

# American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

AUGUST 1975/ONE DOLLAR

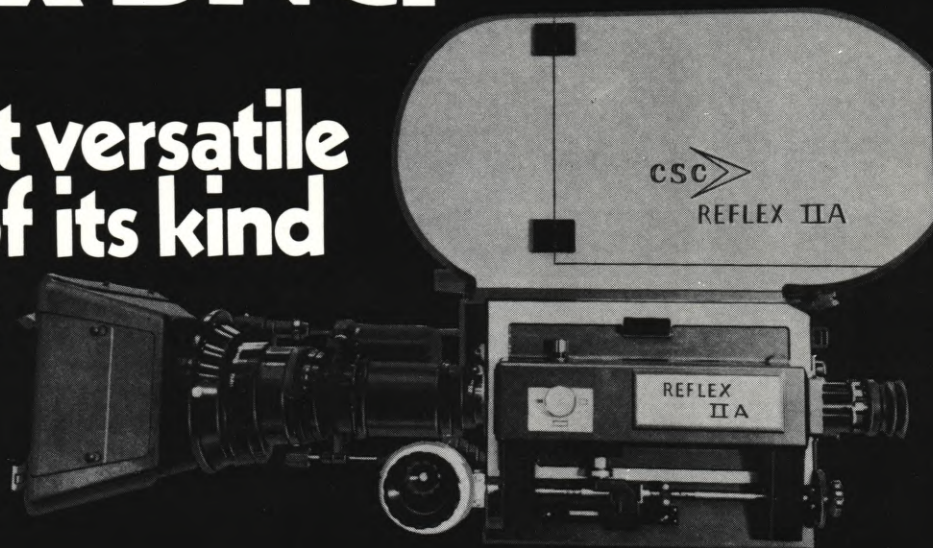
A high-angle photograph of a tall, narrow, dark rock pillar standing in a vast, arid desert landscape. The pillar is the central focus, with a few small figures of people standing on its flat top. The surrounding terrain is a mix of reddish-brown sand and rocky ground. The lighting is dramatic, with long shadows cast across the desert floor.

FACE-TO-FACE WITH DEATH  
DURING THE FILMING OF  
"THE FIBER SANCTION"



# Now! The ultimate reflex BNC.

The most versatile camera of its kind available today.



## Light weight:

The new CSC Reflex IIA is a precision scale-down of our world famous Reflex II. Weight, complete, 89 lbs.

## Cooke lenses:

Now you have a choice. The IIA is the only reflex BNC engineered to accept Cookes. You'll see the big difference when you screen your dailies.

## Ultra wide angle:

Do you use a second camera for your dramatic wide angle shots? No need to now. The Reflex IIA will accept lenses as short as 9.8mm—Yes—9.8mm! Look at the exclusive creative edge you get with the Reflex IIA—

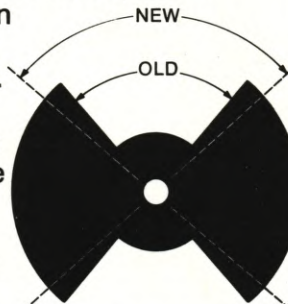
Now you have a choice.											
9.8 mm	14.5 mm	15 mm	18 mm	20 mm	25 mm	32 mm	35 mm	40 mm	50 mm	75 mm	100 & up mm

## Super speed Zeiss lenses:

Another exclusive—you can specify aspheric ground floating element Zeiss Distagons. Scalpel-sharp images at a true T:1.4! 25mm/35mm/50mm/85mm focal lengths are available.

## New shutter:

To further boost lens performance, we've made an ingenious design change that permits the use of a new 200° shutter. The big advantage, of course, is the raised light transmission factor. More light means smaller apertures for increased overall sharpness, depth of field and brilliance.



Our new BNC Reflex IIAs are immediately available. Call or write for details—today.



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?



