

# MOVIE MAKING TECHNIQUES

## FUNDAMENTALS

Motion picture cameras present the finest means of recording the life around us. They can capture common events or strange phenomena, fun and sadness, beauty and ugliness in motion and in color so that it can be relived and restudied again and again in the convenience of an armchair.

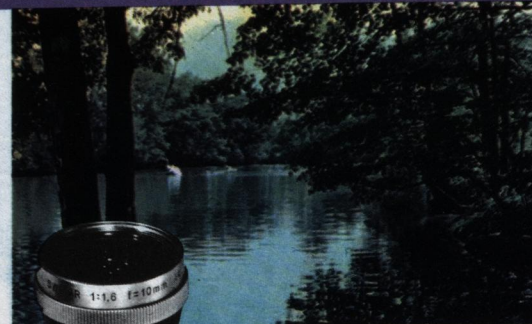
Two major film sizes are available to the motion picture maker. Most amateurs use 8mm because of its low cost and the compact size of equipment it requires. This size film produces completely satisfactory results for small group viewing on relatively small screens.

For films that are to be projected for larger groups and used for any professional purposes, 16mm is the proper choice. Since the 16mm frame is four times larger than 8mm, the sharpness will always be better regardless of the cameras and lenses used.

The first requirement for producing a good film is perfect exposure in every scene. While exposure charts can provide satisfactory results under standard lighting situations such as sun on a clear day, the use of an exposure meter is highly recommended. On many 8mm cameras, the meter is built into the camera, while a separate meter is used with more professional cameras such as the Bolex H line. Regardless of whether the meter is separate or built-in, it must be used correctly in order to produce accurate results. Two basic rules are: avoid direct light rays from hitting the photocell, and measure light in the area of major importance rather than surrounding areas which are unimportant to the scene.

Motion picture cameras can be moved or held stationary while filming. In either case, the film should not show any objectionable unsteadiness when projected on the screen. For scenic shots, the use of a tripod or unipod is highly recommended since the slightest camera movement will be noticeable on the screen. When filming people, parties, social affairs, or when following a moving subject, a hand-held camera is usually more practical and convenient.

Moving the camera from one subject to another must be done slowly. These basic techniques are the first rules of good movie making. ■



Extreme wide angle lenses such as the Switar 10mm f/1.6 shown, have a horizontal angle of view of about 50°. They are used to cover extremely large areas or subjects such as buildings, statues, waterfalls, bridges, or in any other situation such as tight indoor shots, where the camera cannot be moved sufficiently far away to film the desired area. Their large angle of view requires an elaborate optical design to assure distortion-free corner-to-corner sharpness.



Lenses with a focal length between the extreme wide angle and normal have wide applications in filming establishing shots in about any situation from a picnic, car race, parade, to a shot of a machine or scientific experiment. The establishing shot is followed by close-ups with the normal or telelenses. Since wide angle lenses are frequently used indoors, they should have relatively large apertures of f/1.9 or better. Shown is Switar 16mm f/1.9.



Lenses with a focal length of 25 to 26mm (for 16mm) and 12.5 to 13mm (for 8mm) are called normal lenses because they record a scene in a perspective similar to the way our eyes see it. They are, therefore, the most important lenses and should be used whenever possible and practical for long shots as well as close-ups. Standard lenses are available with apertures as large as f/0.9. Shown is Switar 25mm f/1.4.



Lenses are equipped with a focusing arrangement which must be set for the camera to subject distance. The Macro-Switar 50mm f/1.4 (shown) gets its name from the built-in close-up focusing extension which permits filming as close as 14" without any additional accessories. The Macro-Switar is, therefore, a versatile lens for telephoto work as well as macrocinematography. Because of its large aperture it is, furthermore, extensively used for filming of stage shows, fireworks, news events, weddings, etc.

