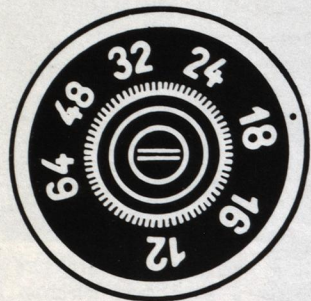


# MOVIE MAKING TECHNIQUES



**SLOWMOTION** For normal filming, the camera must run at the speed at which the film is going to be projected, otherwise actions do not look normal on the screen. The normal rate for silent films is 18 fps. For sound and commercial films, 24 fps is recommended or necessary.

A motion picture camera is also capable of speeding up and slowing down actions. Slowmotion films have valuable applications in sports. They permit analytical study of the movements of an

athlete, or a play in a football or basketball game.

Actions can be slowed down to a degree where each movement can be studied and dissected. The athlete has an opportunity to see himself, and his athletic skills are likely to develop more rapidly.

Slowmotion sequences are equally valuable in job training films, motion studies, studies of machines or scientific experiments. They are frequently included in experimental films creating slow, dreamlike, unreal motions to express a certain feeling or mood.

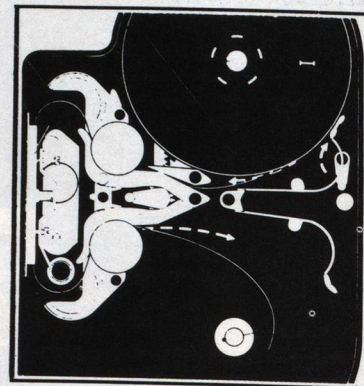
In other cases, slowmotion is used to dramatize movements. Waves rolling towards the shore are made to appear more powerful in slowmotion. Model railroads, boats or other miniatures are made to look real through slowmotion, a technique used for years in Hollywood.

Higher than normal camera speeds are also recommended when filming from a moving car, boat or train since this evens out the bumpiness.

Slowmotion is accomplished by running the camera at the higher speeds of 32 to 64 fps. When filming at 64 fps an action that lasts 5 seconds is recorded on  $5 \times 64$  or 320 frames. These 320 frames are then projected at the standard rate of 18 or 24 fps, where the 5 seconds are stretched out to 13 to 18 seconds and obviously the actions are slowed down  $2\frac{1}{2}$  to  $3\frac{1}{2}$  times.

The higher the running speed of the camera, the shorter the shutter speed, and the diaphragm opening must be adjusted accordingly. Doubling the running speed means opening the lens diaphragm one full stop. For example,  $f/8$  at 24 fps must be changed to  $f/5.6$  for 48 fps. On cameras with built-in exposure meters, it is only necessary to set the meter dial opposite the corresponding frames per second to assure correct exposure.

Speed-ups are used mainly for comedy effects making cars, people and other subjects move at an unnaturally rapid pace. It is accomplished by filming at a slower speed such as 12 fps. ■

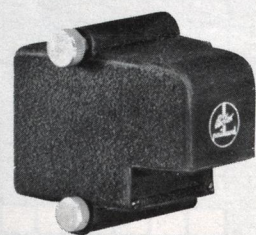


**LOADING THE CAMERA** The film is moved through the filmgate by means of a claw which engages the perforation holes of the film and pulls it rapidly past the aperture while the shutter is closed. During the time the shutter is open the film must be held absolutely stationary to assure perfect picture steadiness on the screen. The Bolex registrator claw is designed to meet both of these requirements.

The filmgate which guides the film through the aperture must have a springtension that does not squeeze the film yet avoids

any possibility of side movement. Lastly, the pressure plate must keep the film perfectly flat in the filmgate to assure maximum sharpness from corner to corner.

Automatic threading, as found on Bolex H cameras, greatly facilitates the loading since it is not necessary to place the film manually onto the sprockets and into the filmgate. The film threads itself automatically, forms the necessary loops and thereby makes loading simple, quick and foolproof. The spools can easily be lifted off the feed and take-up spindles with the Bolex spool ejector. ■



**SCENE LENGTH** The run of a spring motor built into the camera is more than long enough to film ordinary sequences. Since the majority of movie scenes will not exceed 5 to 10 seconds, a fully-wound camera can be used for as many as 5 to 8 sequences. Rather than make one long scene it is better, whenever possible, to shoot several

shorter scenes and film the subject from different angles and distances. These shorter scenes make a film moving. The different angles add variety. Long shots with many details must be longer in duration—6 to 10 seconds; close-ups can be shorter, especially when they are preceded by medium and long shots. The base rule is: **press the button as long as you wish to see a scene.**

For action shots, follow the action to the end. This may be a relatively long time for a dance, a circus performance or a sports sequence, in which case the camera can be equipped with an electric motor drive that permits uninterrupted filming on an entire 100' reel. The motor can be used outdoors on batteries or with a transformer on AC current where it is available for indoor filming. ■

**UNDERWATER FILMING** The use of motion picture cameras is not limited to the normal surroundings. They can be taken underwater and be operated as easily as on the ground. The camera is mounted in a watertight metal case capable of withstanding water pressures down to 300'.

The springmotor in the camera can be wound underwater and the lens diaphragm can be set from the outside of the watertight case. Since underwater sequences are always filmed with wide angle lenses, focusing the lens is not necessary. Their depth of field is great enough to take care of all underwater situations even at an  $f/2$  opening where the depth of field goes from 6' to 26' for a 16mm lens and from 3' to 50' for the 10mm extreme wide angle. Viewing is done through the viewfinder of the underwater case.

