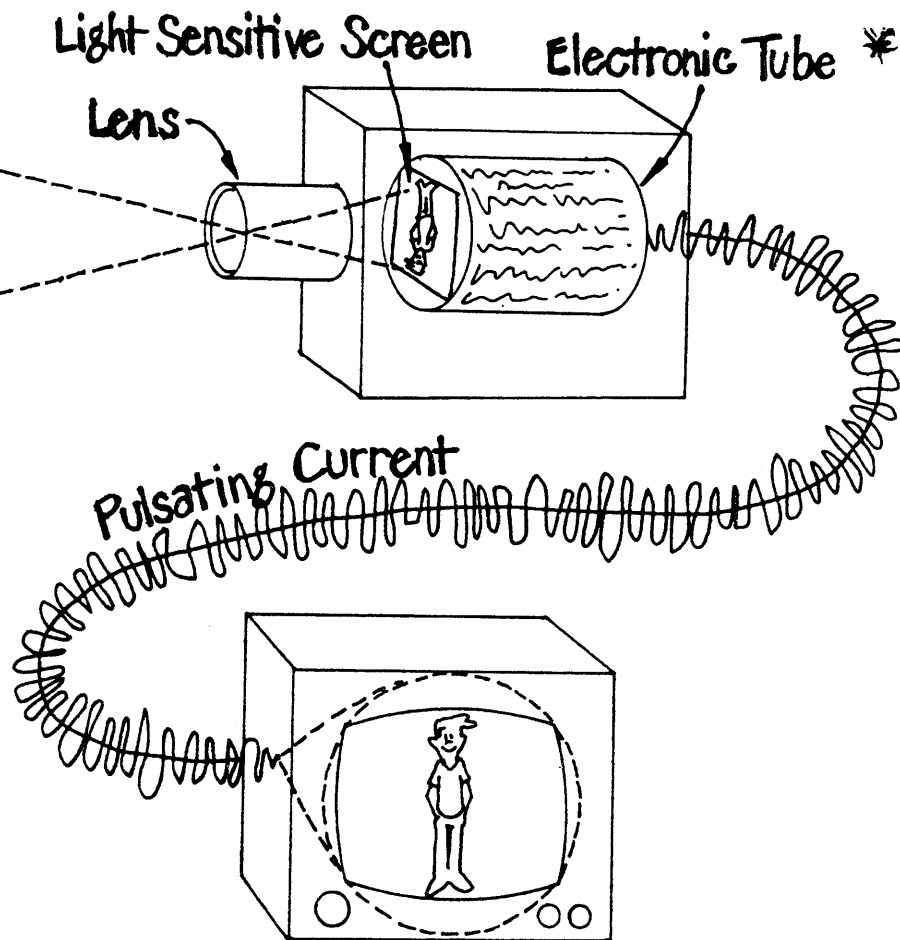
You'll notice that both the lens of the eye and the lens of the camera turn the light pattern upside down as it passes through. This is because they're both convex lenses, or lenses which curve outward. Because of their physical properties, convex lenses always invert images. In the brain, and in the camera viewfinder, the images are turned right side up again.

Movie cameras record images in the same way as still cameras, except they do it more often. Eight-millimeter movie cameras normally take 18 different pictures every second. Sixteen millimeter and thirty-five millimeter movie cameras normally take 24 pictures, or frames, per second. When these pictures are projected on a screen at the same fast rate, they give the illusion of continuous movement. The viewer's mind fills in the gaps between the individual frames, due to a physiological phenomenon known as persistence of vision.



*MOVIE CAMERAS TAKE MANY DIFFERENT PICTURES EVERY SECOND.*

The lens of a television camera focuses light patterns onto the light-sensitive screen of an electronic tube.\* Different parts of the screen give off electrons according to the amount of light hitting them. The electronic images formed by the released electrons are collected off the screen at the rate of thirty complete images per second and converted into a pulsating electric current. At the TV set, this current is converted back again to form an image on the picture tube. As with a movie camera, persistence of vision causes the viewer to perceive the thirty separate pictures per second as continuous movement.



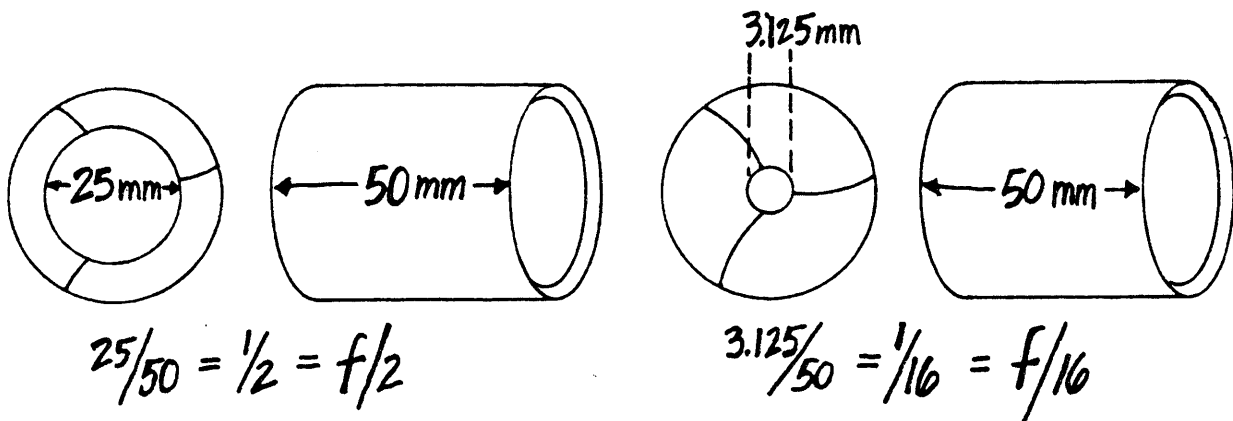
*TV CAMERAS CONVERT LIGHT PATTERNS INTO ELECTRONIC PATTERNS.*

\* In place of tubes, many cameras now use CCD's--charge-coupled devices--small, flat, light-sensitive chips which do the same job.

## EXPOSURE

Exposure is the amount of light that comes through the lens and hits the film, the TV tube, or the CCD chip. The hole in the center of the lens that the light travels through is called the aperture. If the aperture is big, it lets in a lot of light. If it's small, it lets in very little light. The size of the aperture is adjusted by the f/stop ring on the outside of the lens. An f/stop is simply a measure of how big or how little the aperture is.

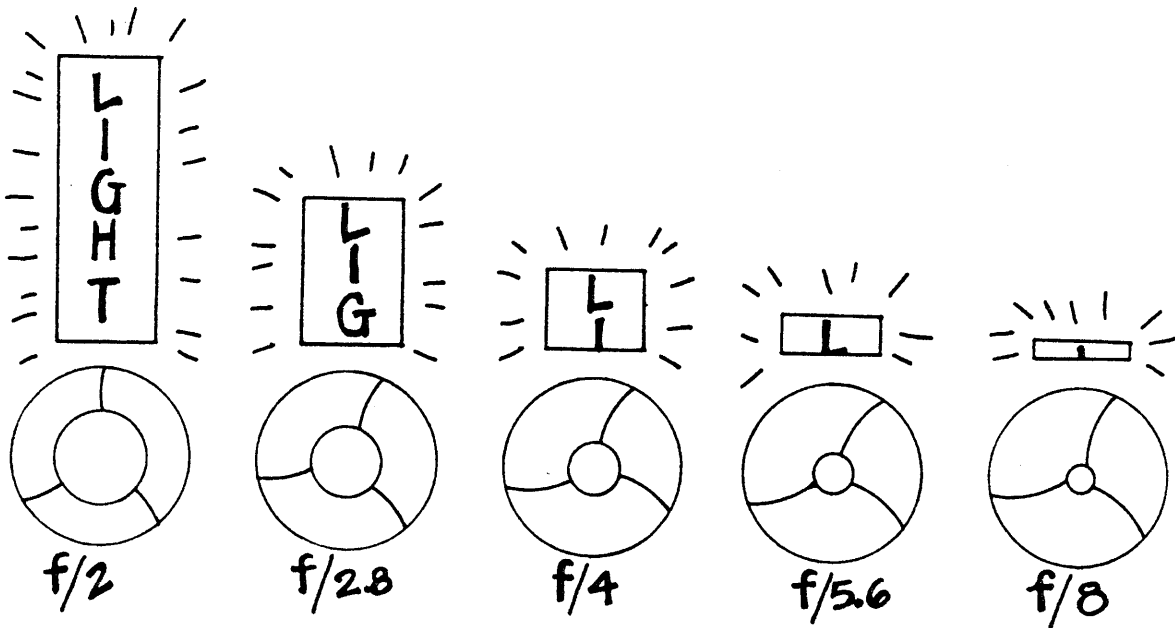
I find that the easiest way to understand f/stops is to think of them in terms of fractions, because that's what they really are. F/2 means that the aperture is 1/2 as big across as the lens is long. F/16 means that the aperture is 1/16 as big across as the lens is long.



When you look at it this way, it's easy to understand why in a dark room, you'll probably be shooting at f/2 to let in all the light you can. Conversely, outside in bright sunlight, where you've got a lot of light, you'll probably stop down to f/11 or f/16, to let less light in.

Now that you understand that, let me point out that in most modern lenses, especially zoom lenses, what I've just told you isn't absolutely true. An  $f/2$  aperture won't physically be exactly  $1/2$  the length of the lens. But optically it will be. It will let through as much light as if it were indeed  $1/2$  the length of the lens. And that's the important thing.

F/stops are constructed so that as you go from  $f/1$  to  $f/22$  and beyond, each stop admits  $1/2$  as much light as the one before. The progression is:  $f/1$ ,  $f/1.4$ ,  $f/2$ ,  $f/2.8$ ,  $f/4$ ,  $f/5.6$ ,  $f/8$ ,  $f/11$ ,  $f/16$ ,  $f/22$ ,  $f/32$ ,  $f/45$ ,  $f/64$ , and so on.  $f/1.4$  admits half as much light as  $f/1$ .  $f/4$  admits half as much light as  $f/2.8$ .



*EACH F/STOP ADMITS HALF AS MUCH LIGHT AS THE ONE BEFORE.*

Many of the newer lenses are marked in both f/stops and T/stops, or T/stops alone. T/stops are more accurately measured f/stops.  $f/4$  on one lens may not let in exactly the same amount of light as  $f/4$  on another lens; but  $T/4$  is the same on every lens. It always lets in the same amount of light.

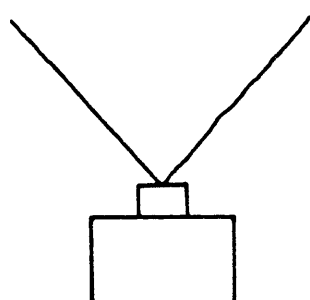
## LENSES

The human eye is a wonder. With a single lens, it can concentrate on a tiny detail of a scene, excluding all else; and in the next instant take in a whole panorama. Unfortunately, the camera is not so versatile. It requires many different lenses to even approximate the performance of the eye.

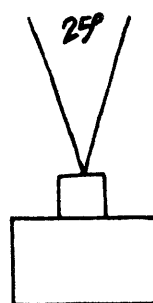
Every camera has one lens which is considered the "normal" lens. This is the lens which comes closest to reproducing objects with the same perspective as the human eye; that is, objects appear to be the same size, proportion and distance as if we weren't looking through the camera at all, but seeing them with the naked eye. The normal lens usually includes a horizontal area of about 25°.

On a sixteen millimeter camera, the normal lens has a focal length (its optical measurement) of 25 millimeters. On a 35-millimeter camera, it's 50 millimeters long. On a video camera with a 2/3" tube or CCD, the normal lens is 25 millimeters long.

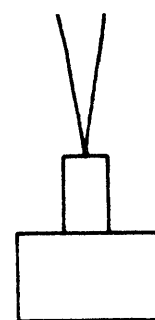
The other lenses on the camera are classified "wide angle" if they include a larger area than the normal lens's 25 degrees, and "telephoto" if they include a smaller area.



**Wide Angle**



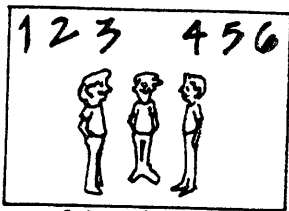
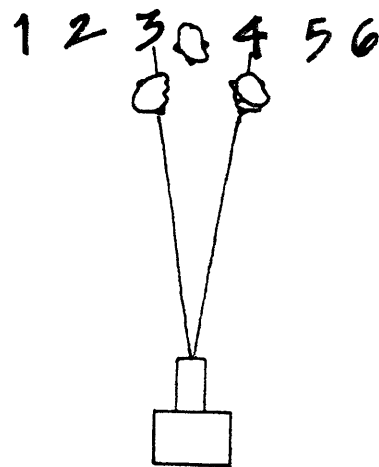
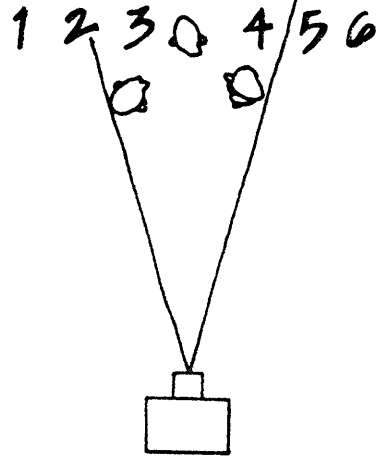
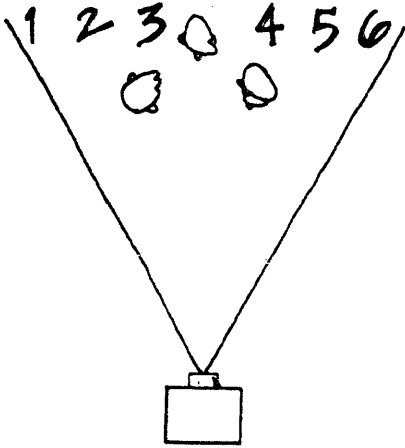
**Normal**



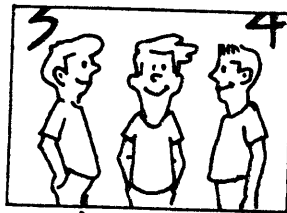
**Telephoto**

Wide angle lenses are shorter than normal lenses; telephoto lenses are longer. If your normal lens is 25mm, your wide angle might be 12mm and your telephoto 100mm.

Wide angle and telephoto lenses have special characteristics which can be summarized as follows:



Wide Angle



Normal



Telephoto

- \* Includes a larger area than the normal lens at the same distance--good for cramped quarters where you can't move the camera back any farther.

- \* Subject is smaller in the frame than with the normal lens at the same distance.

- \* Exaggerates depth--makes elements appear farther apart than normal.

- \* Because of exaggerated distances, movements toward and away from the camera seem faster than normal. Move 6 inches toward the camera and it looks like you're moving 18 inches.

- \* Because of smaller image size, camera jiggles are less noticeable. Good for handholding the camera.

- \* Includes a smaller area than the normal lens at the same distance--good for distant subjects where you can't move the camera closer.

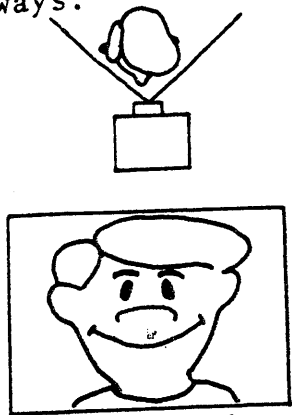
- \* Subject is larger in the frame than with the normal lens at the same distance.

- \* Compresses depth--makes elements appear closer together than normal.

- \* Because of compressed distances, movements toward and away from the camera seem slower than normal. Move 18 inches toward the camera and it looks like you're moving 6 inches.

