To Zoom... Or Not To Zoom

by Merrill F. Sproul, Jr.

A single lens that is capable of changing from a general view of a given subject to a close-up, or to any intermediate view, without interrupting the filming process is a pretty handy tool for any movie maker, amateur or pro. Originally referred to as the "variable focal length lens", the zoom has been available professionally for at least ten years. In more recent years it has become available for use with 8mm equipment. The result: more and more Sunday movie makers are zooming into everything from the Fourth of July parade to daughter's freckles.

But the same degree of creativity, judgment and craftsmanship that was required to produce such a lens, is equally essential in its use.

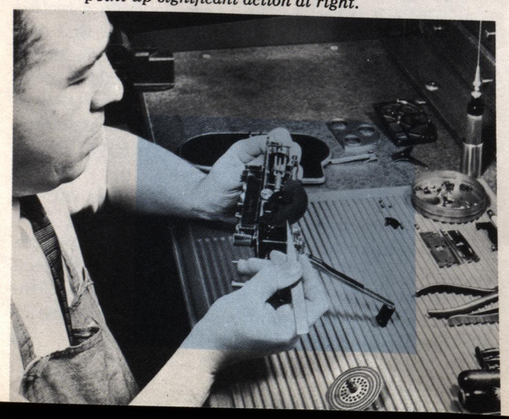
When I first fitted a zoom lens to my camera several years ago, a noted cinematographer said, "Use it; don't abuse it". It took me those several years and a lot of film really to understand those words. The zoom lens is probably the most creative new tool available to the motion picture maker today. *It is capable, in one sense, of doing the job of as many as eight lenses, and in another sense, completely incapable of doing the specialized job of even one standard lens.*

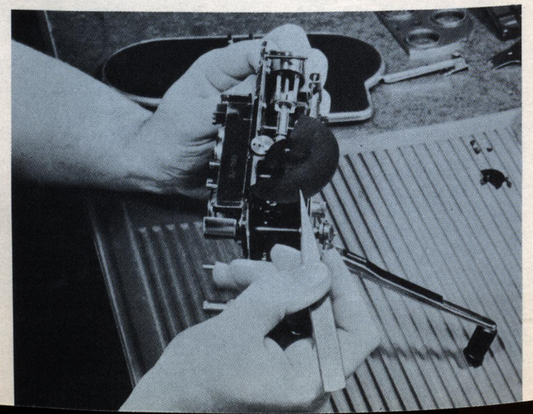
Let us first define the "when, where, and why" of the zoom lens. Personally I am of the conviction that the zoom lens is a *single* purpose lens, and not an all-purpose optical system. By single purpose, I do not mean that it literally serves only one function. Quite to the contrary. It does many specific jobs that no other lens can do, but does not completely replace a set of prime individual lenses.

There are wider 'wide angles', and stronger 'telephotos', than any zoom lens can provide. These individual lenses are sharper, faster and provide less distortion than the best zoom lens on the market today.

This is quite understandable when one considers that the elements of a zoom lens are constantly shifting in order to alter the size of the image.

"Zoom motivated" scene is shown in two photos below. From overall action shot at left, camera zooms to point up significant action at right.





Creatively there is one other area which must be considered. Perhaps even more significant than the technical aspects is that "X-quantity" known as judgment—*When do you use a zoom lens, and when do you revert to a good old normal, wide angle, or telephoto prime lens.*

Here are a few rules that I've found to be quite helpful. They are by no means without exception, and if they serve only as a guide-post for experimentation, they are worth keeping in mind.

USE A ZOOM LENS

1. Whenever movement is motivated either by an actor or by a need to make a dramatic point. *Example:* Your subject is reading a newspaper. Suddenly his attention is drawn forcefully to a particular article and you zoom the tiny print to full screen. In effect your lens becomes the subject's eyes.
2. Whenever "special event" shooting moves too fast to allow you to change lenses and still catch all the action. *Example:* Sporting events are the most obvious, but there are other occasions too. Wouldn't it be wonderful to see your one year old son taking his first step and then to zoom in for a close-up of his face and capture that proud expression just before collapse?
3. Whenever "dolly" or "crab" movement is required and mobile equipment is not available. *Example:* Your dog, Rover, is about to fetch the morning paper that the paperboy has thoughtfully deposited on the neighbor's lawn. You wish to follow the action closely, giving your viewers the idea that they are moving with the dog. You've tried running with the camera and you know what that looks like. Take out your zoom lens and follow Rover, moving towards the telephoto and at approximately the same speed he is running. Upon his return, simply reverse the movement, maintaining the same image-size from start to finish. Result: A dolly-like shot wherein the zoom lens has *optically* maintained equidistance.
4. Whenever a special effect title is desired and an animation stand is not available. Professional titles that zoom from infinity to full screen normally are accomplished on costly, cumbersome stands. With a zoom lens, you can accomplish practically the same effect. Of course, care must be taken to maintain smoothness and rigidity. And if your lens happens to have a reflex viewfinder for through-the-lens viewing, so much the better.