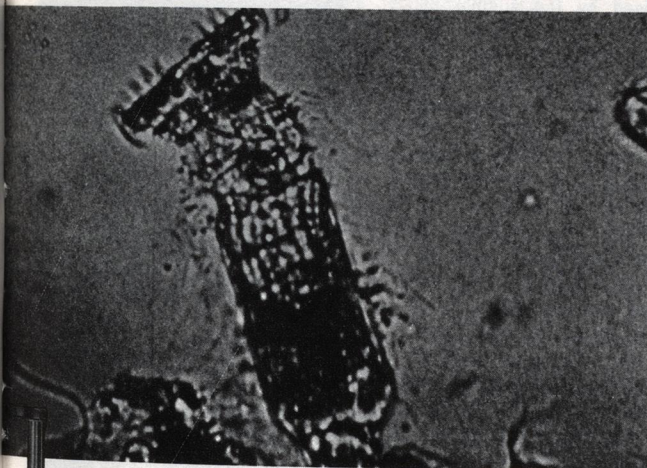
In the depths at which most underwater work is done, filming can be done in the available light using a sensitive color or black & white film. Filters may be necessary for color filming to take away some of the excessive blue present at greater depths. In deep water where little daylight is present, special lighting equipment must be used. A groove to attach such equipment is located at the bottom of the case. Exposure is best determined by a separate meter enclosed in its own underwater case. ■



**MATTE BOX EFFECTS** Producing special effects is one of the most fascinating aspects of amateur and professional filming. Special effects include the already discussed slow and accelerated motion, filming miniatures, fades and dissolves and single frame filming. The variety of special effects that can be produced in a motion picture camera is further enhanced by an accessory called the Matte Box. A matte box consists of a bellows with front and rear frames. The bellows can be shortened or extended thereby bringing front and

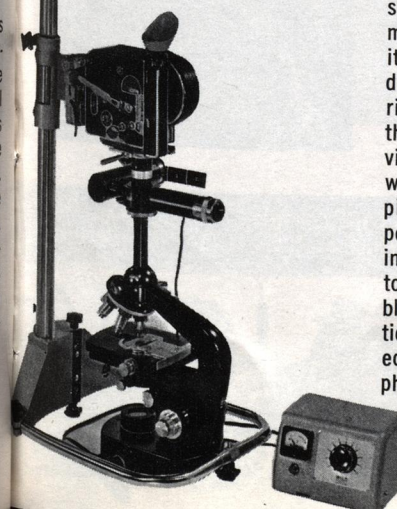
rear frame at different distances from the taking lens to produce exactly the effect desired. By placing masks with shaped cutouts in the frame, the effect of viewing through a pair of binoculars, a keyhole, etc., can be produced. The matte box frame with the mask is placed at a distance at which the size of the cut-out fills the proper area of the frame and is slightly out of focus. The mask can be moved toward or away from the lens to produce the effect of the camera moving through the keyhole or other cut-out.

Here are some other "tricks" made possible with a Matte Box: Split screen scenes are produced by masking off part of the frame for the first shot, rewinding the film and shooting the second scene with the (exposed) area masked off. This procedure can be repeated as many times as desired, each time masking off part of the frame.



## FILMING THROUGH THE MICROSCOPE

A microscopic specimen cannot only be viewed but also filmed with a motion picture camera placed above the eyepiece of the microscope. This permits studying the microscope specimen as often as desired when it is convenient and by an audience as large as the auditorium will hold rather than just the one person who normally views through the microscope with the naked eye. The motion picture camera furthermore, permits slowing down or speeding up actions that take place too fast or too slow to be visible to the naked eye. The motion picture camera is usually equipped with a 2x or 3x telephoto lens for this purpose. ■



A wipe is an effective transition between scenes of similar nature, scenes that take place at the same time but different locations. Wipes are created by moving a masking device, usually a piece of black cardboard across the frame thereby "pushing off" the image horizontally, vertically, diagonally or in any other direction desired. This wipe-out is followed by a wipe-in of the new scene. Two wiping masks can also be used to wipe the image towards the center, to produce the effect of an opening or closing square, a most effective transition with many subjects.

A matte box makes also a fine sunshade, a holder for gelatine filters, a compact titler and device for copying slides.

A creative movie maker can record on the film common subjects in an uncommon manner. By shooting through mirrors, prisms, all types of patterned glass, glasses smeared with vaseline or lipstick, beautiful, striking and interesting effects can be obtained which can never be seen by the naked eye. The motion picture camera is truly an instrument for artistic expression. ■



**TITLING** Titles put a finishing touch on a film. Titles can be painted or drawn on a piece of paper or cardboard; they can be made up from readily available titling letters which are placed against a suitable background, or a professional service can press the titles on acetate cells. The titles are then filmed just as any other close-ups, preferably using a special titler which, with its many accessories can move, turn, roll, scroll, flip or animate them in many different ways. Instead of preparing special titles, one can film close-ups of newspaper headlines, travel folders, literature or any other suitable written material. ■

**MACROCINEMATOGRAPHY** Macrocinematography means filming very small subjects, such as insects, small plants, flowers, leaves, tiny mechanical or industrial subjects. Macro lenses are especially suited for this purpose since the small areas can be covered without additional accessories. With other lenses extension tubes or close-up attachments are used to produce the same results. A reflex viewing camera is most important for accurate framing and focusing in this type of filming. ■