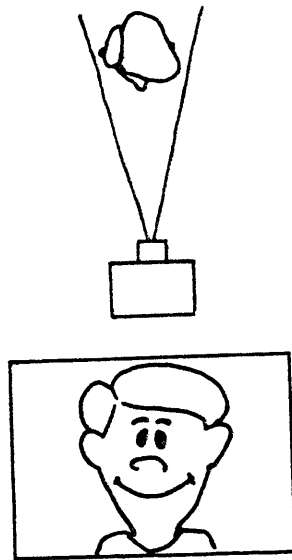
- \* Because of larger image size, camera jiggles are more noticeable. Bad for handholding the camera.

Wide angle and telephoto lenses reproduce faces in different ways:

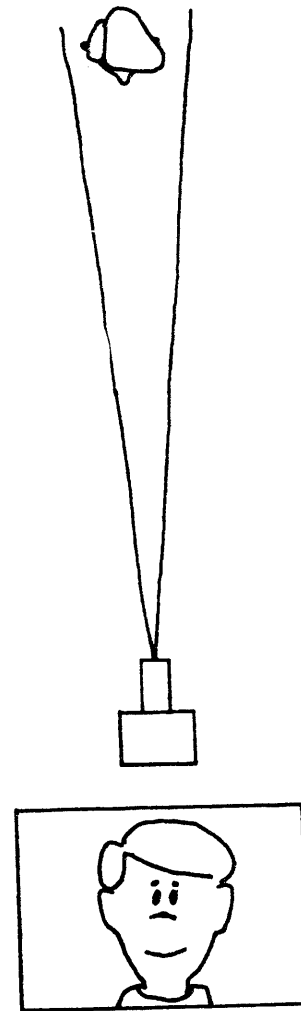


**Wide Angle**

*Features become spread out, bulbous.*



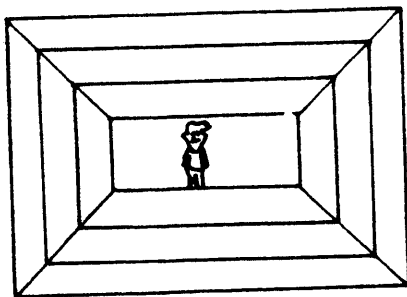
**Normal**



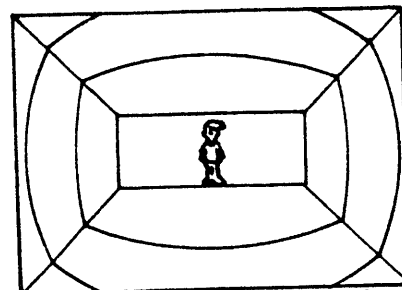
**Telephoto**

*Features become flattened out, compressed.*

The more extreme wide angle lenses suffer from geometric distortion. Vertical and horizontal lines become curved near the edges of the frame.



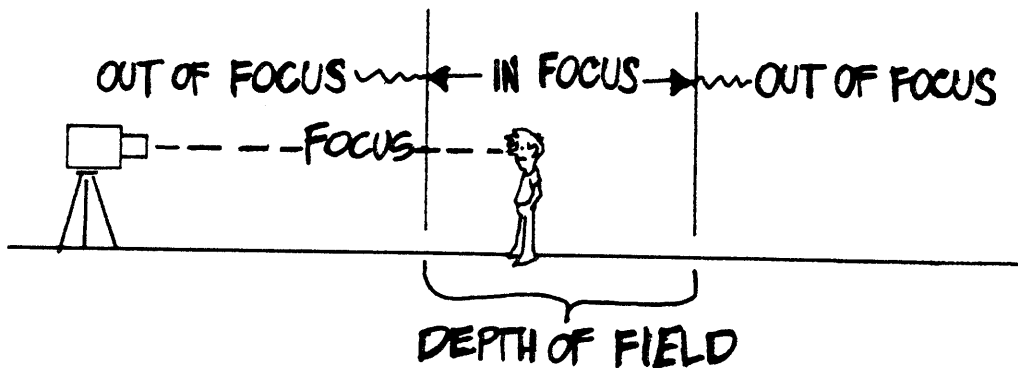
**Normal**



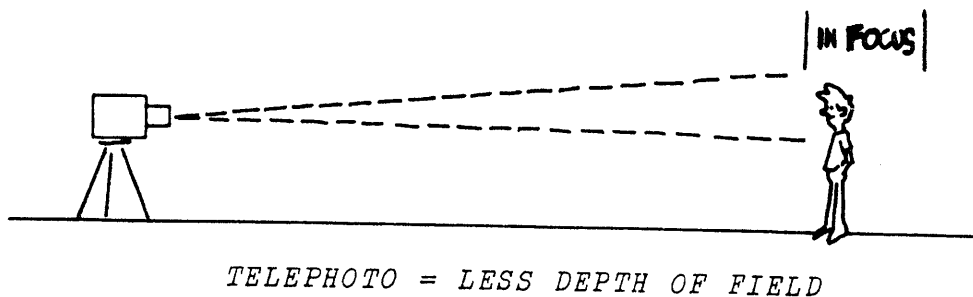
**Extreme Wide Angle**

## DEPTH OF FIELD

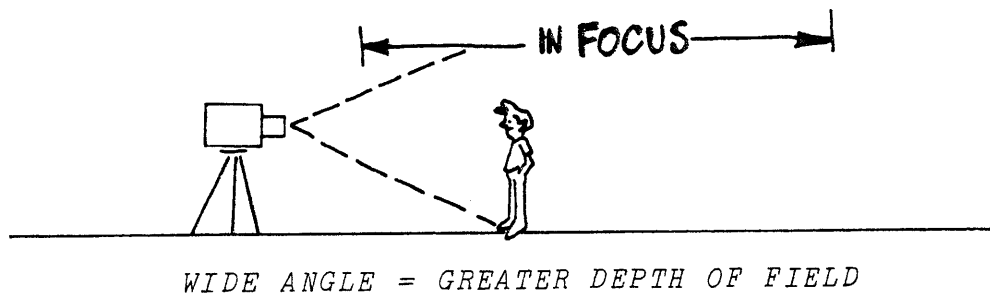
Depth of field is simply the area in front of your camera where everything looks sharp and in focus. For example, if you're focused on somebody standing 10 feet in front of the camera, your depth of field might be from 8 feet to 14 feet. That means objects falling within that area will be acceptably sharp and in focus; objects falling outside the area will be soft and out of focus.



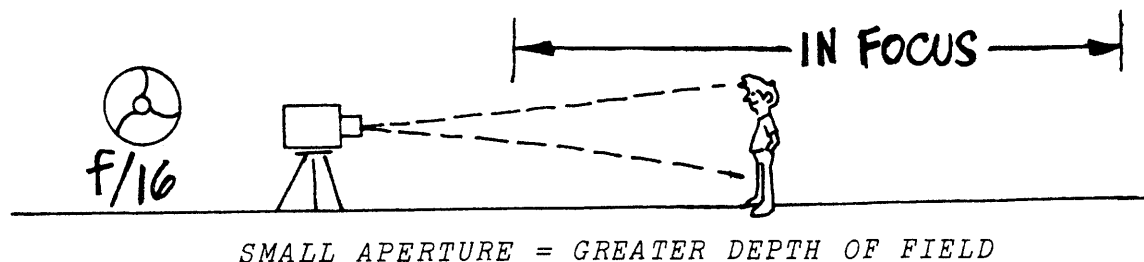
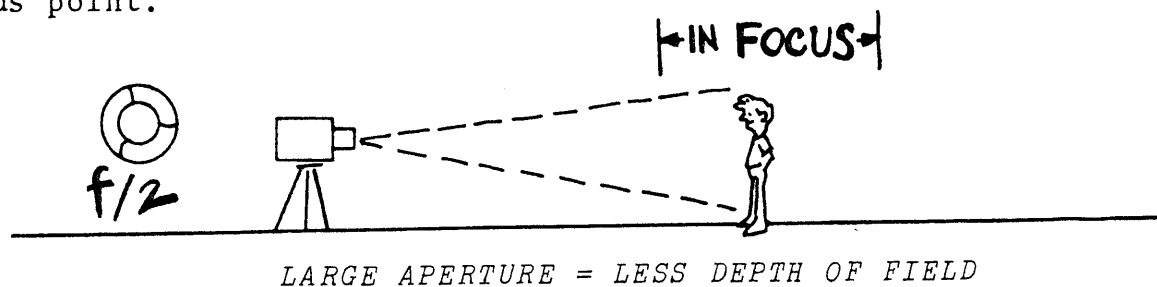
There are several important things to know about depth of field. First is this: Your depth of field decreases as you increase your focal length. In other words, with a telephoto lens you have a much shallower area in focus than with a normal lens. That's why with a zoom lens, you zoom in to telephoto for focusing--it makes it easier to see the exact point where your subject is sharpest.



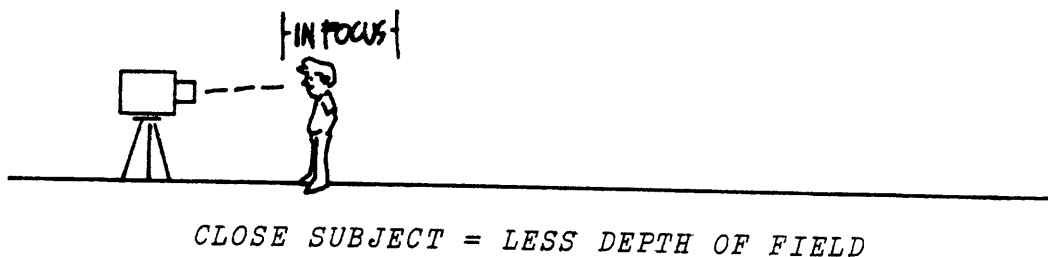
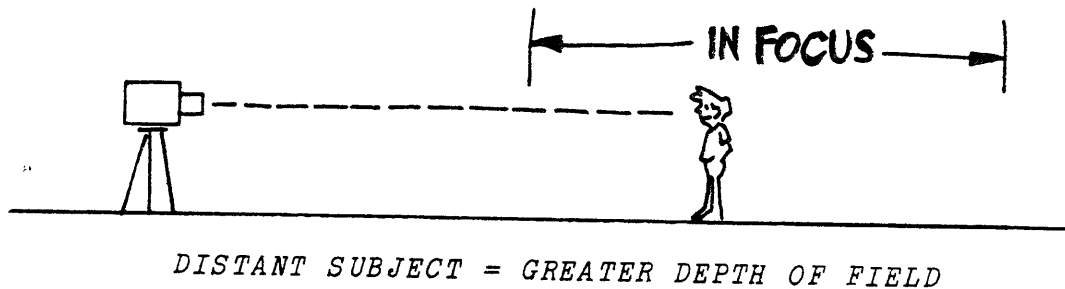
The next thing to know is: Your depth of field increases as you decrease your focal length. With a wide angle lens, you have a much deeper area in focus than with a normal lens. This is why, when you're shooting in uncontrolled situations with a zoom lens and don't have time to zoom in and check focus, you're better off setting an approximate focus and staying at wide angle. This will give you your best chance of keeping everything in acceptable focus.



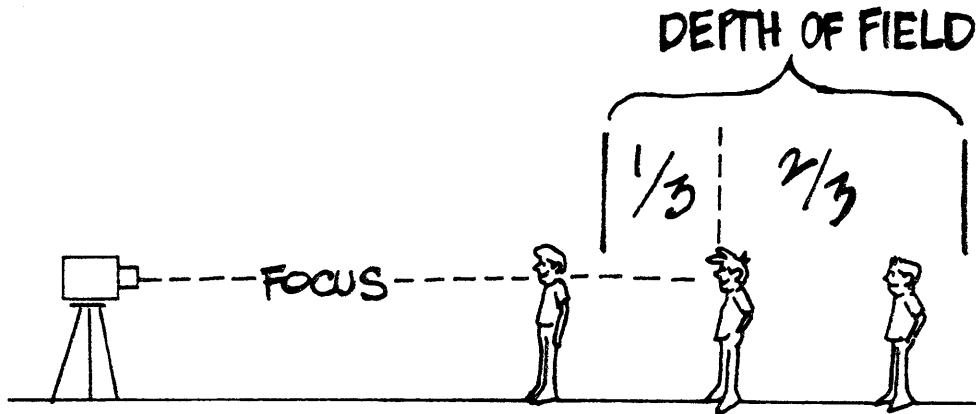
Another thing about depth of field: Your depth of field increases as you close down your aperture. At f/16 you have more depth of field than at f/2. When you make your aperture smaller, it's essentially the same as squinting your eyes to see something sharper in the distance. This is why on film cameras we open the lens to it's widest aperture to focus: it makes it easier to see the exact focus point.



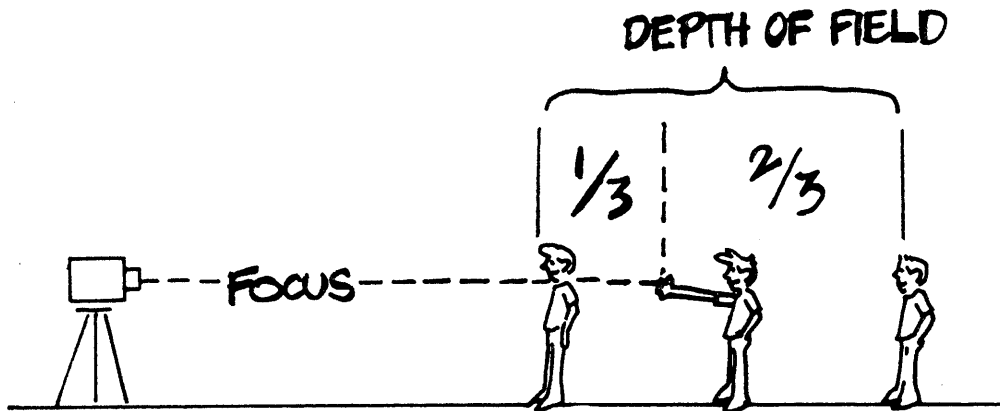
Next: Your depth of field increases as your subject gets farther from the camera. The farther away the subject, the more depth of field; the closer the subject, the less depth of field.



Finally: You always have less depth of field in front of your point of focus than behind it. This is especially noticeable at distances of 25 feet or less. At these near distances, you can usually figure on your depth of field extending approximately 1/3 in front and 2/3 behind your point of focus. So, if you're working with a shallow depth of field and you want to take maximum advantage of it, focus on a point 1/3 of the way into the area you want in focus.



*FOCUSING IN THE MIDDLE LEAVES THE FRONT MAN OUT OF FOCUS.*

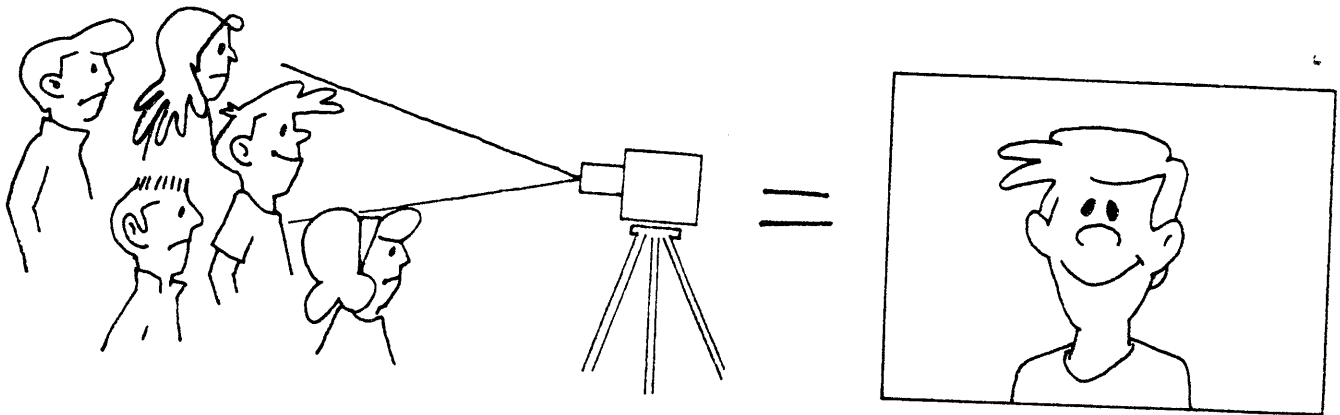


*FOCUSING ON A POINT  $1/3$  OF THE WAY IN PUTS EVERYBODY IN FOCUS.*

## 2. COMPOSITION

### THE CAMERA - A TOOL FOR SELECTIVE VISION

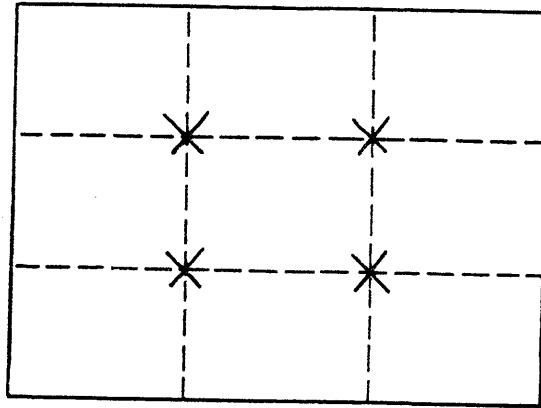
The camera is a tool for looking at things in a special way. It's a window on the world which you control. Your viewer--the person who will look at the pictures you take--will see only what you decide to show him. This selectivity is the basis of all camerawork.