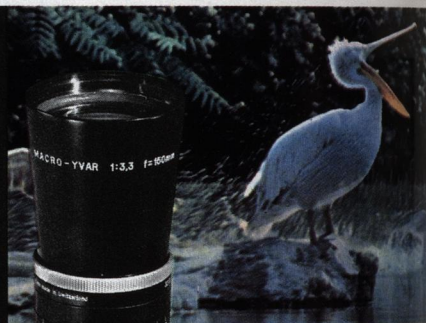


For general motion picture work a three-power telephoto lens such as the Switar 75mm f/1.9 shown is most satisfactory. Compared to the standard lens it magnifies the subject three times, or as we usually say, it brings the subject three times closer. The use of telephoto lenses is not limited to long distance shots. They can equally well be used at short distances to cover small areas and show details which might otherwise be overlooked.



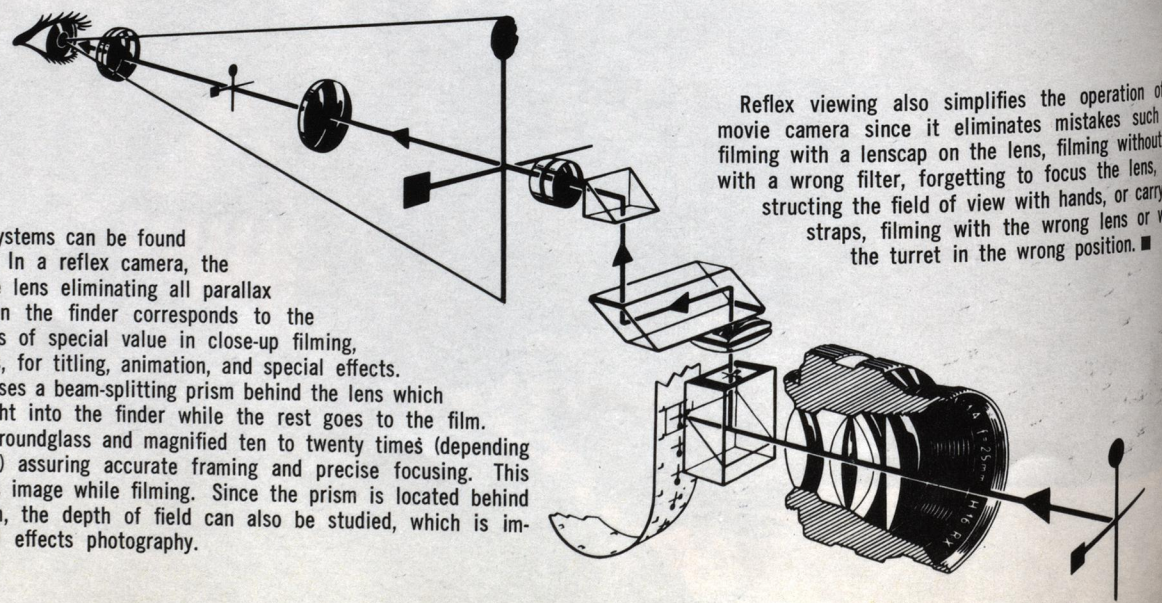
A four-power telephoto lens for 16mm is the Macro Yvar 100mm f/2.8. The longer the focal length of the lens, the shallower its depth of field (the area in focus before and beyond the distance at which the lens is set), therefore, the more accurate the focusing must be. The depth of field, for every diaphragm

and focusing setting can be readily seen on the automatic depth of field scale built into each lens.



For bird and wildlife filming in many special applications, the Macro Yvar 150mm f/3.3 with its six-power magnification is a must. It not only permits interesting close-ups of animals at a distance, but also makes fine close-up lens. Whenever possible telephoto lenses should be used with a tripod mounted camera, except when following a moving subject, such as a bird in flight or the winning horse in a race, where a hand-held camera might be more practical. ■