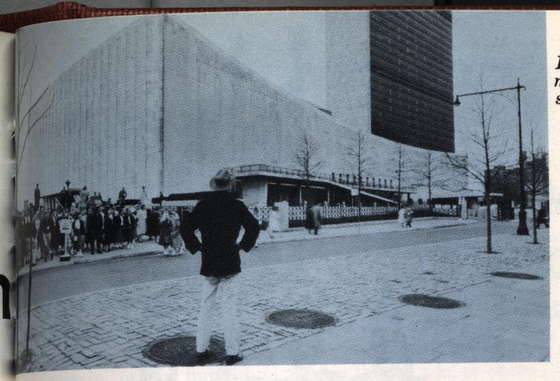
Basically these categories should serve as a good outline. There are many variations within each broad area. And I am certainly not suggesting that you do not experiment with many more. It is that privilege that has made the motion picture an art form in its own right.

As a comparison, let's now discuss the creative use of the single focal length lens, standard, wide angle, or telephoto.

USE A SINGLE FOCAL LENGTH LENS

1. Whenever you do not want to zoom to achieve a special dramatic or physical effect. Simple as this may sound, some words of explanation are in order. In a normal filming situation your first consideration is *quality*. As a painter would not consider using a narrow brush to create a wide stroke, so you would not select a zoom lens to shoot a portrait of your daughter playing Juliet in the school play. In the interest of quality it is simply *not* the best tool for the job. One of the reasons why leads to point No. 2.
2. Prime lenses—single focal length lenses—usually are faster than zoom lenses. So, for those shots of your daughter in the school play, the largest diaphragm opening of a zoom lens would not give you an adequate exposure. The faster prime lenses, such as the Switar f/0.9 for 8mm cameras, or the Cinor f/0.95 for 16mm cameras, will allow you to get pictures under poor lighting conditions. And because you won't have to use your faster prime lens at full aperture, you will gain more sharpness, better quality and more depth of field than a zoom lens can offer.

Thus far quality and speed of lens appear to be the two reasons why we should think twice about zooming. These alone are reasons enough! If a scene is not "zoom motivated" why settle for second best? But there are other considerations too:



Extreme wide angle shots needed in well-paced movies require short focal length prime lenses—shorter than provided by zoom lenses.

3. Well-paced, professional quality movies require both extreme wide angle and extra long telephoto pictures. Most zoom lenses skirt the edges of either end—or start at standard focal length and go some distance into telephoto. *No single zoom lens will give you both.*

   For example, a wide angle lens such as the Switar 5.5mm focal length for 8mm cameras or the 10mm lens for 16mm movie cameras is used for establishing shots. The action seems to surround the viewer until he seems almost a part of it. The next time you film a birthday party, a barn dance or a church congregation use a wide angle lens and shoot about eye-level.

   Telephoto lenses of focal lengths longer than obtainable on zoom lenses are as indispensable to a movie maker as the wheel is to modern civilization. Wildlife photography is almost impossible without it. They are irreplaceable for getting those close-up, intimate shots of children and friends when they are unaware of the camera. Telephoto lenses allow your camera to be removed from the immediate scene but still give you a feeling of immediacy and intimacy.

As you can see, the zoom lens *has not* replaced the single focal length lens. It is perhaps the finest creative tool to come along in the last decade when *properly used and motivated*. But for truly good and complete movies prime lenses still are necessary. ■

Extreme close-ups of fine quality require focal lengths longer than most zoom lenses offer. Also, long telephoto lenses allow camera to be removed from immediate scene and still preserve feeling of intimacy.