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**HOW TO USE YOUR  
BOLEXMETER**

**A Special  
WESTON MODEL 715**

**For Use With  
CINE' AND STILL  
CAMERAS**

**AMERICAN BOLEX CO.  
New York City, N. Y.  
U. S. A.**

## IMPORTANT

Keep the glass window over the cell opening clean.

During dry cold weather the glass on the instrument is likely to become electrified by contact with the hands or clothing. This attracts the pointer and gives erroneous readings, but the charge on the glass can be easily eliminated by breathing upon it.

### ZERO SETTING OF INSTRUMENT POINTER

When no light reaches the "electric eye" in the back of the Meter the instrument pointer should rest directly over the zero position on the scale.

If this is not the case, and there is no electrostatic charge on the glass (see paragraph above), then the pointer can be readily set to its zero position by slightly turning the screw located at the right of the meter scale.

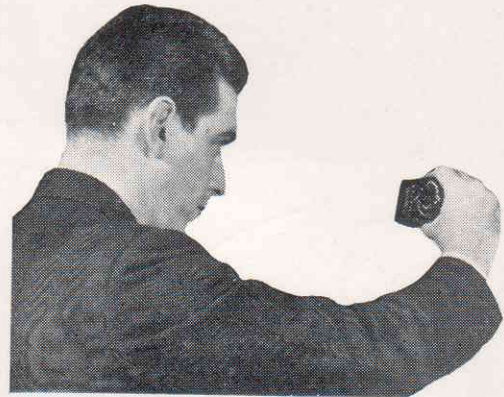
When making this correction place the meter back downward on some opaque object, as a card or a book so as to exclude all light from the photoelectric cell, and hold it at an angle of about 45°.

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## THE CORRECT WAY TO HOLD YOUR BOLEXMETER

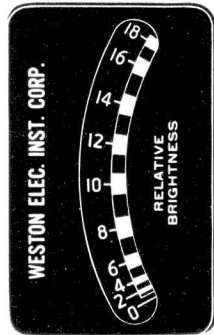
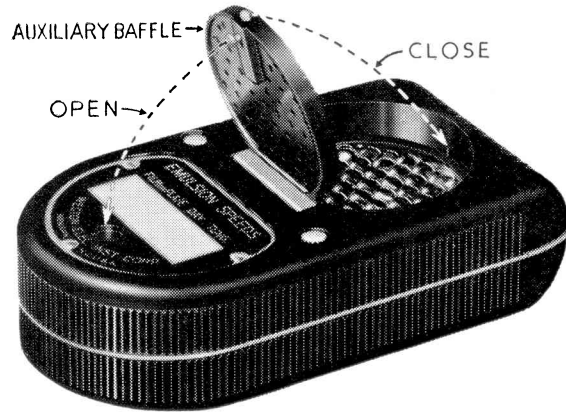
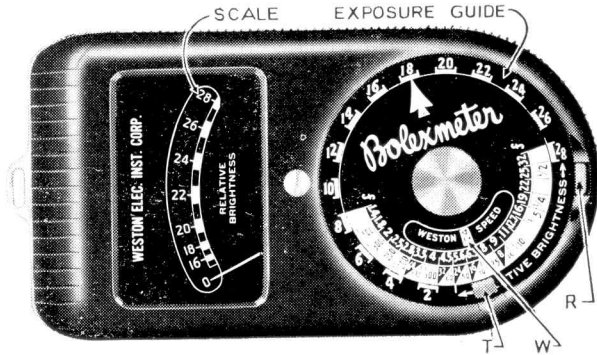


The BOLEXMETER is shaped so that it may most conveniently be held in the right hand. When so held, the rounded portion rests against the palm of the hand and the fingers grip the fluted sides of the case. In this position, there is no obstruction of the light sensitive cell and the scale is readily visible. Care should always be exercised so that a finger is not inadvertently held in front of the light sensitive cell thus reducing the amount of light reaching it.

When aiming the meter, it should be directed slightly downward so that as little sky as possible is included in the reading. Direct sunlight should not be permitted to reach the glass over the light sensitive cell from any angle. If necessary, the meter should be shaded as you would shade the lens on your camera. Without this precaution, an erroneous reading may be obtained. The meter measures all light within an angle of 15° above, below and to either side of the line of sight.

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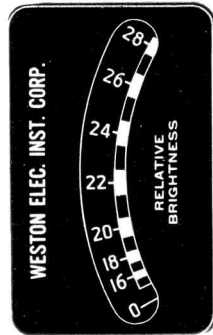
# OPERATING PARTS OF YOUR BOLEXMETER



Low Range Scale



High Range Scale



## SCALES

The BOLEXMETER is equipped with two ranges, one for low light conditions and the other for high light conditions. Changing from one range to the other is completely automatic with the operation of the auxiliary baffle as explained below. The scale for the low light range is calibrated in relative brightness units from 0 to 18, and the scale for the high light range is calibrated in the same units from 0 to 28. The scale markings are the same as those appearing on the exposure guide so that relative brightness readings can be transferred directly from the scale to the calculator.