When? When it's the TGX-16. The TGX-16mm. camera weighs **less** but offers **more**. Weighing **less** than 8 pounds; it offers **more** information on the fibre-optics screen in the viewfinder—**more** speed variation—**more** functions in the hand-grip—and **more** digital footage displays than any other camera. The half-heart cam movement delivers **more** image steadiness at high speed, with **less** noise at sound speed. Advanced engineering in the TGX-16 provides **more** dependability with **less** down time. In short, the TGX-16mm. camera offers **more** but costs **less**. The Angenieux 6 x 9.5 zoom lens means you can shoot in **less** space with **less** light than you ever thought possible. It has a geometric aperture of f/1.6 and a photometric aperture T1.9. The focal length range of 9.5-57mm. makes this the lens for really tight spots. And forget owning **more** lenses, this lens can focus as close as 24 inches from the focal plane to the subject with full zoom capability. There's **more**, lots **more**, write or call

**gc** general camera  
corporation (212) 594-8700  
471 Eleventh Avenue, New York, N.Y. 10018



# Will Rogers never met Sy Cane.

What's to like?

**Sy Cane is cheap.** In fact, his prices on every conceivable piece of motion picture equipment are as cheap as anybody's.

**Sy Cane is boring.** He knows more about cameras and equipment than Euell Gibbons knows about wild hickory nuts. And he's surrounded by a staff of camera fanatics with a single-minded expertise that borders on tedium. The only other thing Sy knows is the time of day. But he won't give it to anyone.

**Sy Cane is argumentative.** He won't sell you equipment just because you *think* you need it. He thinks it's wrong to sell someone more camera than

the job calls for (a character flaw, we suppose).

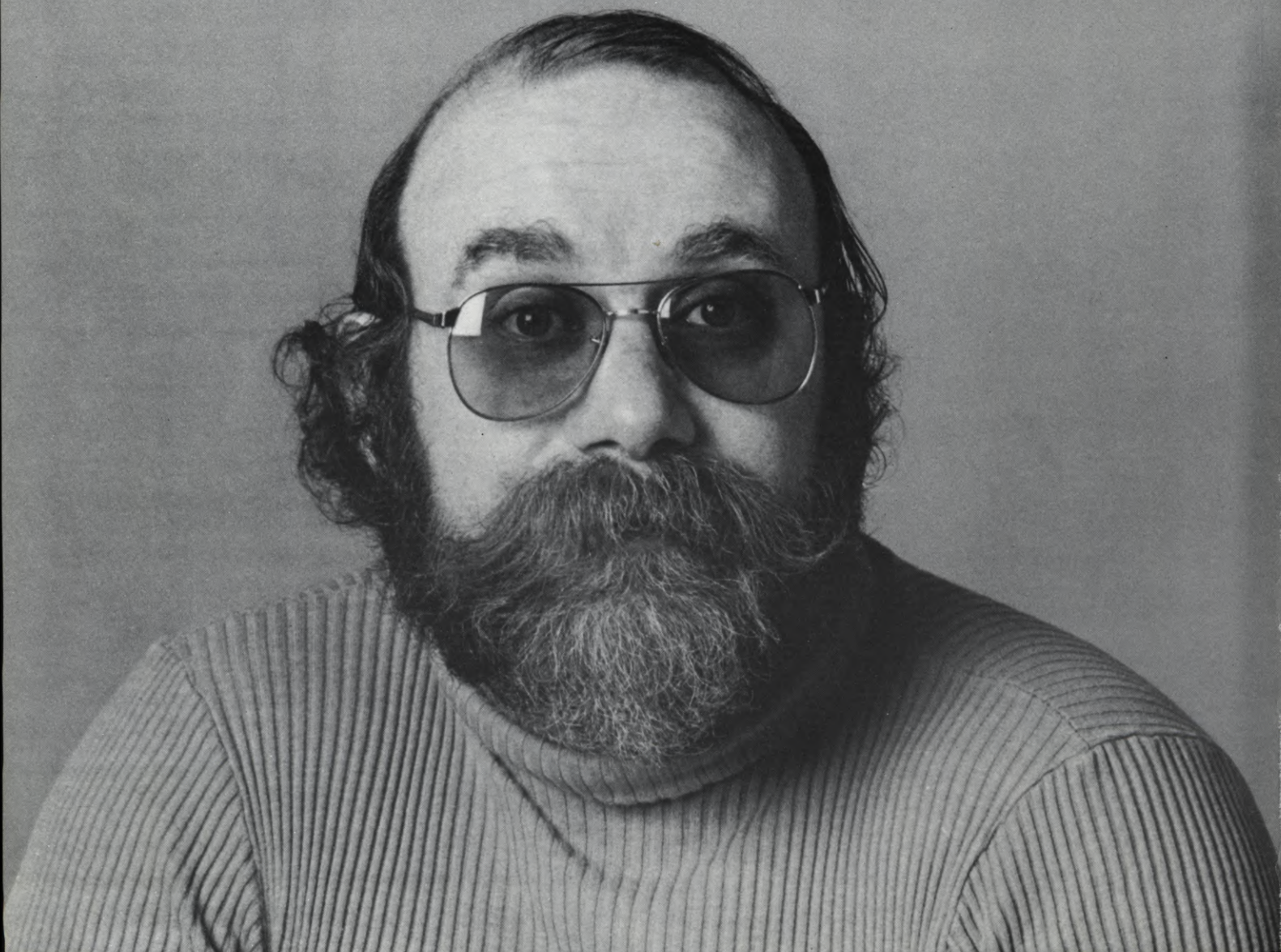
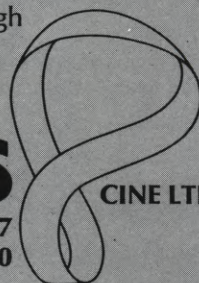
**Sy Cane is fussy.** Fussy enough to hire Eclair's Bernie O'Doherty to head up the Mobius service department. And heartless enough to guarantee 24 hour service in many cases, by threatening Bernie's life.

