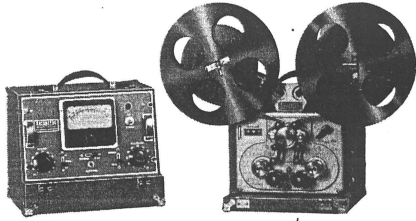
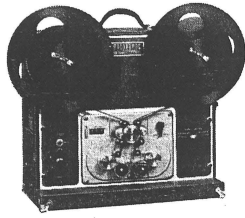


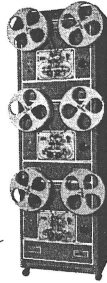
MODEL SW-602
PORTABLE RECORDING SYSTEM



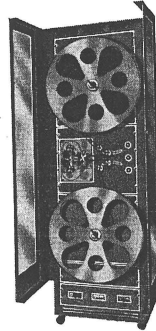
MODEL SW-602-RP
RACK-MOUNT RECORDER
IN PORTABLE CASE



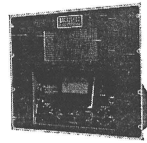
MODEL SW-602-D3
THREE INTERLOCKED DUMMIES
WITH PLAYBACK PRE-AMPLIFIERS



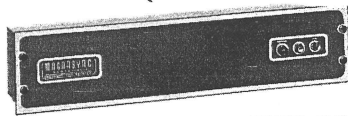
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35mm STEREOGRAPHIC
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RACK-MOUNT AMPLIFIER WITH SPEAKER



EQUALIZED PLAYBACK PRE-AMPLIFIER



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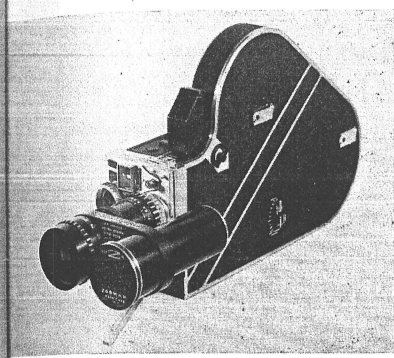
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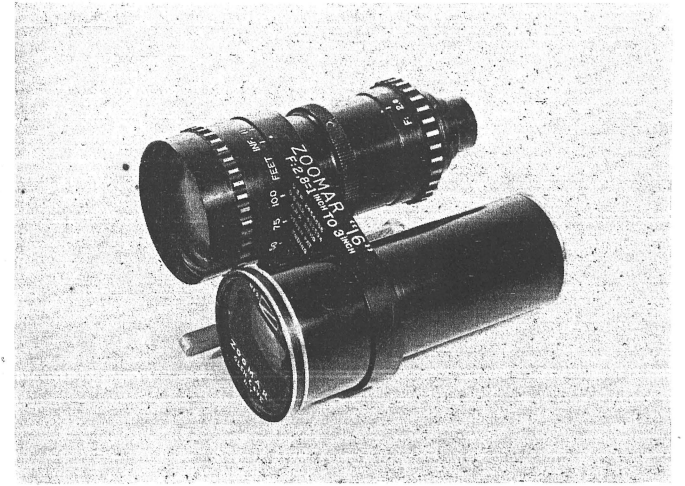


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THE ZOOMAR in place on the Cine Special camera. No alterations are required in fitting the lens to a wide-range of 16mm cameras. Its total weight is only 1¼ pounds; length 5 inches.



THE ZOOMAR varifocal lens can do the work of all lenses from 1" to 3" focal length. It is not only a special-effects lens, but a high-speed, all-purpose lens as well.

THE ZOOMAR "16", a new varifocal lens for 16mm motion picture cameras, has been designed to give the 16mm camera user—whether he be an industrial photographer, a scientist, a news cameraman, an explorer, a TV movie maker, or an amateur intent on building up his own film library—a single all-purpose lens to take care of the majority of his picture-making assignments, including special effects. It has been designed for ease of operation, ease of mountability and ease of portability.

Almost eight years ago, in the spring of 1946, the first Zoomar varifocal lens was introduced and demonstrated at the annual convention of the Society of Motion Picture Engineers. It was hailed as a revolutionary development in the fields of scientific, educational, industrial and commercial motion-picture production.