## EXPOSURE GUIDE

The rotating exposure guide of the BOLEXMETER is used to determine the proper combination of  $f$ : stop and shutter speed to be used under the prevailing light conditions. The calculator is adjustable for film of any emulsion speed rating. When loading your camera always make sure that the exposure guide of your BOLEXMETER is set for that particular film. To do this, depress the dial release "R" and rotate the exposure guide by means of the tab "T" until the film speed value appears in the window "W". When using a film whose speed value is not included on the BOLEXMETER exposure guide, use the next lowest film speed listed. This setting should then remain unchanged until you use a film having a different rating. The intermediate dial scale is marked off in both frames per second (camera speed) for ciné cameras and in shutter speeds for still cameras.

## AUXILIARY BAFFLE

When the BOLEXMETER is used under high light conditions the auxiliary baffle remains in the closed position. For low light conditions however, the baffle is swung to the open position and locked against the back of the meter case by engaging the latch knob in the small socket. To close the auxiliary baffle, simply release the latch and swing the baffle back into position over the cell opening.

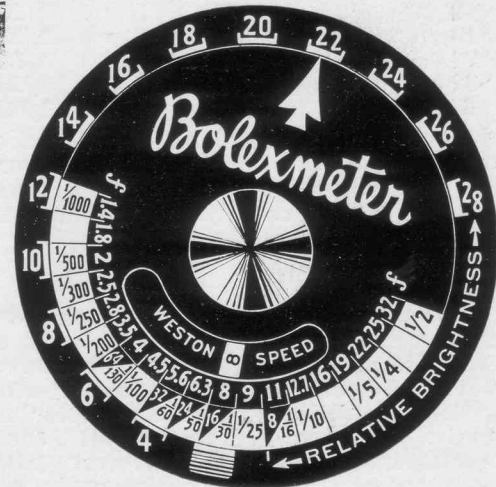


# HOW TO OPERATE YOUR BOLEXMETER

## WITH YOUR CINE' CAMERA

When using the BOLEXMETER in conjunction with your BOLEX ciné camera, simply select the proper meter scale to suit the light conditions, aim the meter at the scene to be photographed and obtain a relative brightness reading. If at all possible, close-up readings should be taken directly from the principle objects in the scene. However, for the majority of scenes, an over-all measurement from the camera position will be satisfactory. When taking close-up readings measure the darkest and brightest objects in the scene to be photographed and set the arrow of the exposure guide midway between these two measured values. This will give an average relative brightness reading.

Let us assume that the relative brightness reading obtained (over-all or average) is 22, and the speed value of the film used is 8. With this speed value set in the window marked "Weston Speed", rotate the upper dial of the exposure guide until the arrow points to the figure 22 on the "Relative Brightness" scale. (See illustration.) Opposite the value corresponding to the frames per second for which the camera is set will be found the correct f: stop to be used. (Values of frames per second are the figures on the red background.) For example, for a camera speed of 16 frames per second, with the above assumptions, the correct setting would be f: 8. Other combinations of camera speeds and f: stops can be used to suit the action of the picture being taken. For a speed of 24 frames per second, under the above assumptions, you would set your camera to an f: stop of 6.3, for a camera speed of 32 frames per second use f: 5.6, etc. The instruction book furnished by the camera manufacturer should be consulted with regard to the use of the various camera speeds.



## WITH YOUR CINE' CAMERA FOR SINGLE EXPOSURES

A motion picture camera is essentially a still camera which takes a number of still pictures in rapid succession. The BOLEX ciné camera, for example, when operated at a camera speed of 16 frames per second is actually taking 16 still pictures in one second with an exposure time of 1/30 of a second each. At a speed of 32 frames per second the exposure time is 1/60 of a second for each picture, etc.

The exposure guide of the BOLEXMETER is designed so that when you use your BOLEX ciné camera for single exposures, as directed in the camera instruction book, correct exposure settings can be obtained in the same manner as described above for motion pictures. In this case instead of using frames per second, shutter speeds should be evaluated in actual time in seconds. See table on next page for camera settings corresponding to shutter speeds.