**Sy Cane is impossible.** Yet, through nobody's fault, a reality. He is, quite frankly, a man that only a customer could love.

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# American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

*The American Society of Cinematographers is not a labor union nor a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initial A.S.C. after their names. A.S.C. membership has become one of the highest honors that can be bestowed upon a professional cinematographer, a mark of prestige and distinction.*

AUGUST, 1975

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ON THE COVER: Helicopter photograph of technicians rigging the "Totem Pole" spire in Monument Valley in preparation of the filming on the top of a sync-sound sequence for Universal's "THE EIGER SANCTION". The Totem Pole is 640 feet tall and 18 feet in diameter at the top.

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## ARRIFLEX 16S/B

This ultra-compact/lightweight 16mm camera is unequalled for handling ease and versatility. Ready-to-film, it weighs just over 8 lbs. with 100 ft. daylight spool, 3 lenses, motor and matte box! Famed throughout the world for its professional capabilities—hand-held, on tripod, in the studio and on location.

## ARRIFLEX 16M/B

One camera, choice of three Quick-change (200-400-1200 ft.) magazines, makes the 16M/B ideal for the tough, long run jobs, the hand-held grab shots and anything in-between. Standard equipment includes a 60-cycle signal generator and automatic clapstick for location sound filming. Its broad capabilities are practically unlimited.

## ARRIFLEX 16BL

A proven location sound camera—quiet, compact and lightweight—supremely capable in every area of professional sound filming. Operates DOUBLE SYSTEM and/or SINGLE SYSTEM—convertible by means of the ARRI Recording Module, without the use of special tools. The 16BL is also available with APEC—the truly professional built-in, thru-the-lens Arri Precision Exposure Control system.

## ARRIFLEX 35 2C/B

Filmmakers depend upon the Arriflex 35 2C/B series to deliver theatre-quality footage reliably and economically—on location or sound stage. Arriflex 35 cameras are first choice of professionals wherever motion pictures are used to teach, document, influence, entertain or sell.