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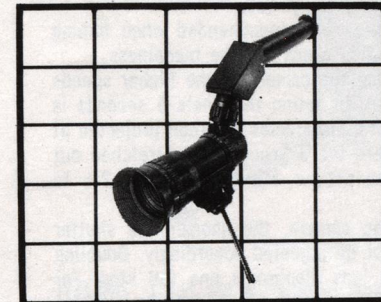
Reflex viewing also simplifies the operation of a movie camera since it eliminates mistakes such as filming with a lenscap on the lens, filming without or with a wrong filter, forgetting to focus the lens, obstructing the field of view with hands, or carrying straps, filming with the wrong lens or with the turret in the wrong position. ■

**VIEWING** Various viewing systems can be found on motion picture cameras. In a reflex camera, the scene is viewed through the lens eliminating all parallax problems. The area seen in the finder corresponds to the lens used. Reflex viewing is of special value in close-up filming, filming with telephoto lenses, for titling, animation, and special effects.

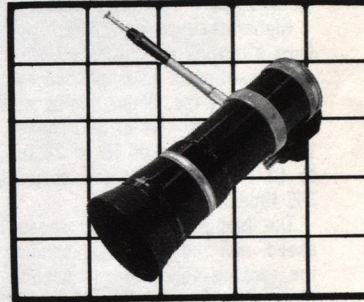
The reflex system shown uses a beam-splitting prism behind the lens which diverts a portion of the light into the finder while the rest goes to the film. The image is formed on a groundglass and magnified ten to twenty times (depending on the model Bolex camera) assuring accurate framing and precise focusing. This system provides a flickerless image while filming. Since the prism is located behind the lens and lens diaphragm, the depth of field can also be studied, which is important especially in special effects photography.



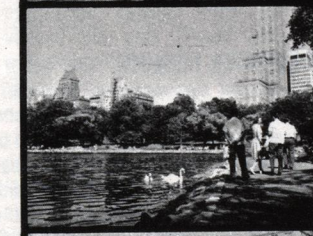
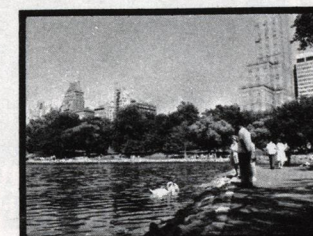
ANGENIEUX W/10:1 RATIO



PAN CINOR 85 W/5:1 RATIO



VARIO-SWITAR W/5:1 RATIO



**ZOOMING** Zoom lenses include a wide range of focal lengths which can be changed easily at any time by simply moving some of the lens elements by means of a lever or crank. The major characteristic and difference among various zoom lenses is their zoom ratio, which is the ratio between the shortest and longest focal length. A lens that goes from 17 to 85mm has a 5:1 ratio ( $85 \div 17 = 5$ ) and the area covered in the telephoto setting is 1/25 of the wide angle area. A lens, such as the Angenieux 120 with focal lengths from 12 to 120mm has a 10:1 zoom range or an area coverage of 100:1 (see squared off area above). The longer the zoom ratio, the more versatile the zoom lens becomes.

A zoom lens with a good wide angle and telephoto range can be used in place of three separate lenses except when lighting conditions require an extreme large aperture (f/0.9, f/1.4). High quality zoom lenses with such large apertures are not available at present. Instead of rotating the turret to bring a different focal length lens into position, the zoom lens is set to different focal lengths to cover a desired area. The focal length of the zoom lens can also be changed while filming thereby simulating camera movement. Such zooming is the easiest approach for covering moving subjects where it is undesirable to lose the continuous flow of movement which is the case when lenses or camera position must be changed. They are ideal for filming sports (zoom from a bowler to a close-up of the pins), stage performances, circuses (go from a long shot of the entire ring to a close-up of the performing animals), parades, industrial machines, surgery. Zoom lenses also permit excellent studies of moving subjects (an iceskater for instance) because the subject can be kept at the same size whether it is close to the camera or far. In this technique the speed of zooming is adjusted according to the speed of the subject.

Zooming-in on an ordinary subject for no other purpose than to change its size is a poor approach and should be avoided. A better approach is to film the subject with two or three separate shots from different angles. Zoom lenses should always be focused as accurately as possible. ■