*THE CAMERA IS SELECTIVE. YOU DECIDE WHAT THE VIEWER WILL SEE*

Say you're shooting a program about a high school. The decisions you as a cameraperson make will shape the reality of the school as perceived by your viewer. Leave Student A out of your frame and for your viewer he will never exist. Include B, C, and D in a number of shots and they become important persons. Show E studying by himself and he becomes a loner. By choosing what to shoot and how to shoot it, you create your own selective version of the high school. How close your version comes to reality depends on your camera skills and how you use them.

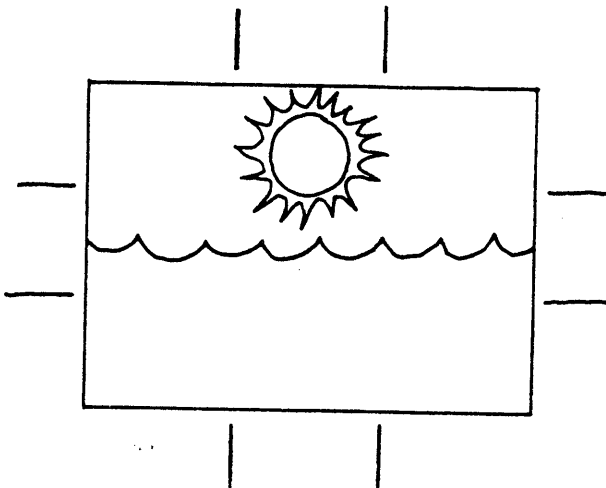
## RULE OF THIRDS



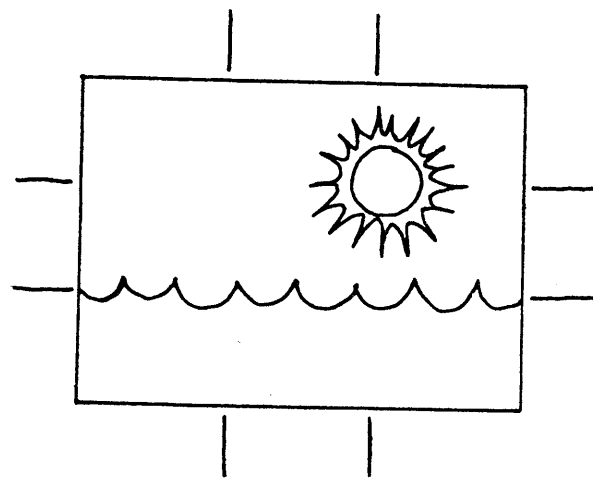
The rule of thirds is an old, old theory about composition that still works pretty well. It won't compose the picture for you, but it'll at least give you someplace to start.

The idea is to mentally divide the frame into thirds horizontally and vertically. Then you place your elements along the lines, preferably with the center of interest at one of the four points where the lines cross.

Here are some examples of compositions improved by using the rule of thirds:



WITHOUT RULE OF THIRDS



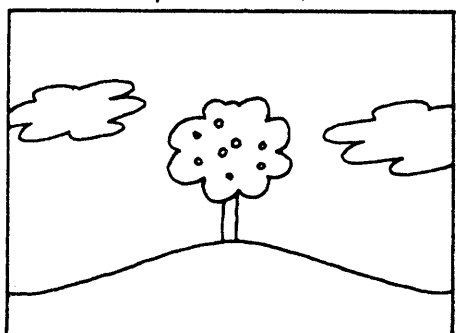
WITH RULE OF THIRDS



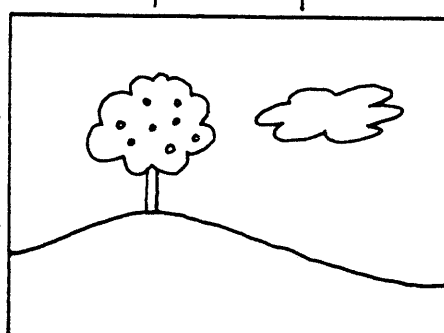
WITHOUT RULE OF THIRDS



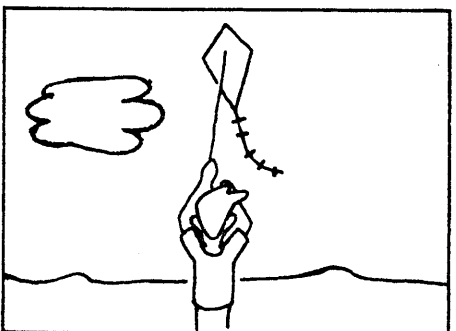
WITH RULE OF THIRDS



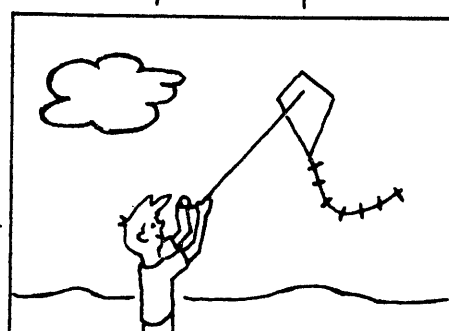
WITHOUT RULE OF THIRDS



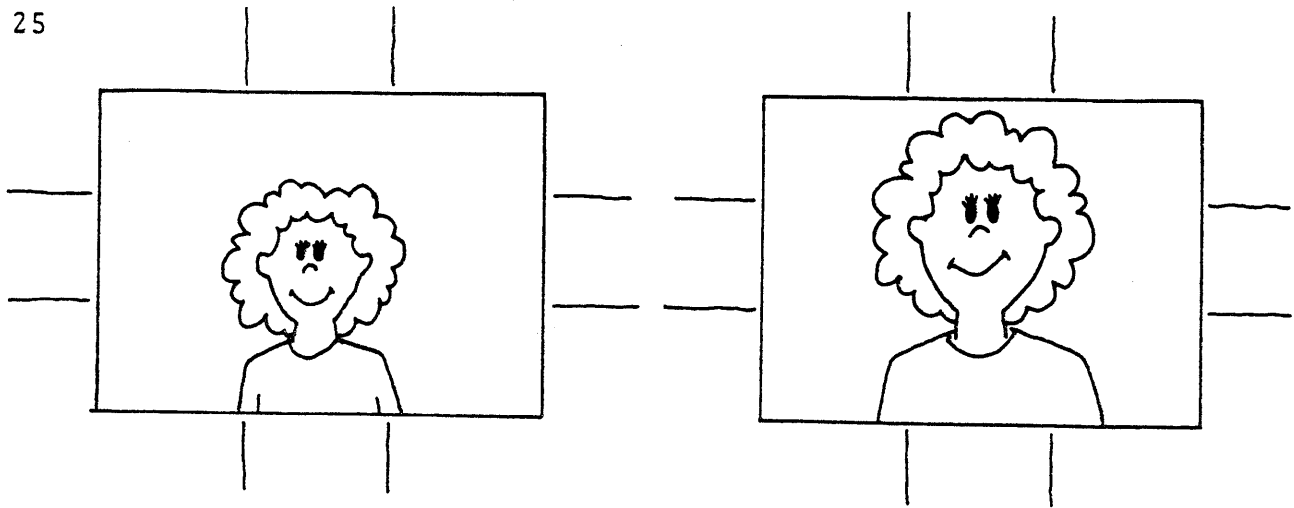
WITH RULE OF THIRDS



WITHOUT RULE OF THIRDS



WITH RULE OF THIRDS



*WITHOUT RULE OF THIRDS*

*WITH RULE OF THIRDS  
(Eyes on top 1/3 line)*

In paintings, still photos and feature films, you'll see many interesting and good compositions that don't comply with the rule of thirds. But remember, such compositions, being more complicated, require more time from the viewer to comprehend. His eye will roam around more before he sees what you want him to see. If you can afford to leave an unusual composition on the screen 15 or 20 seconds or more, it can work--often quite nicely. But be sure you know what you're doing and why. For most documentary film and TV work, the rule of thirds is a good safe bet.

## BALANCE - LEADING LOOKS

One of the most common errors among camerapersons everywhere is the failure to leave enough space in front of people's faces when they're looking to one side or the other.

A shot like this,



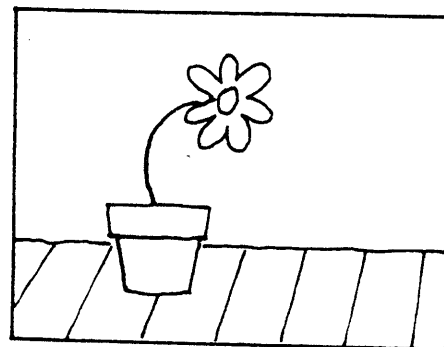
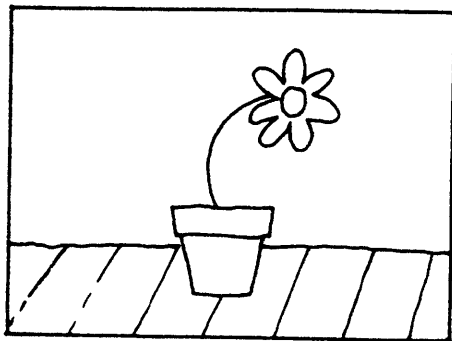
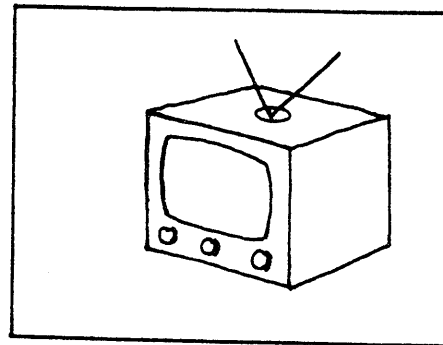
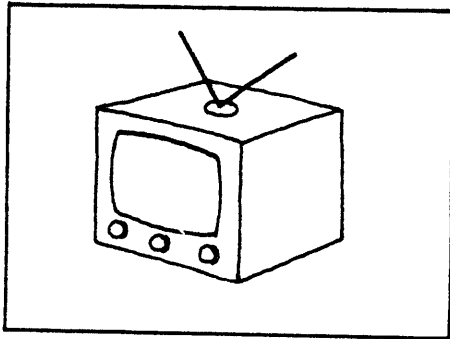
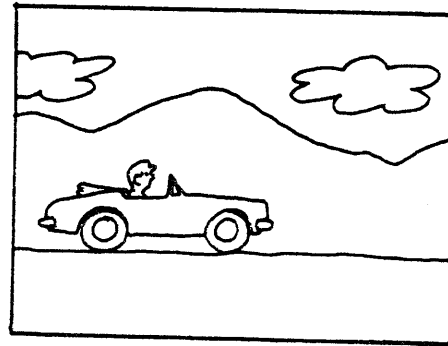
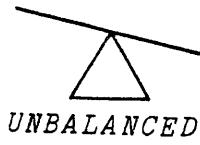
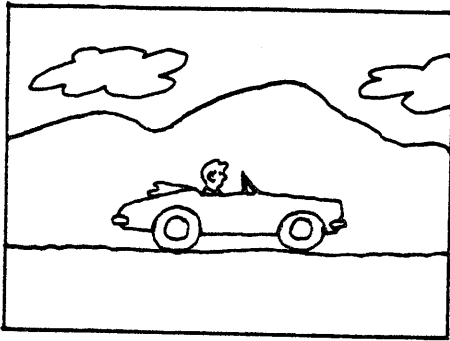
is annoying to look at. Psychologically, the viewer perceives the man as boxed in, with no place to go. By moving the frame just a little, "like this,



you get a more comfortable composition. You've allowed for the compositional weight of the look.

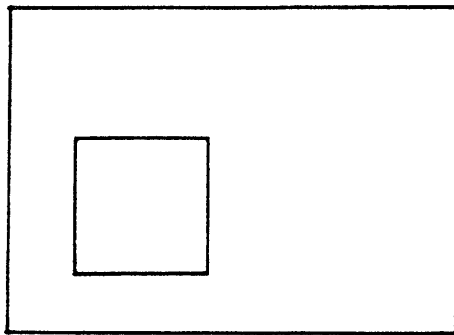
People aren't the only things that have looks. Almost everything has a look. Some examples follow on the next page.

LEADING LOOKS - CONTINUED

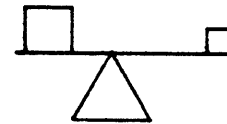
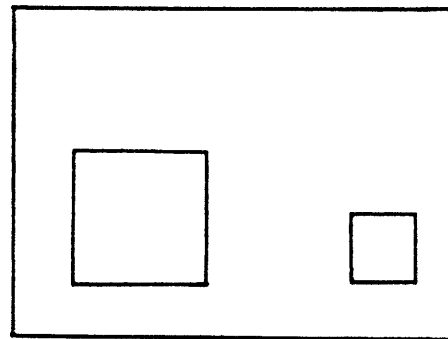


## BALANCE - MASSES

Sometimes you see a scene with a large object on one side and nothing significant on the other side. Even though it doesn't look all that bad, you still feel a little uneasy about it. That's because it's off balance in terms of mass. This is most pleasantly corrected by placing a smaller object at some distance away within the frame. Visual leverage then balances the two nicely, like this:

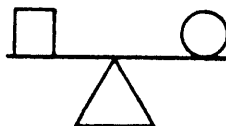
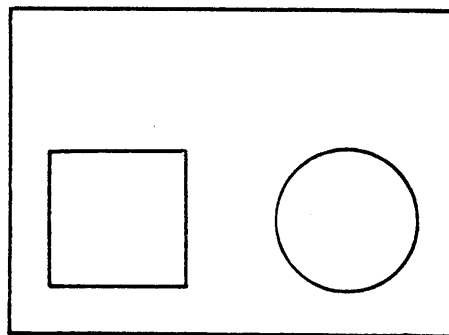


UNBALANCED



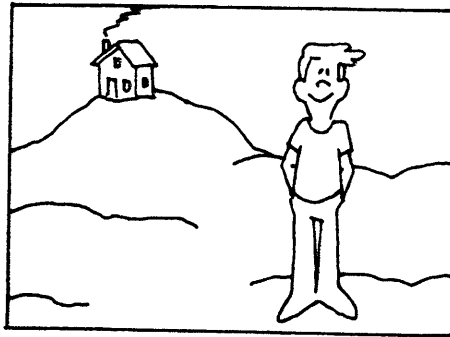
BALANCED

Of course you can balance out with another object the same size in the frame, but it usually ends up kind of static and unexciting:

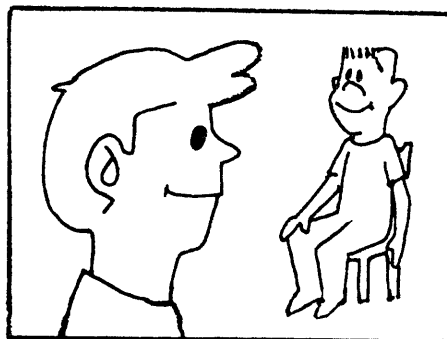
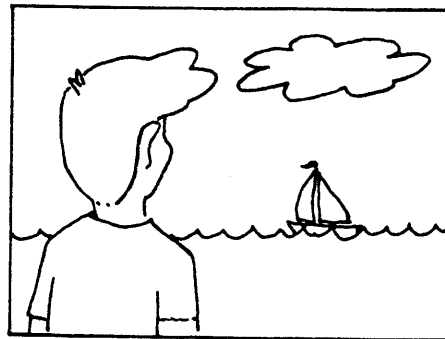
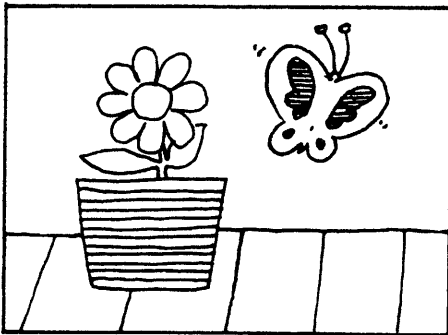


BALANCED

Remember, when we're balancing masses we're not concerned with the true size of things. All that matters is how big they look through the camera. Objects closer to the camera will always appear larger; those farther away will appear smaller. Depending on the camera angle, a house in the distance can balance out a man in the foreground:



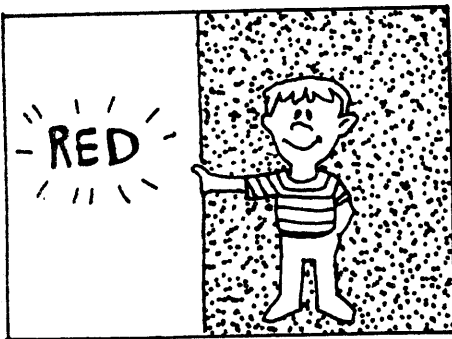
Some other examples:



## BALANCE - COLORS

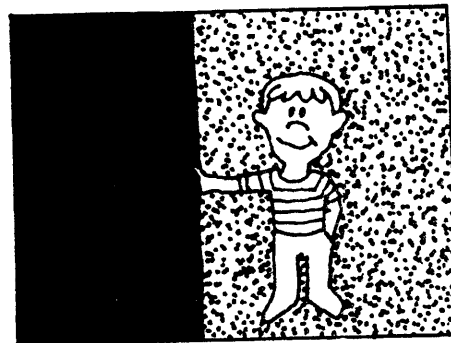
The most important thing to know about colors is that bright ones attract the viewer's eye. How often have you seen a TV interview on location somewhere and found yourself watching, not the interview, but some guy in a red shirt in the background? Your eye just naturally goes to white or brightly colored areas in the frame. Once you know this fact, you can use it to help your pictures.

First off, try to arrange your frame so that the brightest area is also the area you want the viewer to look at first. Consider the following example, where we want the viewer to look at the man:



NO GOOD

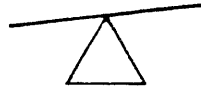
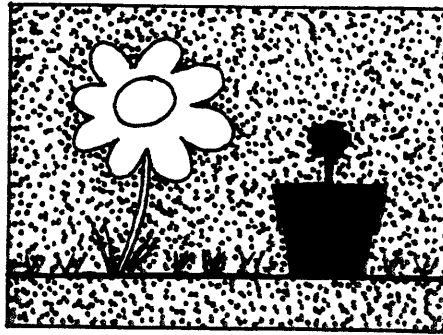
EYE GOES TO THE WALL INSTEAD OF  
THE MAN



BETTER

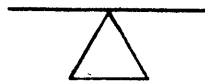
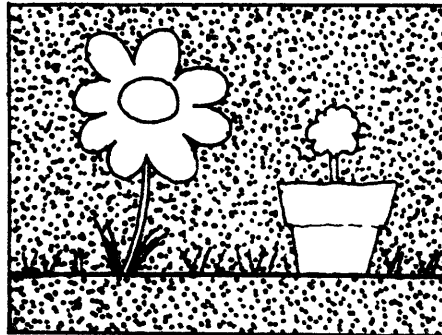
EYE GOES TO THE MAN

When you do include a bright object or area in your frame, remember that its brightness gives it extra weight in the composition--weight you have to balance out, either with another bright area, or with a larger mass.



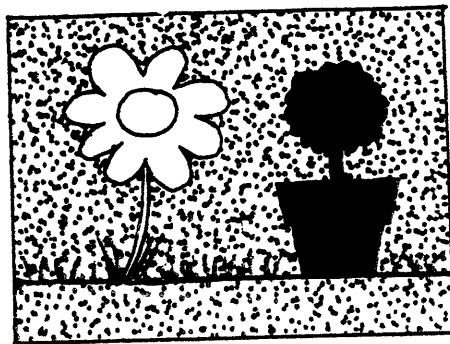
*OFF-BALANCE*

Although the masses of the flower and the pot balance out, the brightness of the flower pulls the composition to the left.



*BALANCED*

The brightness of the pot now balances out the brightness of the flower.

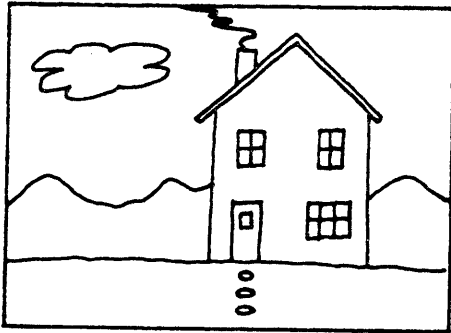
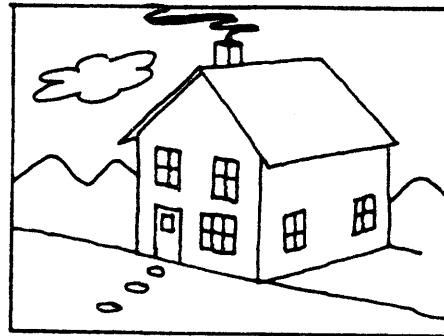


*BALANCED*

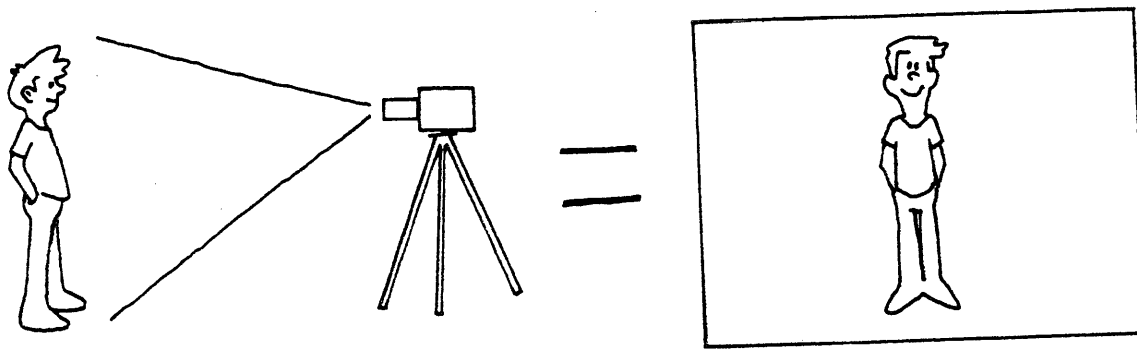
Here the brightness of the flower is balanced out by placing a larger mass on the other side of the frame.

## ANGLES

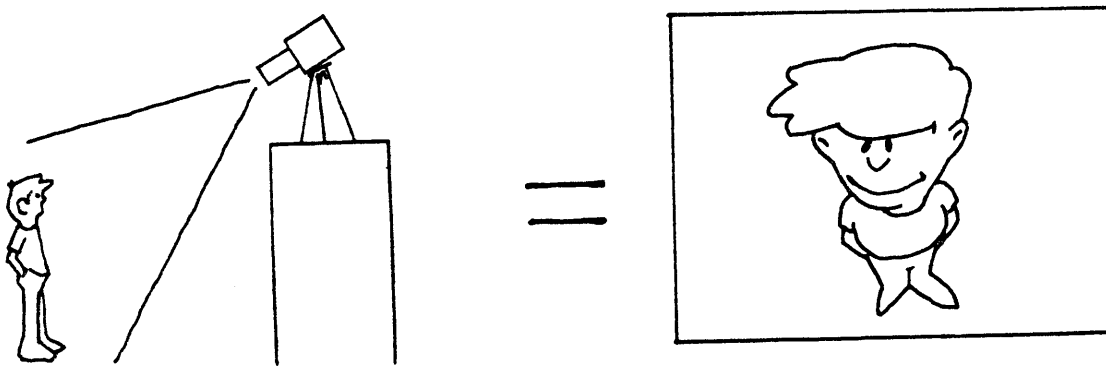
Reality has three physical dimensions: height, width, and depth. In pictures we have only two dimensions: height and width. To give the illusion of depth, we show things at an angle, so we can at least see two sides.

*FLAT**ANGLED**FLAT**ANGLED*

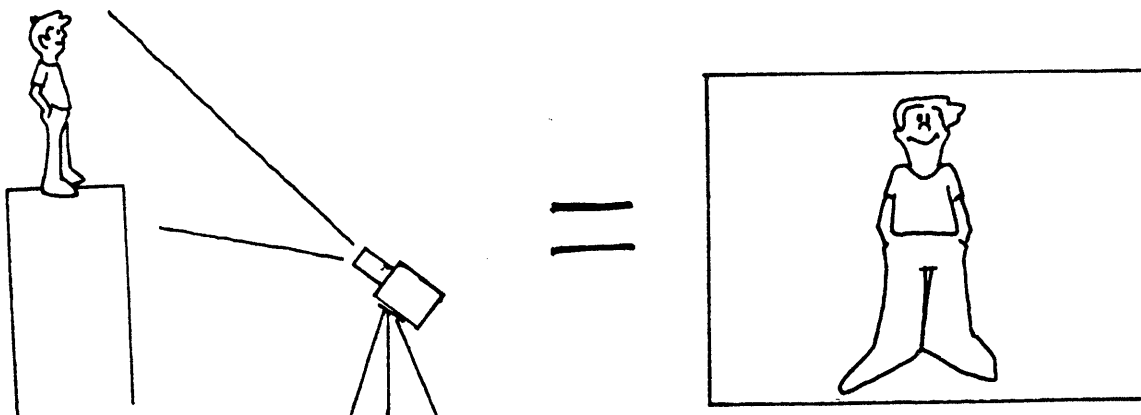
The angle created by the difference in height between the camera and the subject makes a definite impression on the viewer:



When the camera and the subject are at the same height, it gives the feeling that the viewer and the subject are of equal value.



When the camera is higher than the subject, it gives the feeling that the subject is inferior, smaller, less important.

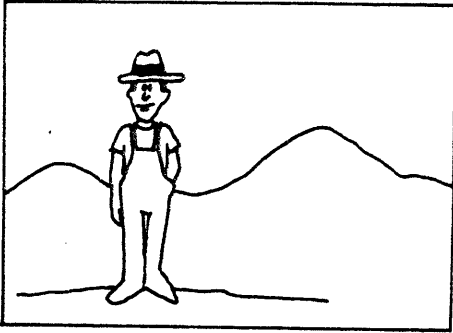


When the camera is lower than the subject, it gives the feeling that the subject is superior, larger, more important.

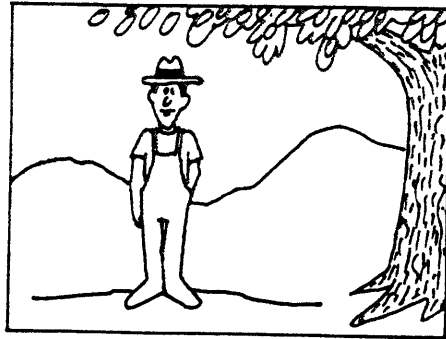
By raising or lowering your camera, you can subtly influence how your viewer will perceive your subject. This is used to great effect in horror films and political TV commercials.

## FRAMES WITHIN THE FRAME

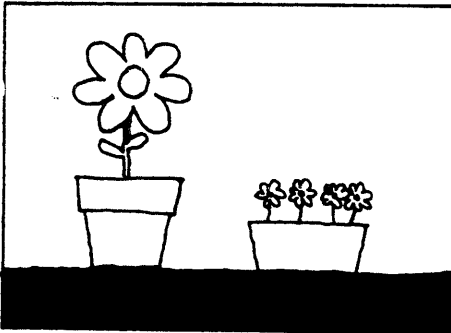
Often you can make a picture more interesting by using elements of your location to create full or partial frames within the camera frame.



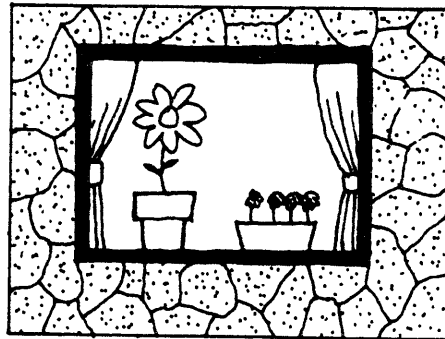
OKAY



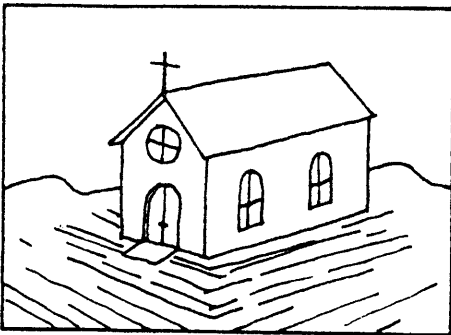
BETTER



OKAY



BETTER

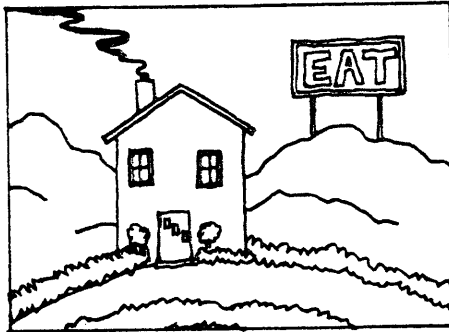


OKAY

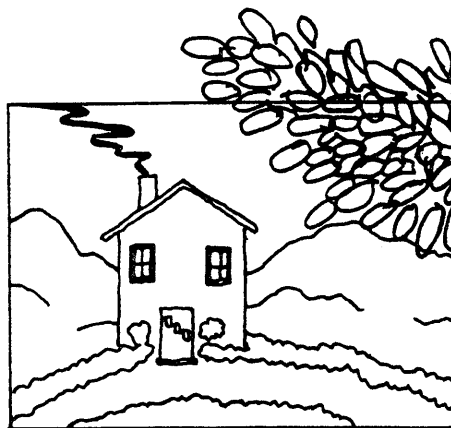


BETTER

This type of framing can also be used to hide or obstruct unwanted elements. For example, a cut tree branch held near the camera can cover up an ugly sky or a billboard in the background.