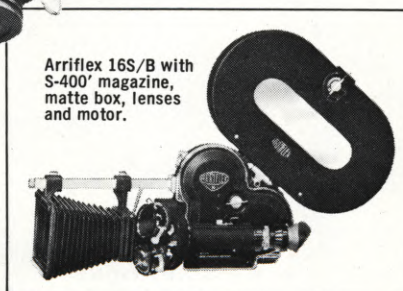
# Arriflex has all the

Which camera is best for the assignment? Arriflex's renowned line of 16's and 35's makes the choice easy. Because there's an ideally suited model for every kind of job—to do it better, faster and at less cost.

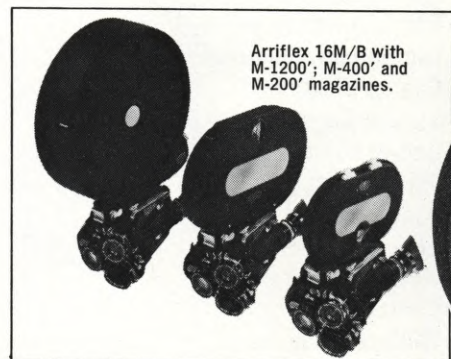
Arriflex has all the 'answers' for theatrical, TV, sports, news, documentary and research filming. There's no question about it. That's why Arriflex is the preferred motion picture equipment with professionals all over the world. Join the ranks.



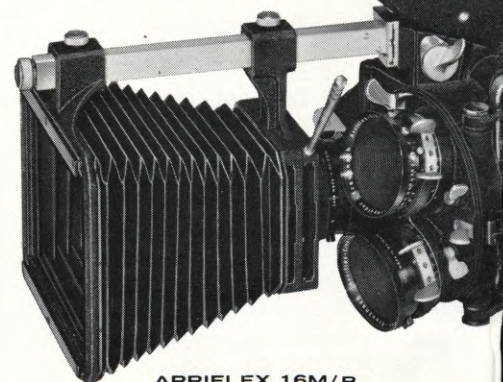
ARRIFLEX 16S/B



Arriflex 16S/B with S-400' magazine, matte box, lenses and motor.



Arriflex 16M/B with M-1200', M-400' and M-200' magazines.



ARRIFLEX 16M/B



## ARRIFLEX 35BL

This new, SILENT, hand-held light-weight 35mm represent a major technological achievement in motion picture camera design. As an all-purpose production camera, the 35BL provides the filmmaker with new efficiency, mobility and creative freedom.