No sooner had the Zoomar lens become a valuable tool in the motion picture industry when television bloomed into reality. To meet the specific needs of this growing industry, Zoomar engineers created and produced the Television Zoomar. This lens is now standard equipment on television cameras in over 100 TV stations throughout the country. More recently, the Studio Zoomar was introduced. This is a

**The Zoomar Varifocal
Lens For 16mm Cameras**

Equipped with a coupled finder that is an integral part of the lens, it has a zoom range from 1" to 3" and an aperture range from f/2.8 to f/16.

By ALVIN D. ROE

smaller more compact version of the Standard Zoomar for use in telecasting studio shows. Now, out of the same laboratories in Glen Cove, Long Island, has come the new Zoomar varifocal lens for 16mm motion-picture cameras.

Extremely light and compact, it brings to all 16mm camera users, amateur as well as professional, a new height in lens and camera flexibility. For by design, it is not only a special effects lens but a high-quality, high-speed all-purpose lens as well. By being capable of taking the place of all conventional lenses from 1 in. to 3 in. on

the camera turret, it makes the long-dreamed-of "one-lens camera" an actuality.

Weighing only 1¼ pounds and measuring 5 in. in overall length, the new Zoomar 16 can be mounted on any 16mm movie camera without altering the camera or the lens. Once in place, picture-taking is easy. Lens settings are clearly visible. The zoom lever is conveniently located under the lens where it is out of the way yet easy to reach and to operate. Simply pushing the lever forward zooms in; pulling it back zooms out. During all zooming operations, the

(Continued On Page 50)

serving pictorial continuity—its strongest point being that changes in composition can be made without the audience becoming confused as to the physical relationship of different parts of the setting or action.

The straight *tilt* or horizontal *pan* is used to follow the action of the moving object, while tripod remains stationary.

The *follow shot* (also known as *dolly shot*, *trucking shot*, or *perambulator shot*) is executed by mounting the camera on a movable base so that it actually follows along with the subject as it moves.

A *pull-in* is a shot in which the camera starts with a long or medium shot and gradually moves into a closeup of a particular segment of the scene. It is one effective means of establishing a new scene and then getting to the most important element quickly and smoothly.

The *pull-back* shot, a direct reverse of the above technique, starts with the camera in closeup, and then moves back

to a medium or long shot to show the general surroundings. This is effective when it is necessary to impress a certain segment of the situation on the minds of the audience before the overall setting is shown.

Camera movement should never be used merely for the sake of movement, or for the purpose of forcing action into an otherwise static treatment. Like any other pictorial continuity device, it should always be used with a definite effect in mind.

Pictorial continuity should originate in the script. The director should be careful that the pattern follows through in the action as he stages it. The cameraman, above all, should use his camera to enhance the flow of one scene into the other, so that the audience will gain the impression of a freely moving story unhampered by jumpy transitions or gaps in the narrative.

Reprinted from "Cinema Workshop" by Charles Loring.

SIMPLE LENS FOR SPECIAL EFFECTS

(Continued From Page 36)

From these facts, it is easy to calculate any type of system you want. Suppose you use a +10D cylinder for your plus lens, and a -D cylinder for your minus lens. The plus cylinder will have a focal length of 100mm; the minus cylinder will have a focal length of 50mm. The magnification or distortion should equal the focal length of the difference in their focal lengths, that is, 100mm minus 50mm, which equals 50 mm. The magnification or distortions produced is equal to the focal length of the plus lens divided by that of the minus lens, in this case 100÷50, which equals 2.

Mounting a supplementary lens system like this involves accuracy, since the tube that holds the lens elements should keep them accurately aligned, and yet permit adjusting the separation between the two, and also permit one of the lenses to be rotated with respect to the other, so that the final adjustments can be made with the device in position on the camera.

The housing for this auxiliary lens system can be made from tubes of cardboard or metal. One should be slightly smaller in diameter so that it will fit fairly snugly within the larger tube—so that it may be moved in and out for focusing. In a mount like this, one can hold the spectacle-lenses in place either by using cardboard retaining-rings, which can be glued into place, or Scotch tape.

For long-shots, this system is complete in itself. But if you are going to use it

making closer shots, you'll need to add a spherical auxiliary lens (not a cylinder lens as in the distorting system) in front of the plus cylinder to correct your focus. The focal length of this supplement should be equal to the distance between camera and subject: that is, if the subject is 6½ feet from the camera, use an auxiliary with a focal length of 2 meters—or a plus 0.50 D spectacle-lens—to refocus your optical system at 6½ feet.