*NO GOOD*



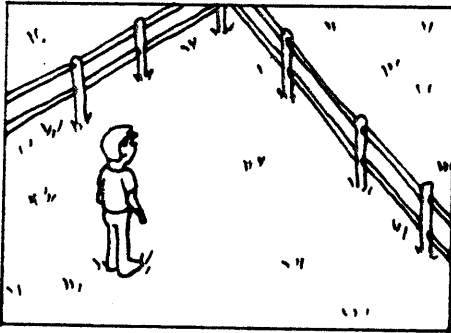
*BETTER*



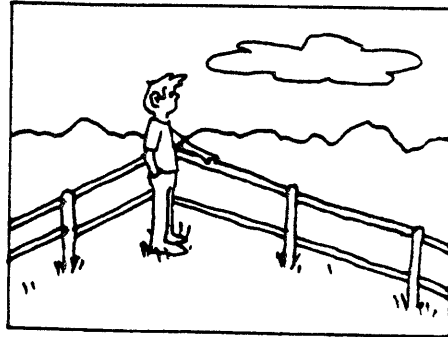
## LEADING LINES

A nice way to direct the viewer's eye to your subject is through the use of leading lines. Here are some examples:

*Viewer's eye is drawn here*



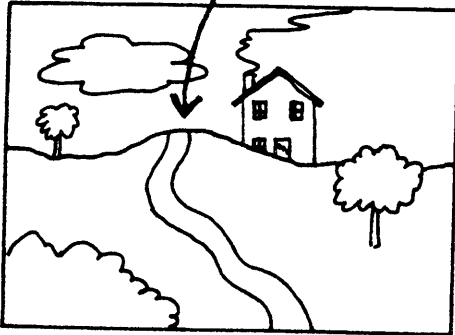
NOT VERY GOOD



BETTER

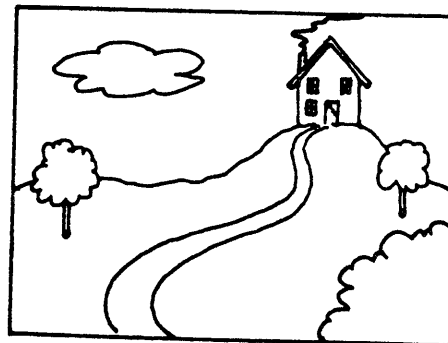
*Lines of fence now lead to man.*

*Viewer's eye is drawn here*



NOT VERY GOOD

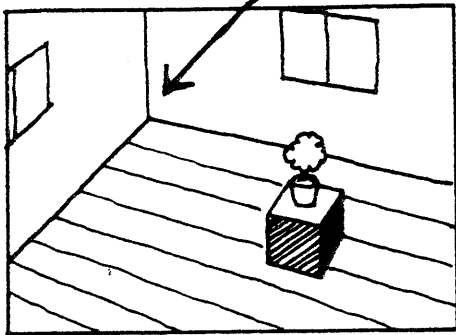
*From this angle, the path leads away from the house.*



BETTER

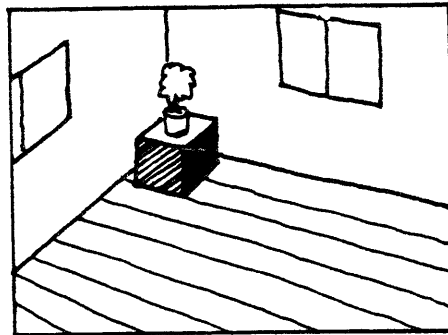
*From this angle, the path leads toward the house.*

Viewer's eye is drawn here



NOT VERY GOOD

The lines lead away from  
the flower on the table.

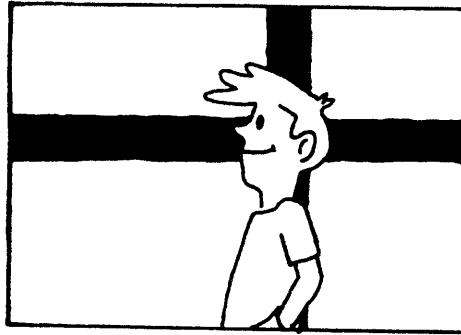


BETTER

All lines now lead to the  
flower on the table

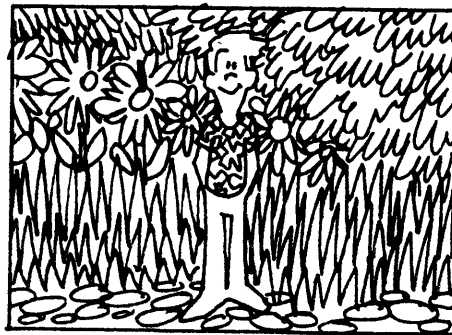
## BACKGROUNDS

The best background is the one that stays where it belongs-- in the background. Unfortunately, some types of backgrounds push forward and call attention away from your foreground subjects. Let's look at some of the more common distracting backgrounds and ways to avoid them:



PROBLEM: Door frames, window frames, trees, poles, etc., that grow out of people's heads.

SOLUTION: Move the camera, the subject, or both.

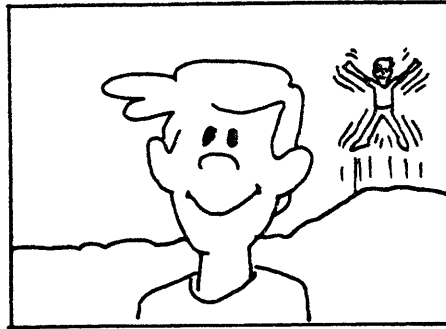


PROBLEM: Backgrounds that are too visually busy, so full of details and colors similar to those of the subject that the subject becomes buried in the background.

SOLUTION #1: Move the camera, the subject, or both.

SOLUTION #2: Move the camera far enough back from the subject

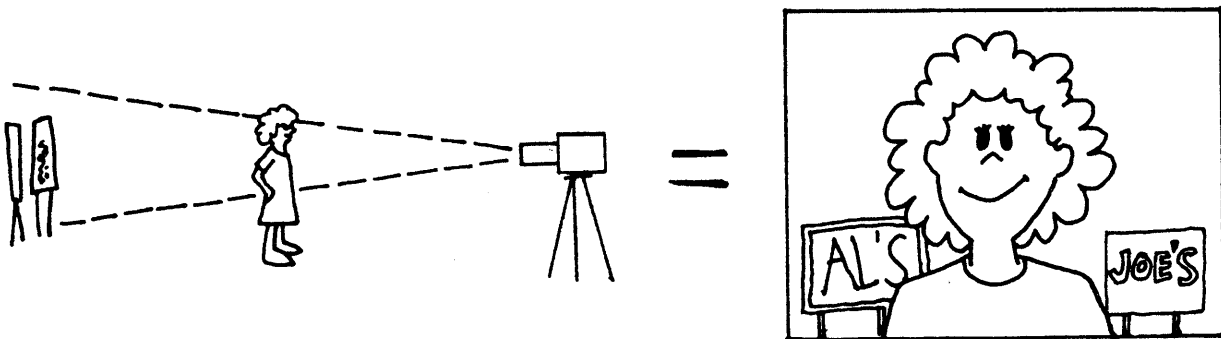
so you can use a telephoto focal length. This will give you a more shallow depth of field, throwing the background out of focus while leaving the subject sharp.



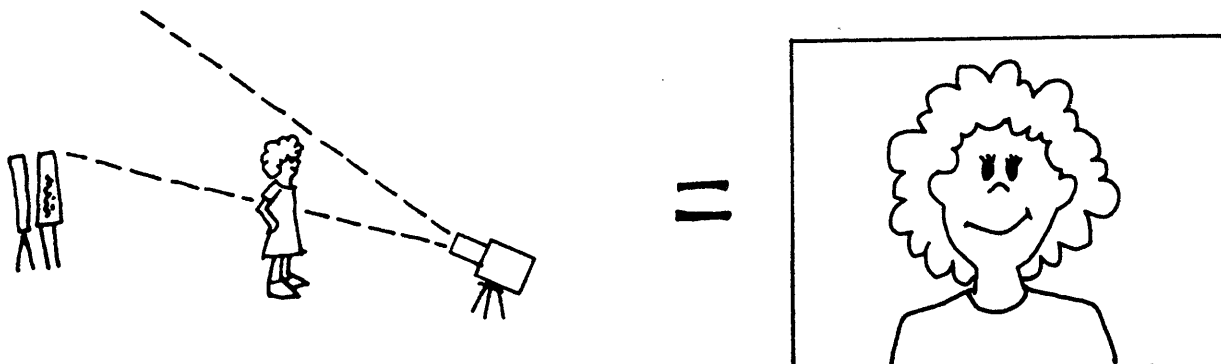
PROBLEM: Unusual or persistent movements in the background.

SOLUTION: Move the camera, the subject, or both.

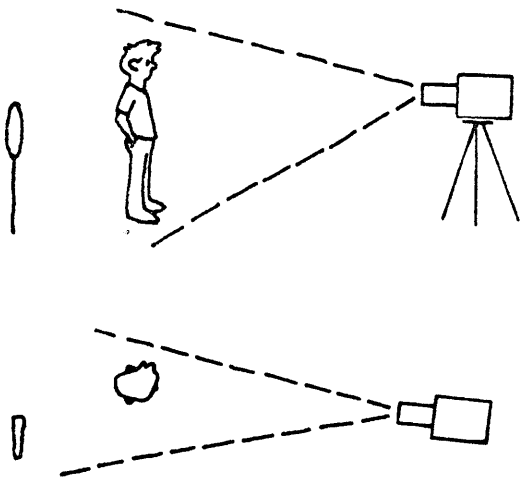
One quick way to remove a distracting background element from your frame is to move closer to your subject, drop the camera to a lower level, and shoot up:



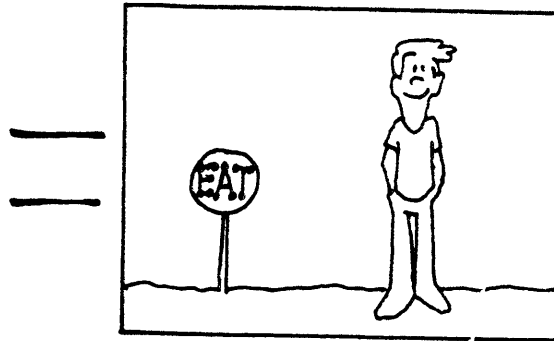
*A LOWER CAMERA ANGLE REMOVES DISTRACTING ELEMENTS*



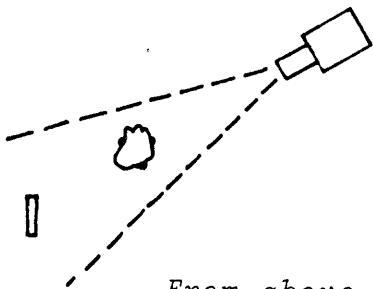
Another way to eliminate a distracting element in the background is to place either the subject or another object in the foreground to block the camera's view of the distracting element.



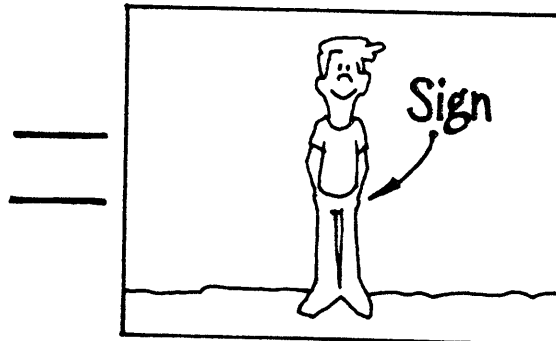
*From above*



SOLUTION #1

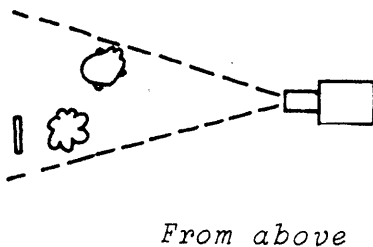


*From above*

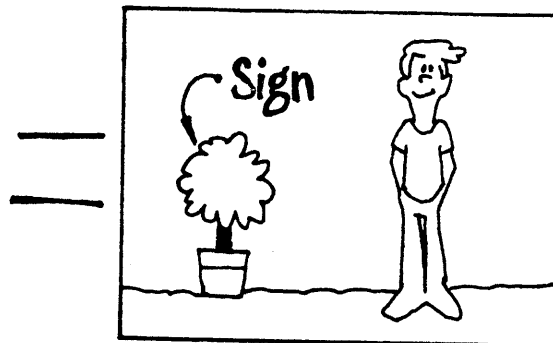


The camera is moved around so that the man's body hides the sign in the background.

SOLUTION #2



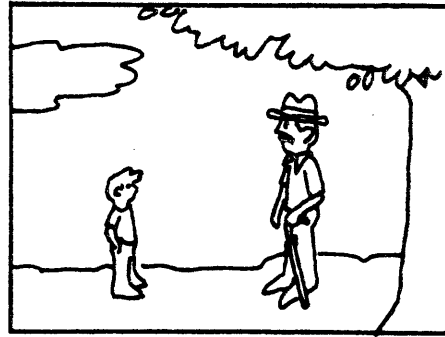
*From above*



A plant placed between the camera and the sign hides the sign.

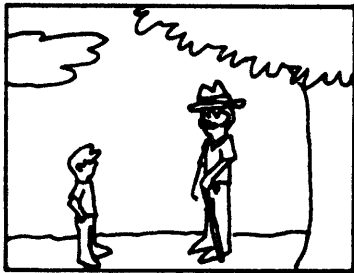
### 3. BASIC SEQUENCE

#### HOW A BASIC SEQUENCE WORKS



Look at this shot. Imagine that the man is talking to the boy. Let's say he talks for thirty seconds. Try looking at the picture while you count one-thousand-one, one-thousand-two, and so on, up to thirty seconds.

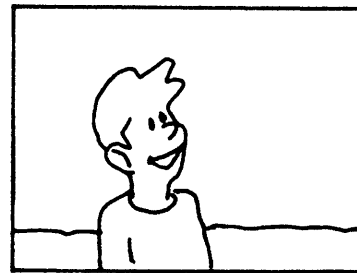
If you're normal, you won't get much past one-thousand-ten before your eyes start wandering. Now look at this sequence of shots. Count to one-thousand-five at each one before moving to the next.



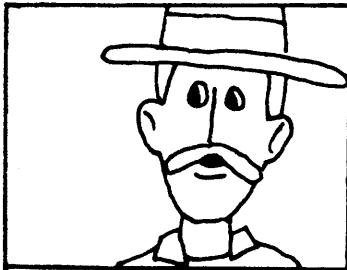
1



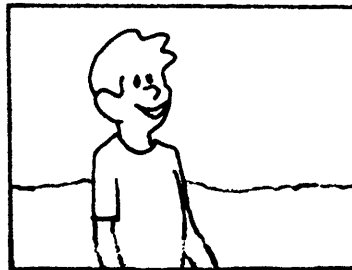
2



3



4

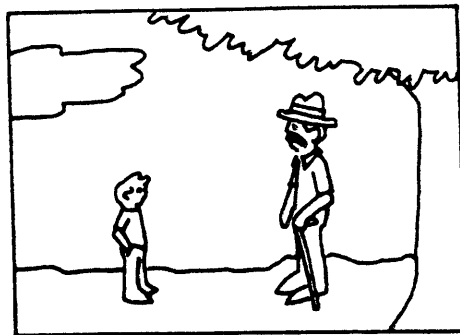


5



6

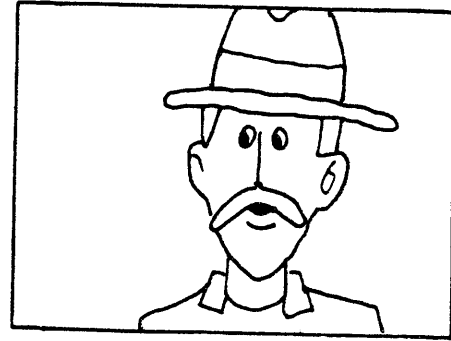
That was a lot easier, wasn't it? So what have we proved? We've proved that it's easier to look at six different images in 30 seconds than to look at one single image for the same time. That's the idea behind the basic sequence--to break up one long scene into several shorter scenes. This makes the story more interesting for the viewer. It also gives us the opportunity, in editing, to vary the length and emphasis of the story as we desire. Let's review the basic sequence we've just seen, shot by shot, and see how it works.



WIDE SHOT

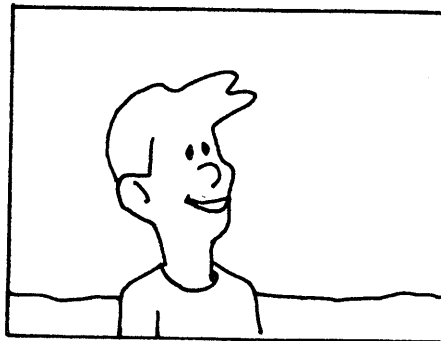
A WIDE SHOT or ESTABLISHING SHOT is simply that--a shot that's wide enough to establish your subject in the mind of the viewer. In this particular case, we see the man, the boy, and enough of their surroundings to establish that they're in the great outdoors.