ARRIFLEX 35 2C/B

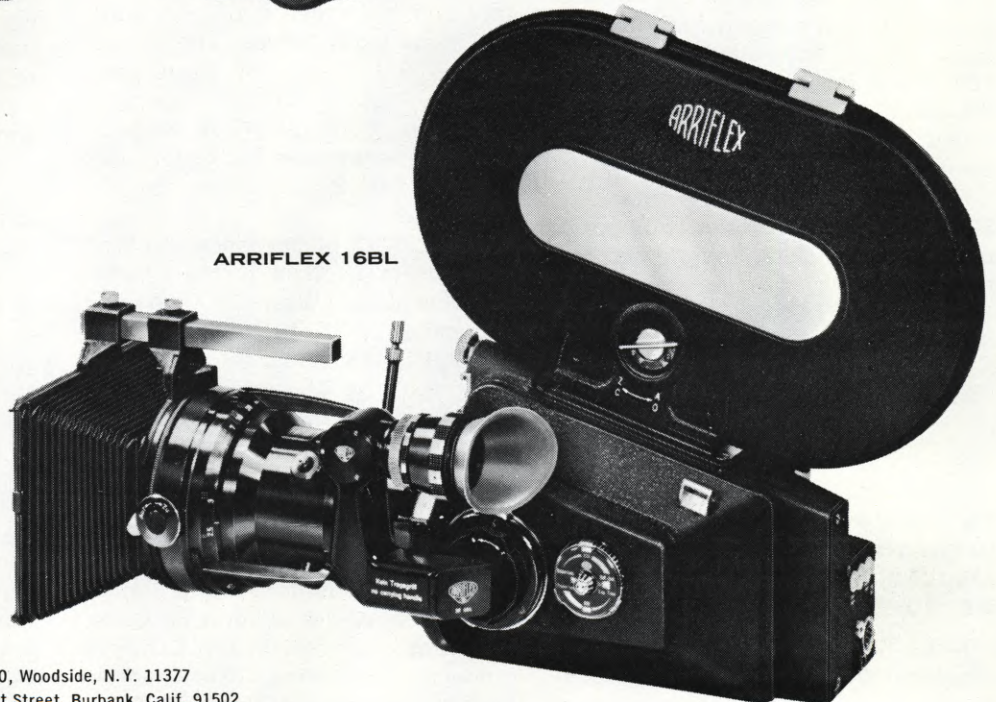


# answers!



ARRIFLEX 35BL

ARRIFLEX 16BL



# ARRI

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# WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE

## IMPROVED 1975 SPECIALTIES EDITOR 16mm

SPECIALTIES EDITOR 16mm 1975 model has as standard equipment replaceable "plug-in" power supply and "plug-in" amplifier units for quieter operation and easier maintainability. Included in the model change is a new heavy-duty clutch for smoother, more precise operation.

SPECIALTIES EDITOR 16mm is a custom-built editing system designed to make any bench a professional editing bench, powered to run three magnetic tracks, plus picture track at sync-sound speed.

SPECIALTIES EDITOR 16mm features a four-gang synchronizer, three magnetic heads, footage counter, massive synchronous motor, foot or hand control, precision machined cast aluminum base, jacks and plugs for easy removal of magnetic heads, large light well, and built-in solid state mixer-amplifier. The mixer-amplifier, with "plug-in" modules, has modern solid-state circuitry with an individual control knob for each magnetic head and a separate volume control knob. In addition to a large built-in speaker, a jack provides automatic switching for use with earphones or an external speaker. A very low noise level has been attained by careful engineering and selection of components. With "up front" control knobs offering individual adjustment for each magnetic head, the editor is able to accurately mix the sound tracks to make cue sheets for the dubbing theatre.

SPECIALTIES EDITOR 16mm is \$995.00 complete, less viewer. Super-8 is \$595.00 complete, less viewer. For further information contact: SPECIALTIES DESIGN & MFG. CO.; 3429 Encina Drive Dept. D; Las Vegas, Nevada 89121; Phone: (702) 451-5290.

## TWO NEW PORTABLE ULTRASONIC FILM SPLICERS AVAILABLE FROM METRO/KALVAR

Metro/Kalvar Inc. offers two new ultrasonic film splicers designed to fuse Super 8 or 16mm polyester-base motion picture films.

Both the Model 2016, for 16mm, and the Model 2018, for 8mm, employ a hand-operated anvil and have an automatic sonic turn-on. They utilize the same power supply as the larger Model 2001, but do not have film format convertibility.

Each unit weighs 6 pounds and measures 5-5/8" x 5-3/4" x 6". They are provided with a protective cover and convenient carrying handle for portability. The splicers produce an .020 overlap weld on the frame-line without tape or cement, and without scraping the emulsion. A multi-voltage input transformer meets world-wide power requirements.

Additional information may be obtained from Metro/Kalvar Inc., 745 Post Road, Darien, CT 06820.

## CP-16 MAINTENANCE TRAINING SEMINAR TO FEATURE SPECIAL SESSION ON THE USE AND CARE OF LENSES.

One of the highlights of Cinema Products' forthcoming CP-16 Maintenance Training Seminar will be a special session dealing with the use, care and maintenance of both zoom and fixed focus lenses. The special session will be led by Bern Levy, Motion Picture Optics Manager, Angenieux Corporation of America. Levy will be assisted by Angenieux's Claus Zedler, Robert Jagemann and Walt David.

The CP-16 Maintenance Training Seminar, to be held at the Cinema Products plant in West Los Angeles on September 26-27, 1975, (just prior to the SMPTE Fall 1975 Conference) is designed for TV-newsfilm/documentary cameramen, TV station and dealer service technicians. The emphasis is on effective trouble-shooting, preventive maintenance and simple repairs of CP-16 camera systems under field conditions.