Speed Control Knob Setting (Frames per sec.)	Shutter Speed (Exposure Time) Seconds	Bolexmeter Setting (Time—Sec.)
8	1/20	*1/16
16	1/25	1/25
24	1/30	1/30
32	1/50	1/50
64	1/80	*1/60

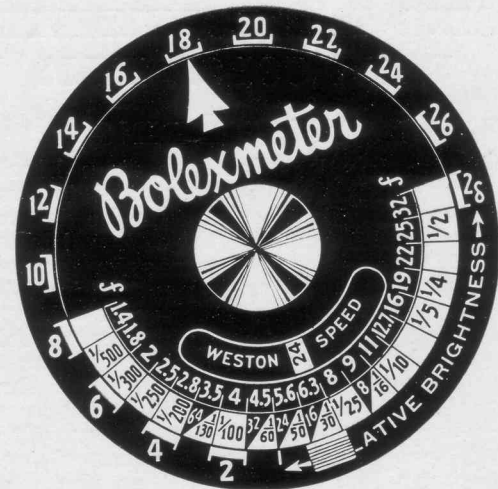
\* It will be noted that exact meter settings are not available for 8 and 64 frames per second, but the resulting error is less than the equivalent of 1/3 of an f: stop which is negligible even for color work.

## WITH YOUR STILL CAMERA

The procedure for determining the correct exposure for still camera photography is essentially the same as that described above for ciné work. Select the proper meter scale to suit lighting conditions, aim the meter at the scene to be photographed and obtain the relative brightness reading. Whenever possible, take close-up readings from the main objects of the scene to be photographed. If this is not possible, an over-all measurement from the camera position will be satisfactory for the majority of scenes. When taking close-up readings, measure the relative brightness of the darkest and brightest objects in the scene to be photographed and set the arrow of the exposure guide midway between the two measured values. This will give an average relative brightness reading.

Let us assume that the relative brightness reading obtained (over-all or average) is 18, and the speed value of the particular film being used is 24. With this speed value set in the window marked "Weston Speed", rotate the upper dial of the exposure guide until the arrow points to the figure 18 on the "Relative Brightness" scale. (See illustration.) Any one of the combinations of f: stops and shutter speeds now appearing opposite each other on the upper and intermediate dial scales, can be used.

The combination of f: stop and shutter speed to be used depends upon whether motion is to be checked or whether depth of focus is de-



sired. If motion is to be checked, select a fast available shutter speed and the calculator will indicate the correct f: stop. For example, if the action is such that 1/100 of a second shutter speed will check it, the proper aperture setting, under the above assumptions, would be f: 4, or, for a shutter speed of 1/200 use f: 2.8. If great depth of focus is desired, as in landscape pictures, select a small aperture (large f: number) and the calculator will indicate the correct exposure time. For example, if you wish to use an aperture of f: 25, with light conditions and film speed as above, the shutter should be set for a speed of 1/2 second, etc.

## USE OF FILTERS

When photographing with a color filter over the camera lens it is usually necessary to increase the exposure. A simple means of allowing for this is to divide the speed of the film by the filter factor and reset the film speed in the window to this new number and proceed as if no filter were used. For instance, if you are using a film with a speed of 16 in daylight, and a 2x filter, then,  $16 \div 2 = 8$ —reset the film speed to 8. If you are using a 4x filter, then,  $16 \div 4 = 4$ —in this case reset the film speed to 4.

## USING THE BOLEXMETER WITH COLOR FILM

### TAKING METER READINGS

Color film has less latitude than black and white film and for this reason it is essential that the exposure for color film be determined with greater exactness than for black and white. Where extreme contrast is encountered and detail is desired on a particular object, it is advisable to take a close-up reading from that object. This is especially advisable for color photography where the brightness of the main object is considerably different than the brightness of the background. When photographing a person, hold the meter within 18 to 20 inches of the face, or, in general, not over twice as far from the object as the width of the object.

### LIGHTING

Flat lighting is recommended at all times when using color film. Although contrasty exposures will produce pleasing effects with black and white film, excessive contrast on color film results in poor rendition of colors. Outdoor color pictures should be taken on clear, bright days. For indoor work, carefully plan the lighting so that it is diffused evenly and flatly over the subject.

### ACCURACY OF EQUIPMENT

Tests on color film have proven that exposures must be correct to within one f: stop in order to obtain correct color rendition. However, the accuracy of even the highest grade photographic equipment, including lens diaphragms, camera shutters and exposure meters, may vary in each case as much as 1/3 of an f: stop. If all the errors are such that they cancel, no harm is done. But when they all tend toward over-exposure or under-exposure, some means of compensation should be applied. Changing the film speed setting of the exposure meter will in the majority of cases compensate for these equipment errors. If, with your

camera, under-exposure or over-exposure is consistently obtained, change the emulsion speed setting as follows: For under-exposure (dense blues) try the next lower speed value. For over-exposure (weak, thin colors) try the next higher speed value.

These changes in film values artificially correct the exposure to compensate for equipment errors. They should not be interpreted as representing actual changes in the film speed rating.

### PANORAMING WITH A CINE' CAMERA

Panoraming over areas where there is a wide variation of brightness requires considerable care when using color film. For best results it is advisable to take separate readings of the bright and dark areas. Then, when actually taking the pictures, change the camera f: stop, as indicated by the meter, for each different set of conditions.