Remember, a WIDE SHOT doesn't have to show everything--just everything that's important. A WIDE SHOT of a mountain would be a landscape. A WIDE SHOT of a man typing might show only the man and his computer, eliminating from the shot the rest of his desk and the surrounding office. A WIDE SHOT of an ant would be a fraction of an inch across.

*MEDIUM SHOT**CLOSE-UP*

The MEDIUM SHOT and the CLOSE-UP are, like the WIDE SHOT, endlessly variable, depending on your subject and your own point of view.

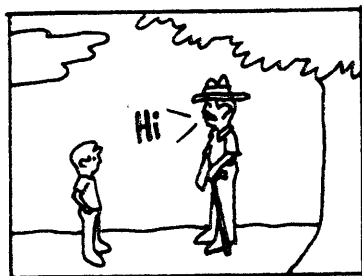
Essentially, the CLOSE-UP is the tightest, the closest you choose to be to your subject. In a person, it's usually a full head shot, as shown here. The MEDIUM SHOT falls somewhere in between the WIDE SHOT and the CLOSE-UP.

*CUTAWAY*

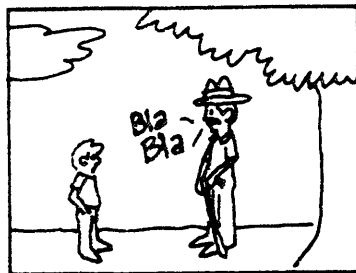
The CUTAWAY is the one shot that lets you easily change the length and/or order of your sequence. It's the shot most often forgotten by camerapersons and most often needed by editors.

In our sequence of the man and the boy, let's say that instead of talking for 30 seconds, the man talked for two minutes, the middle

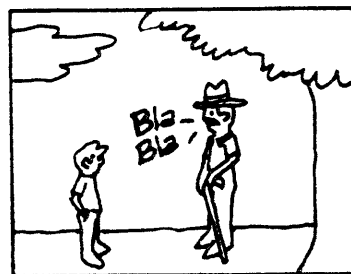
minute-and-a-half of which was boring. So, in editing, you let the man talk for the first 15 seconds, cut away to the boy listening, throw out the boring middle of the talk, then cut back to the man for the final 15 seconds. So instead of this:



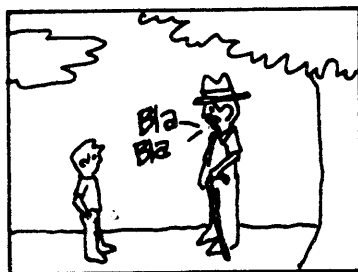
1



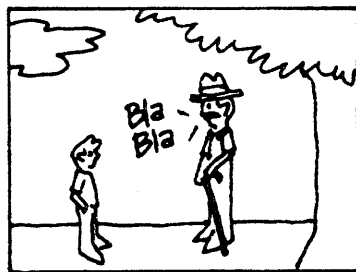
2



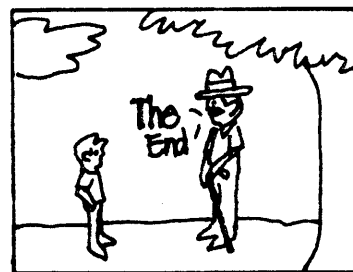
3



4

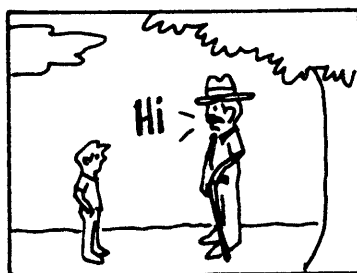


5



6

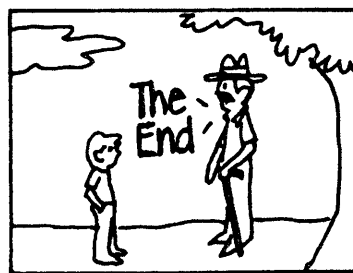
we have this:



1



CUTAWAY



6

The splice in the sound track between Scenes 1 and 6 is covered by the cutaway of the boy listening.

The most common cutaway is the shot of the reporter listening in TV interviews. However, anything can serve as a cutaway, as long

as it's related to the main action. For example, a sequence of a man making toys can be shortened or rearranged by cutting away to shots of already completed toys on the shelves. Or the toymaker's face can serve as a cutaway from close-up actions of his hands carving.

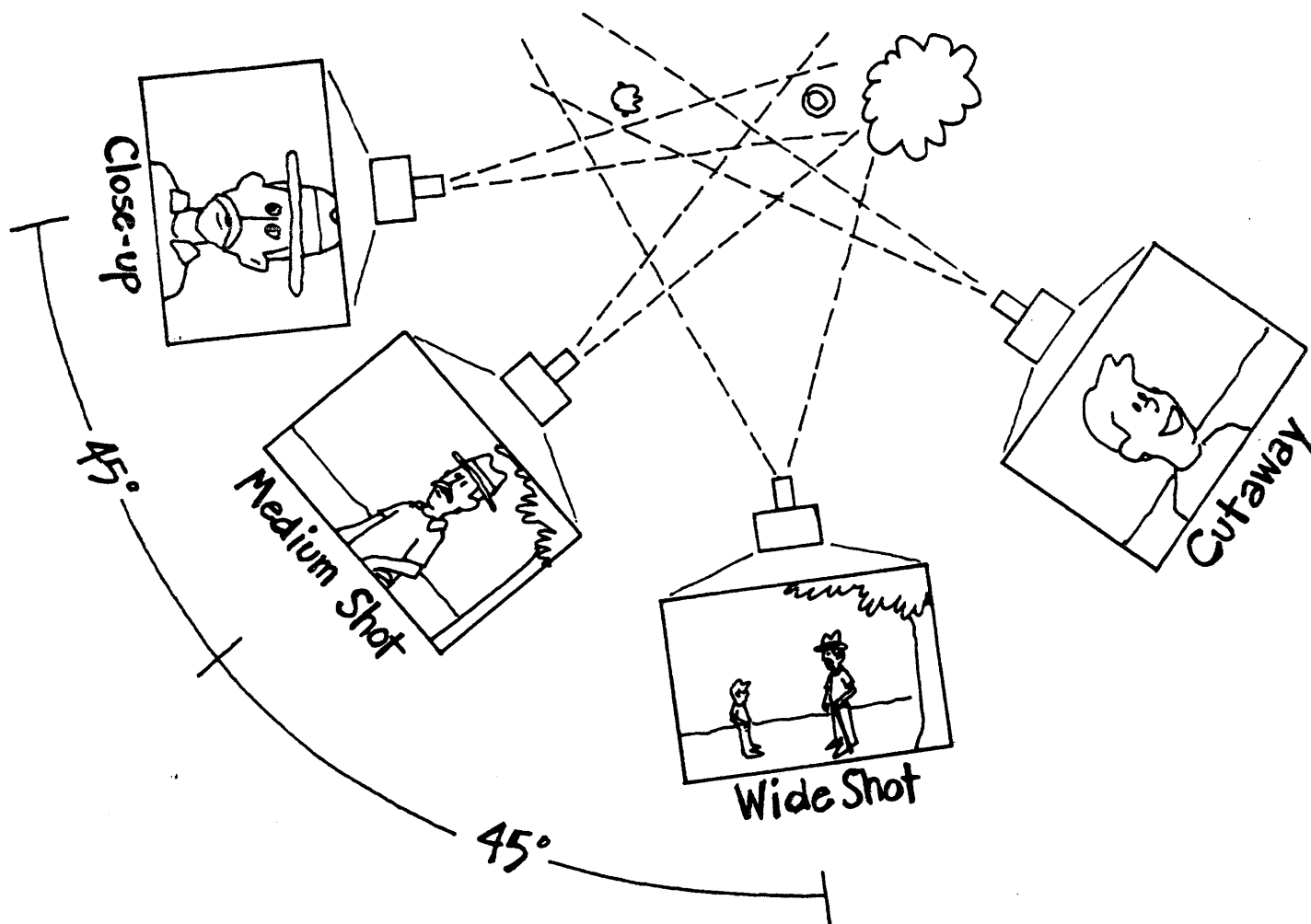
If you look hard enough, you can find a cutaway for just about any sequence you shoot. In an interview with an athlete, his photos and trophies are cutaways. If a man is just sitting talking to the camera, a close-up of his hands in his lap is a cutaway. An extreme wide shot, or a shot from behind, can also be cutaways.

Cutaways can serve to enhance the story. If a man is talking about how he won an auto race, you can cut away to footage of the race, while continuing his voice on the sound track. If an interviewee talks about a person who has helped him in his career, you can cut away to a shot of that person.

## SHOOTING A BASIC SEQUENCE

The most important thing to remember in shooting a basic sequence is that EACH NEW SHOT SHOULD, IF AT ALL POSSIBLE, INVOLVE A CHANGE IN BOTH IMAGE SIZE AND CAMERA ANGLE. This not only makes the sequence more interesting but, as we'll see, it makes it much easier to cut back and forth between shots. On the following page is a diagram, from above, showing where I placed the camera for the sequence of the man talking to the boy.

## CAMERA SET-UP - BASIC SEQUENCE



Notice that between WIDE SHOT, MEDIUM SHOT, and CLOSE-UP, I changed my camera angle by at least 45 degrees. You should always try to move your camera at least that much.

It's pretty obvious that a change in image size and angle between shots makes for a more interesting sequence. What's not quite so obvious is that it makes the transition from shot to shot smoother and easier to accomplish. With rare exceptions, most non-studio work is shot with a single camera. This means your subject has to repeat himself for the medium shots and close-ups. He's not always going to be able to remember and duplicate his actions exactly

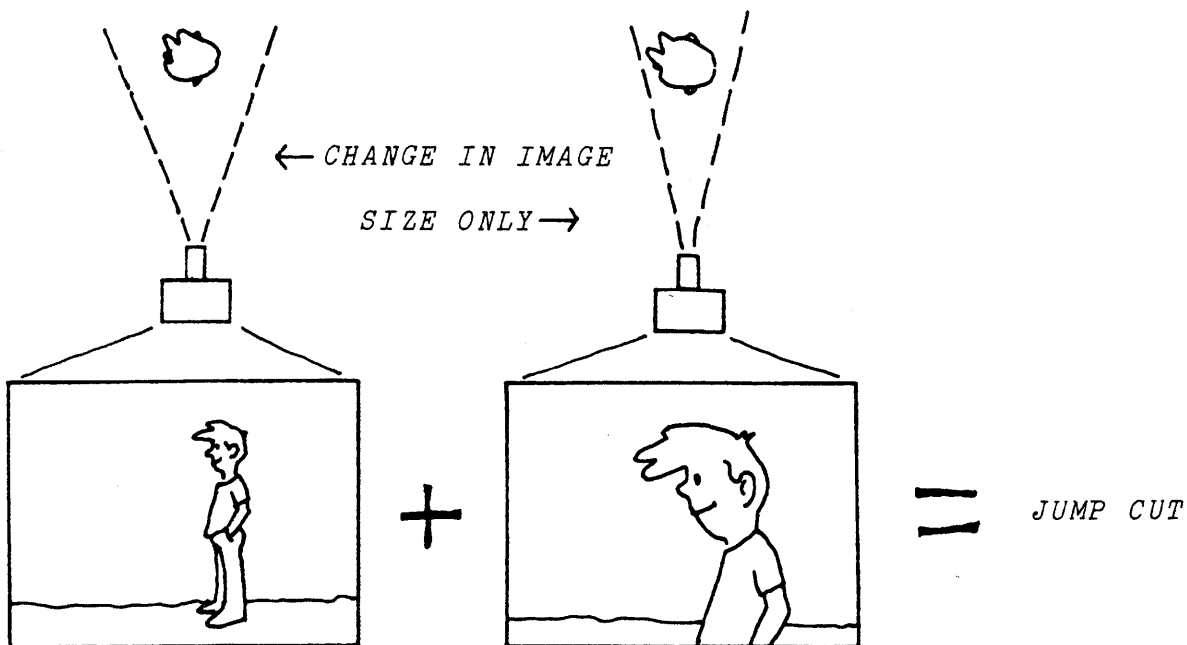
for every take. So you might end up having to cut from a wide shot where he's looking straight ahead



to a medium shot where his head is inclined slightly downward:

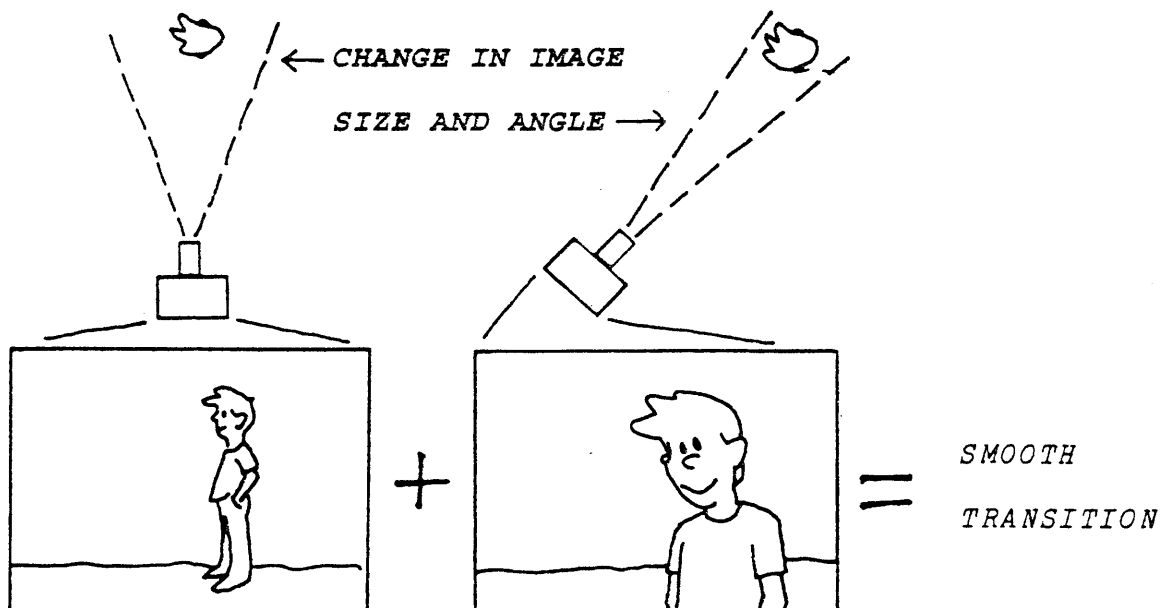


If you change image size and not camera angle, you'll see the man's head jerk down on the cut. This is called a jump cut.



But, if you change not only the image size but also the camera angle, you'll be home free. The combination of image change and angle change will alter the viewer's perspective just enough for

him not to notice the slight mismatch in head position.



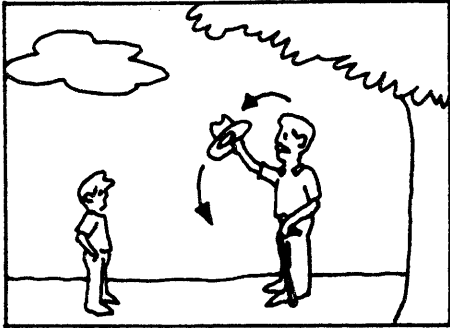
Often, you'll find that a change in image size and camera angle will cover even greater mismatches.

One special situation: When your subject is talking directly to the camera and you change camera angles, be sure to show the subject physically pivoting his body from one camera position to the other. Otherwise, the abrupt change in background will confuse the viewer. If you prefer, in the editing, you can cut on the action of the turn. They do this every night on your local news show when the anchor turns to a new camera and says "On the local scene...".