For application forms and further information, please write to Ed Clare, Seminar Coordinator, Cinema Products Corporation, 2037 Granville Avenue, Los Angeles, Calif. 90025 Tel: (213) 478-0711.

## TIFFEN INTRODUCES PROFESSIONAL SHADE FOR CINE LENSES

A new professional black rubber shade for cine lenses was announced by Nat Tiffen of Tiffen Manufacturing Corp. The new shade will be available in three sizes, 86mm, Series 9 and 4 1/2".

Designed of highest quality materials, the Tiffen cine lens shade will provide greater protection for lenses. Although heavy duty rubber, the shade is flexible. It is also designed to collapse easily for storage convenience. Tiffen's new shade has also incorporated a circular ribbing pattern on the entire interior of the shade to eliminate reflection.

The new professional cine lens shade will be available at all professional cine dealers or by contacting Tiffen Manufacturing Corp.

## WIRELESS REMOTE CONTROL RELEASE FOR STILL AND MOVIE CAMERAS INTRODUCED BY SPIRATONE

A solid state, sound-activated, wireless remote-control for still or movie cameras, with a range to forty feet, has been introduced by Spiratone, Inc., America's largest photographic accessory suppliers.

Designated the Spiratone CAMERA COMMAND™, it consists of a small (1 1/4" x 1-1/8" x 3/4") Receiver which screws into the cable release socket of the camera, and a rubber bulb sonic-emitting Transmitter. The system permits the photographer to capture wildlife, to do surveillance and other types of photography requiring the tripping of the camera from a distance, while out of sight of the subject. The tripper mechanism is adjustable for almost any camera, extending the plunger sufficiently to just trip the shutter and then retracting so the camera can be advanced, ready for the next 'command'. Cameras equipped for sequence photography, with battery or spring-operated wind for the next exposure, can take a series of photographs on 'command'.

The special CINE model for movie cameras starts the camera sequence on the initial signal and stops it on the second signal.

The Spiratone CAMERA COMMAND is available at \$29.95 for still cameras and at \$34.95 for movie cameras and may be purchased by mail from Spiratone, Inc. 135-06 Northern Blvd., Flushing, N.Y. 11354 or through either of the two Spiratone retail outlets, at the Flushing address and at 130 W. 31 St., New York City. ■



# **FOBA**

## **Now that's what I call a tripod!**



### **Foba has been selected for use in filming the 21st Olympiad at Montreal, Canada**

There's no doubt about it. Foba's the most versatile all-metal tripod to hit the professional motion picture equipment market in years. Its lightweight construction makes it ideal to carry on those tiresome location shootings and yet it is so ruggedly constructed that it will easily support a full range of professional cameras, including the Arriflex 16 and 35, Eclair NPR and ACL, Auricon, Beaulieu, Bolex, CP-16, Canon Scoopic, Bell & Howell Filmo and many more. Its unique tubular adjustable legs allow the Foba to be used in standard

or baby positions and it has two built-in features which are normally accessory items on other tripods: triangle-type leg locks which lock legs into place with the simple tightening of a lever and an elevating riser plate which gives an additional 11" in height to the tripod. The Foba accepts Pro Jr., O'Connor C and 50, Miller F and Pro (with slight modification) heads. It has a Pro Jr. flat-top mounting plate and legs that can be raised or lowered individually or simultaneously by depressing a button near the top of the tripod. Maximum height

with riser raised is 73", minimum, 18½". Weight, 16 lbs. Price is \$350.00. Come by today or write for additional literature.

#### **New Foba Dolly**

Converts your Foba or other motion picture tripod into a three-wheeled dolly or triangle. Also can be used as a "baby" or high hat when capped with Pro Jr. based tripod head. Price, \$250.00.