The amount of distortion is determined by the overall power of the supplementary-lens system. For most purposes a set of these cylinder-distortion supplementaries ranging in magnifying power from 1.2 to 1.6 will prove satisfactory. More powerful units can be made easily enough, but they're not so convenient; if you use strong lenses, aberrations will be introduced which will be sharp, but the separation between them must be so large that you will have a long tube which will cut into the field of any but very long-focus camera-lenses.

Here are the specifications with which to build a set of three of these distorting-lens systems, which will give you a convenient range in power from 1.2 to 1.6, enough for most requirements. For a magnification of 1.2, use a plus 5 diopter lens and a minus 6 diopter lens, spaced 33.33mm apart. For a magnification of 1.5, use a plus 8 D lens and a minus 12 D lens, spaced 41.67mm apart. For a magnification of 1.66, use a plus 9 diopter lens and a minus 15

diopter lens, spaced 43.34mm apart.

In this connection, the term "magnification" is used advisedly, for these cylinder-distortion systems produce the effect of distortion by magnifying the image in one plane or direction—either horizontal or vertical—and leaving the other vertically unchanged. The axis or direction of distortion is determined by the inclination of the axes of the two lens-cylinders of the distorting combination. If both axes are vertical, the image is distorted horizontally, and vice-versa. By revolving both units together, it should be possible to make the distortion change from horizontal to vertical during a scene, as when producing some very bizarre effects for nightmare or drunken scenes.

ZOOMAR LENS

(Continued From Page 27)

physical length of the lens as well as that of the coupled finder remains the same.

Built as an integral part of the lens assembly, the coupled finder is a wide-vision finder. It has no peephole to make "nose-to-the-camera" operation necessary. As a result, the cameraman has the maximum freedom of movement while filming, and the image he sees in the finder is just as it will appear later on the projection screen. It puts the cameraman in the unique position of being able to compose and edit his shooting on the spot, instead of later on the cutting and splicing board.

The operation of the new Zoomar 16 is smooth and continuous. The zoom mechanism does not rely on the operation of cams or gears which would be subject to wear. Adjusted carefully at the factory, it remains in perfect adjustment.

The technical data for the Zoomar 16 is as follows:

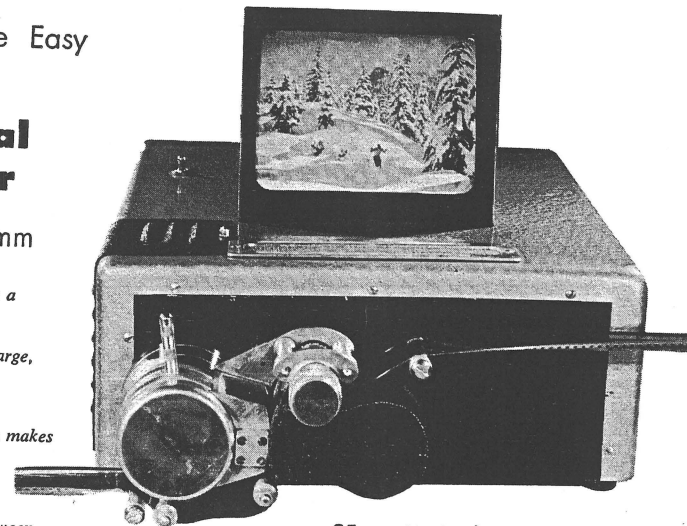
Aperture Range: f/2.8 to f/16
 Zoom Range: 1 in. to 3 in. (25mm to 75mm)
 Distance Range: 8 ft. to Infinity (short-range adapters are available for shorter distances)
 Weight: 1¼ pounds
 Overall Dimensions: 5½ in. long
 4½ in. wide
 2 in. high

All optical elements are fluoride coated; also the highest resolving power ever built into any varifocal lens, according to the manufacturer, assures

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brilliance, detail, and picture contrast over the entire picture frame. Furthermore, there are no cemented elements so thermic stability is assured.

The new Zoomar 16 is the result of more than seven years of intensive research and development in the field of varifocal lenses, the manufacturer has stated. Into it has been built all the know-how and experience which company engineers gathered during the development of the earlier television and newsreel varifocal lenses. Thus, all the long sought-for advantages of a compact, versatile varifocal lens is now available for the 16mm cinematographer. The Zoomar 16 can be used with the following professional and amateur 16mm cameras: Arriflex, Auricon, Cine Kodak, Bell & Howell, Bolex, Keystone, Maurer, Mitchell, Morton, Pathe, and Revere. It may also be used with the Dage and RCA industrial television cameras.

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