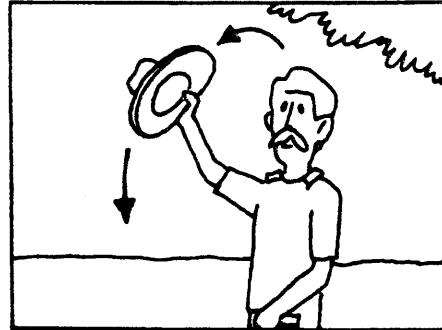
#### CUTTING ON THE ACTION

A good way to get smooth transitions between shots is to cut on the action. The viewer's eye naturally follows movement on the screen. If a movement begins in one shot and ends in the next, the viewer's eye will follow the action right across the cut, without paying much attention to anything else.

Let's say that the man in our original basic sequence takes off his hat. We shoot the wide shot down to the point where he completes the action of removing his hat. Then we set the camera up for the medium shot, and have him begin the medium shot by repeating the action of removing his hat.

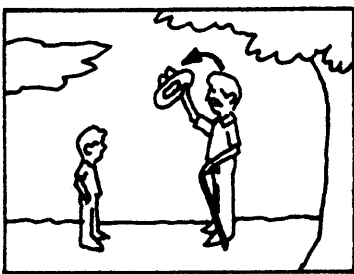


WIDE SHOT



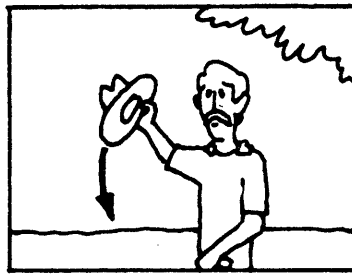
MEDIUM SHOT

Then, in the editing, we CUT ON THE ACTION, so that he starts removing his hat in the wide shot and completes the removal in the medium shot. Without even realizing it, the viewer is carried smoothly from one shot to the next.



WIDE SHOT

+



MEDIUM SHOT

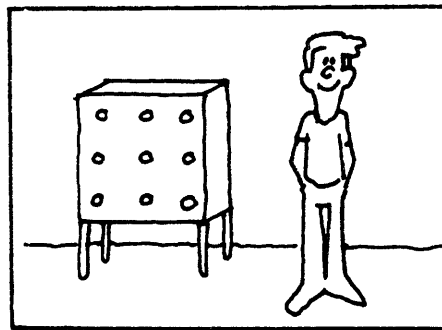
=

CUTTING ON  
THE ACTION

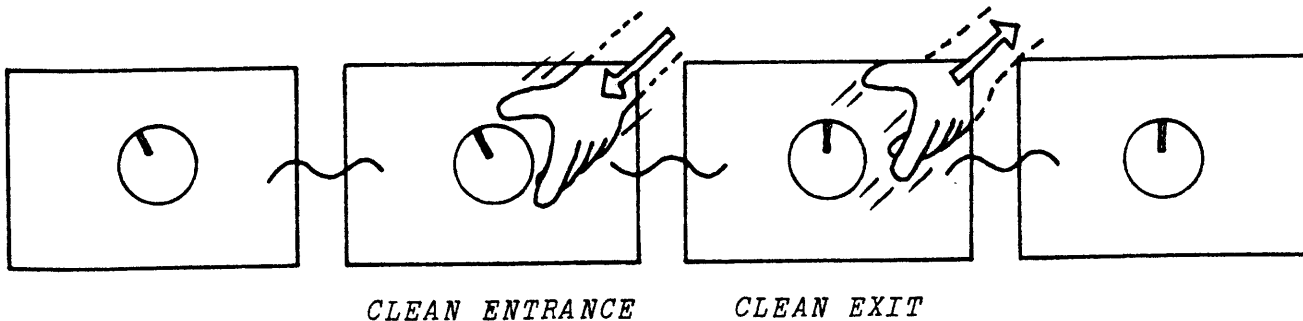
There are lots of obvious situations where it's convenient to cut on the action. For example: opening doors, getting out of cars, sitting down, standing up, reaching for objects, walking, running, jumping--almost any kind of movement. The important thing to remember is that the last action of the first shot has to be repeated at the beginning of the second shot. So you have to shoot the same movement twice. This is called overlapping action.

## CLEAN ENTRANCE - CLEAN EXIT

Having a clean entrance and a clean exit is almost as good as having a million different cutaways. Clean entrances and exits give you terrific flexibility in your editing. Let's say for example that you are shooting an explanation of the controls on a complicated piece of equipment. Your master shot--the one where you keep the camera running for the whole explanation--looks like this:



As the man explains the different buttons, he touches them and turns them. When you've finished the master shot, move in for close-ups of the different knobs. Start each shot showing only the knob on the machine. Then have the man's hand come in (CLEAN ENTRANCE), fiddle with the knob, and go out again (CLEAN EXIT), leaving once more just the knob in the frame.



So what does this do for us? Well, first off, if you cut to the knob, wait a beat, then have the hand enter, you don't have to

#### 4. SCREEN DIRECTION

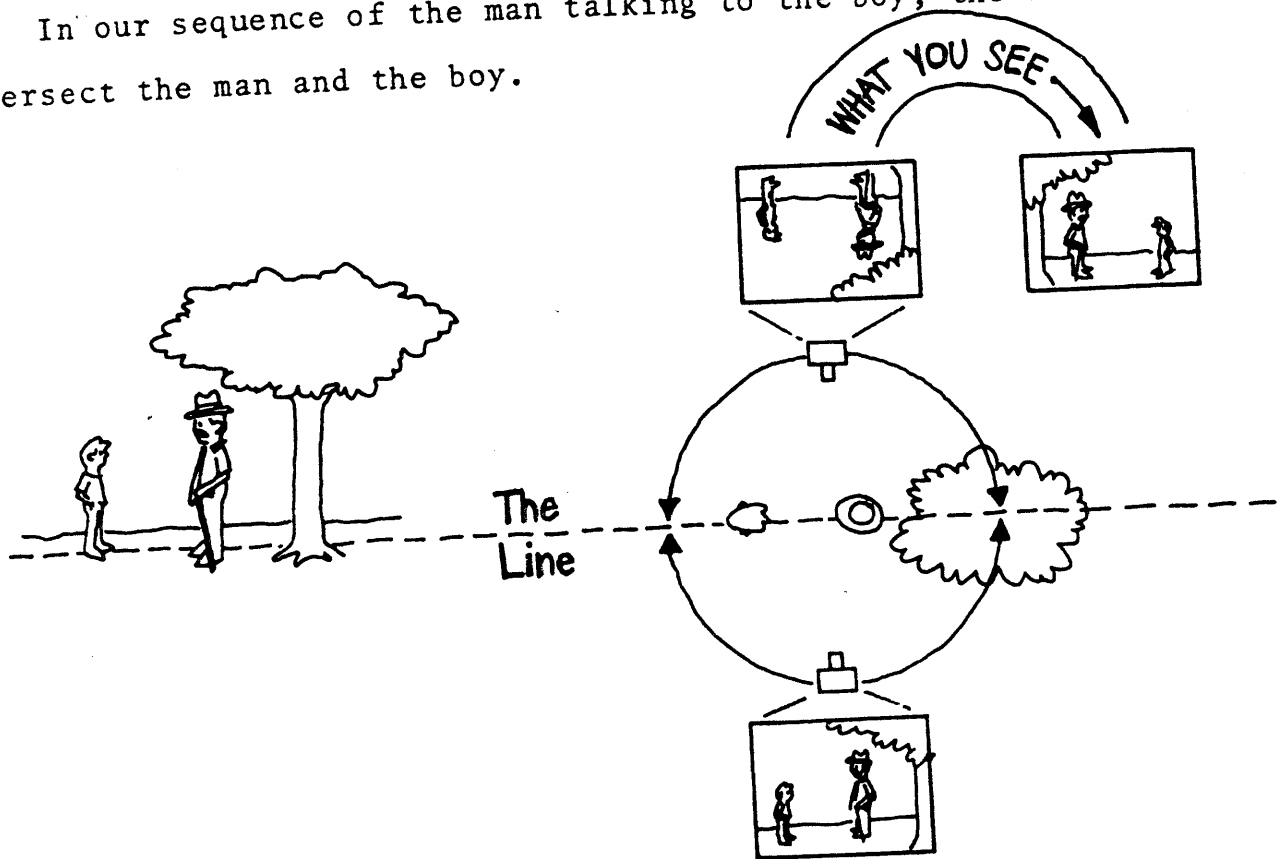
##### SCREEN DIRECTION AND CROSSING THE LINE

Screen direction is the direction people and things face when viewed through the camera.

Have you ever been watching a conversation on TV between two people when suddenly the scene changes and it looks like one of them is talking to the back of the other's head? That's called reversed screen direction. The cameraperson causes it by **CROSSING THE LINE**.

The line is also known as the axis of action, or simply the axis. By whatever name, it's an imaginary line which determines the direction people and things face when viewed through the camera. When you cross the line, you reverse the screen direction of everything you see through the camera, even though nothing has moved but the camera.

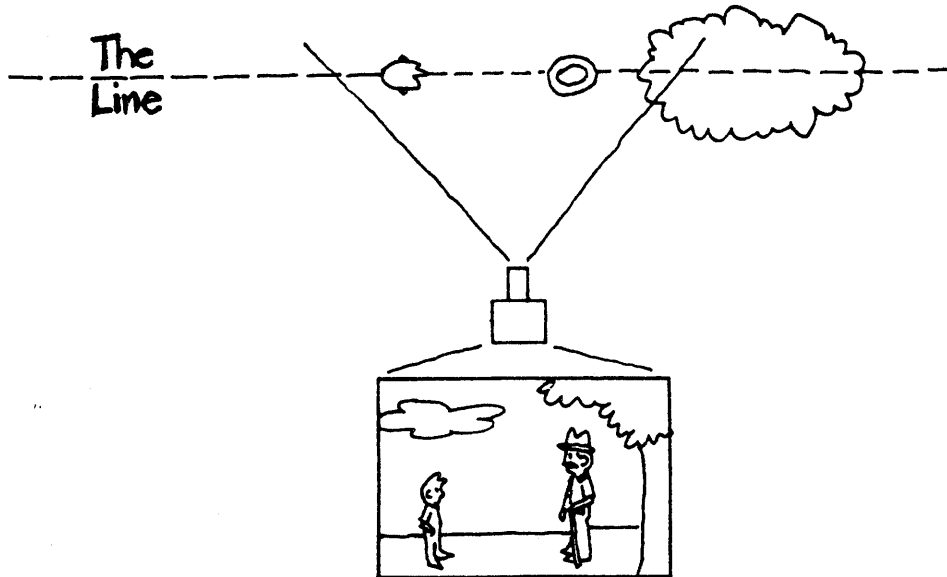
In our sequence of the man talking to the boy, the line would intersect the man and the boy.



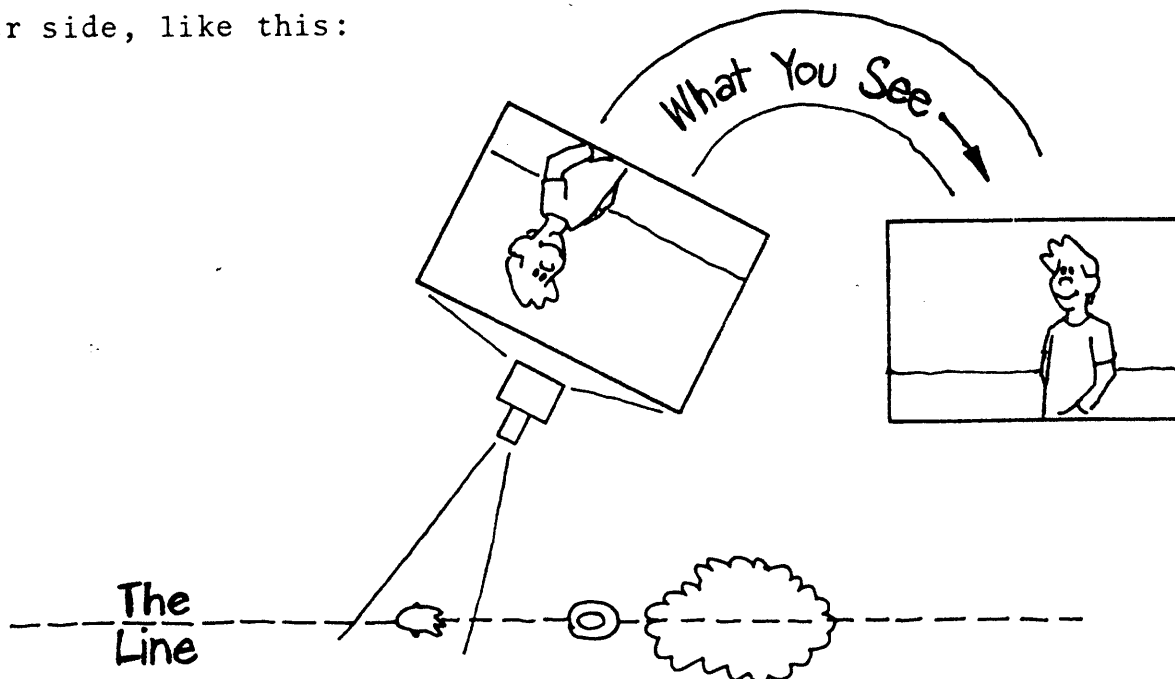
**CROSSING THE LINE REVERSES YOUR SCREEN DIRECTION**

As long as the camera stays on the front side of the line, the man will be looking screen left and the boy will be looking screen right. If you cross the line, they'll be looking in just the opposite directions, although they haven't moved at all. Now, this is really no problem, as long as you stay on one side of the line or the other. But you can't go jumping back and forth.

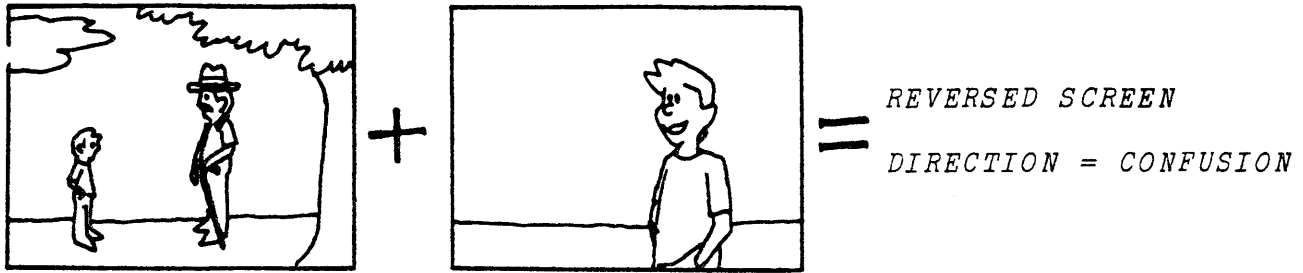
Say you make your wide shot from one side of the line, like this:



Then, for some reason, you shoot your cutaway of the boy from the other side, like this:

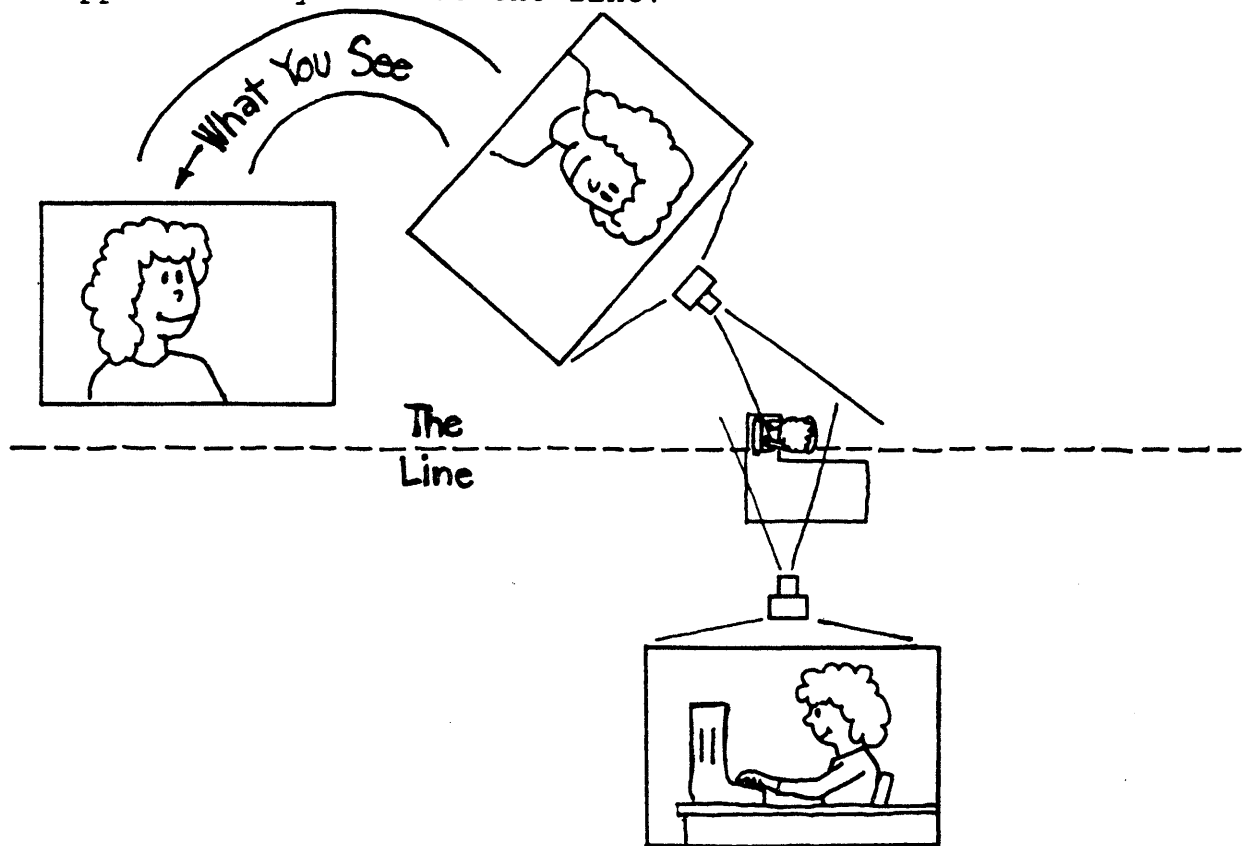


When you cut them together, you get this:

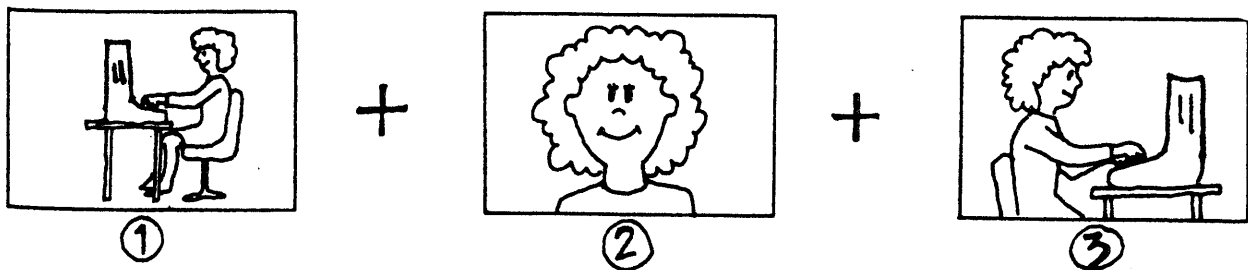
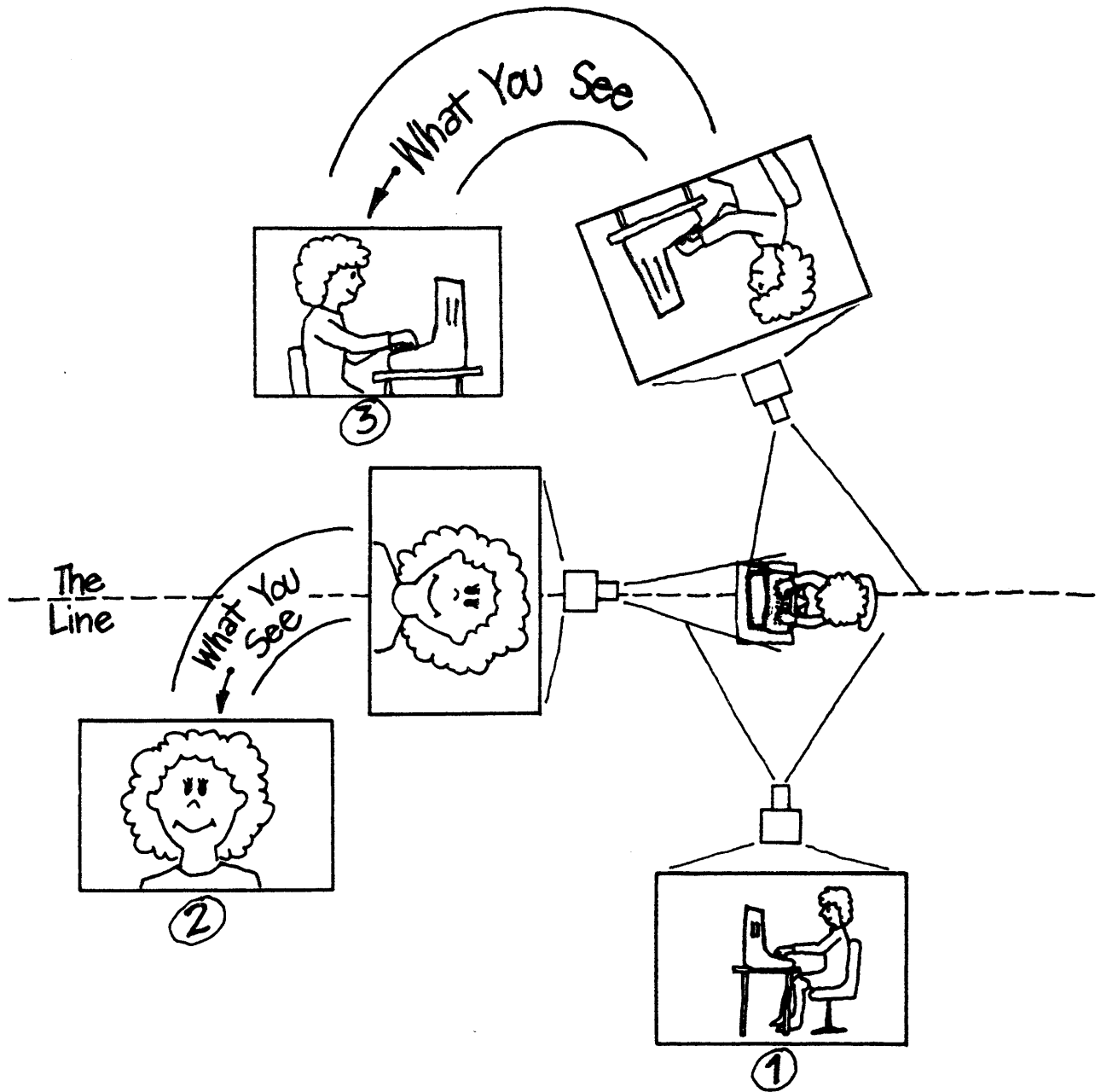


It looks like the boy has turned completely around, with his back to the man!

Let's take another example, a person working at a computer. See what happens when you cross the line.



It looks like she's got her head twisted on backwards!



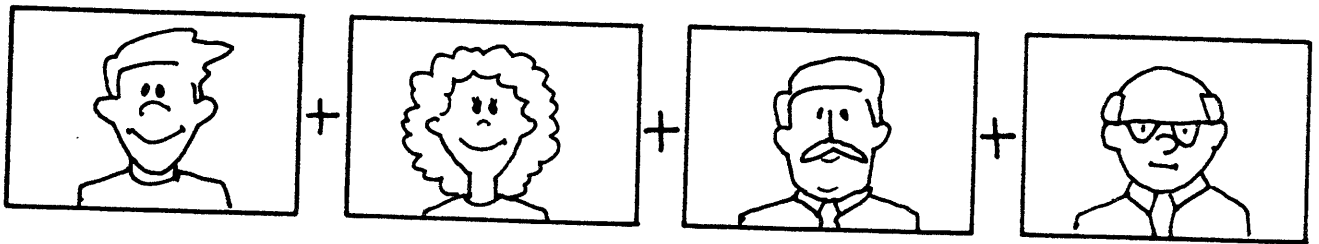
NEUTRAL SHOT ON THE LINE  
- NO SCREEN DIRECTION -

YOU CAN CROSS THE LINE IF YOU STOP ON IT

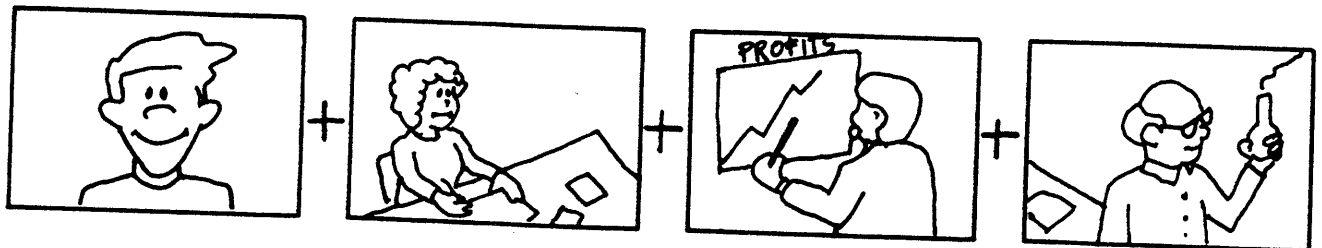
## 6. MONTAGES

A montage is a series of related shots. For example, a montage of nightclub signs, or a montage of workers' faces, or a montage of flowers. Most TV commercials are montages. For a montage to work, each shot should be clearly different in composition and color from the one before it. Otherwise, it looks like a bad cut between two very similar shots of the same thing.

For example, a montage of faces. If you shoot all the faces the same way, it'll look like one face is changing abruptly into the next. But if you shoot a variety of angles and image sizes, the effect can be very nice.

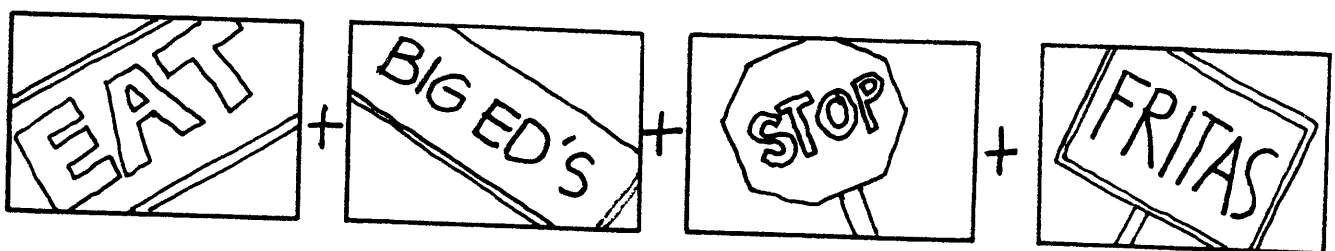


*AN INEFFECTIVE MONTAGE - THE SHOTS ARE TOO SIMILAR*



*AN EFFECTIVE MONTAGE - EACH SHOT IS DIFFERENT*

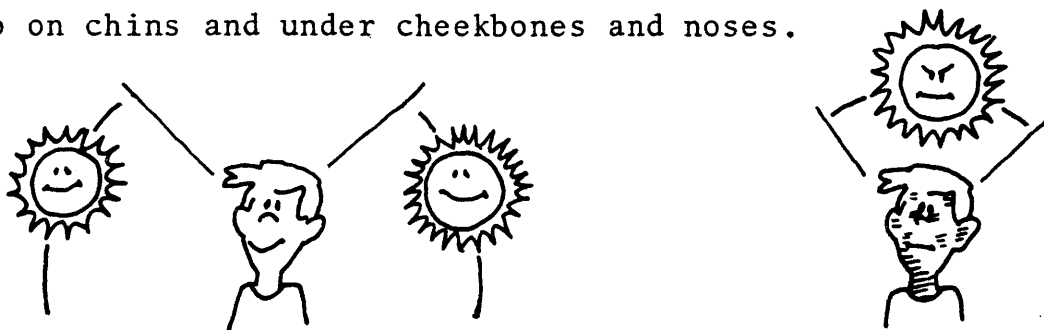
An easy way to make a nice sign montage is to tilt each one a different way. For some reason these are called Dutch tilts.



7. LIGHTING

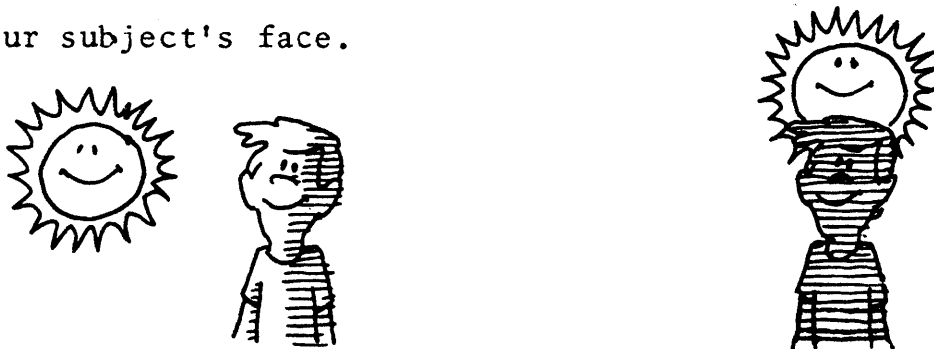
## EXTERIOR LIGHTING

The most powerful and common source of light is the sun, but for film and TV it has one big disadvantage: it's always moving. It traces an arc across the sky, east to west, horizon to horizon, every day. This means that the angle at which sunlight is falling on our subjects is also constantly changing. Most people look their best in sunlight when the sun is no higher than about 45° above the horizon. When the sun is higher, around the noon hour, it casts ugly shadows on faces. Eye sockets go dark and little shadow "beards" show up on chins and under cheekbones and noses.



*PEOPLE LOOK BEST IN SUNLIGHT FALLING AT ANGLES OF 45 DEGREES OR LESS. THE NOONTIME OVERHEAD SUN CASTS UGLY SHADOWS.*

Most exterior shots are made with the subject facing the sun, so it illuminates him directly. Sometimes, though, this isn't possible or desirable. Perhaps the location doesn't permit it; or maybe the sun is bothering your subject's eyes; or maybe your subject looks really nice with the sun behind him. So you end up shooting with backlight or sidelight. Both conditions cast strong shadows on your subject's face.



*SIDELIGHT AND BACKLIGHT CAST STRONG SHADOWS*

Slates are wonderful things. They never forget, even if you do. Any time you have the slightest doubt that the editor might not know what a scene is or where it goes, tell him with a slate. You should do this even if you're going to edit everything yourself. In the first place, it's good discipline. It forces you to think about how the pieces are going to fit together. Secondly, who wants to spend half an editing session wondering where this scene goes or where that one goes, when a simple slate could tell you in a second? Also, if you number various takes of the same scene, you can go immediately to the one marked best on your location notes, and not waste time reviewing bad takes.

#### SHOOTING SCRIPTS AND STORYBOARDS

Often it helps to make up a shooting script. This is simply a list of what you're going to shoot and how you're going to shoot it. For example:

##### VIDEO

1. WIDE SHOT. Salesman  
by car.
2. MEDIUM SHOT. Salesman.  
PAN as he moves to  
sticker on window.
3. CLOSE-UP. Sticker
4. WIDE SHOT. Salesman  
by car.

##### AUDIO

SALESMAN: Hiya folks! Let me tell you about the new Zootmobile!

This car is the greatest! And cheap? I'll tell you it's cheap! Look at this sticker!

25,000 drachmas! And that's including tax, tag and dealer prep!

So come on down and buy one today! Okay? Okay!