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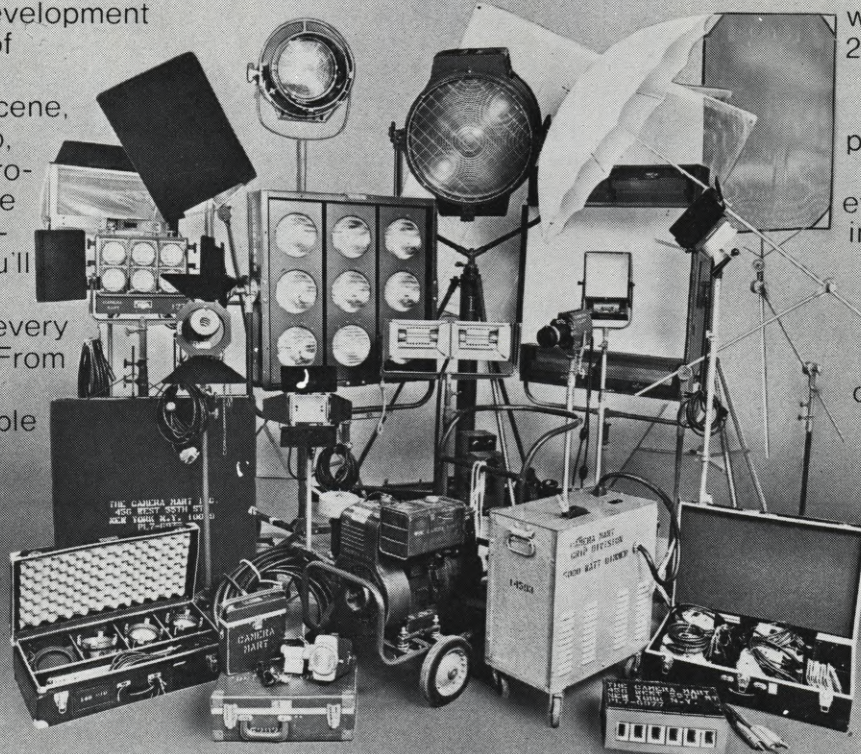
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# THE END OF HALF YOUR LIGHTING PROBLEMS.

If you had to pick one aspect of filmmaking that has necessitated the development of the greatest variety of equipment, you'd have to pick lighting. Every scene, every shot, every studio, every location, every product, virtually every face requires its own individual lighting solution. You'll be glad to know that at Camera Mart we stock every one of those solutions. From the biggest Maxi-Brute array to the most portable



sun gun. For rent or sale. Lights that work from any source, 220-volt AC to 30-volt battery. Colortrans, Moles, Lowels and practically every other name brand. Plus every accessory imaginable: snoots, scrims, silks, reflectors, flags, stands and every other piece of gaffer equipment—right down to tape.

# THE END OF THE OTHER HALF.

But as we're so fond of saying, the right equipment is only half the solution. Expertise is the other half. And at Camera Mart, our people don't just sell and rent lighting equipment. They are, to a man and Ms., *bona fide* lighting consultants, capable, for instance, of designing a lighting package for you that will do more than you expected for less than you expected to spend. We can show you

how to get more candlepower from less electrical power (particularly important on location). Or how to stow 5,000 watts in an attache case that'll fit nicely under an airline seat. We'll even suggest how many spares to take along. In short, when it comes to lighting, we're a real bunch of know-it-alls. And since we also *have* it all, why bother going elsewhere?

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You make sense. Tell me more about how Camera Mart can solve both halves of my lighting problems.

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# Despite the unprecedented demand, you don't have to queue up for our CP-16R's.

The reason? Our spacious, modern facilities and automated production techniques make it possible for us to meet the ever growing demand here and abroad. Easily.

After all, we are the largest manufacturer of professional motion picture camera equipment in the United States. And, of course, we use the most advanced and sophisticated technologies in design, engineering and manufacturing to deliver to you the most outstanding 16mm reflex and non-reflex sound camera systems.

At competitive prices. With no compromise on quality. And with a full range of options and accessories to suit all your requirements: newsfilm, documentary, television commercial or studio-type film production.

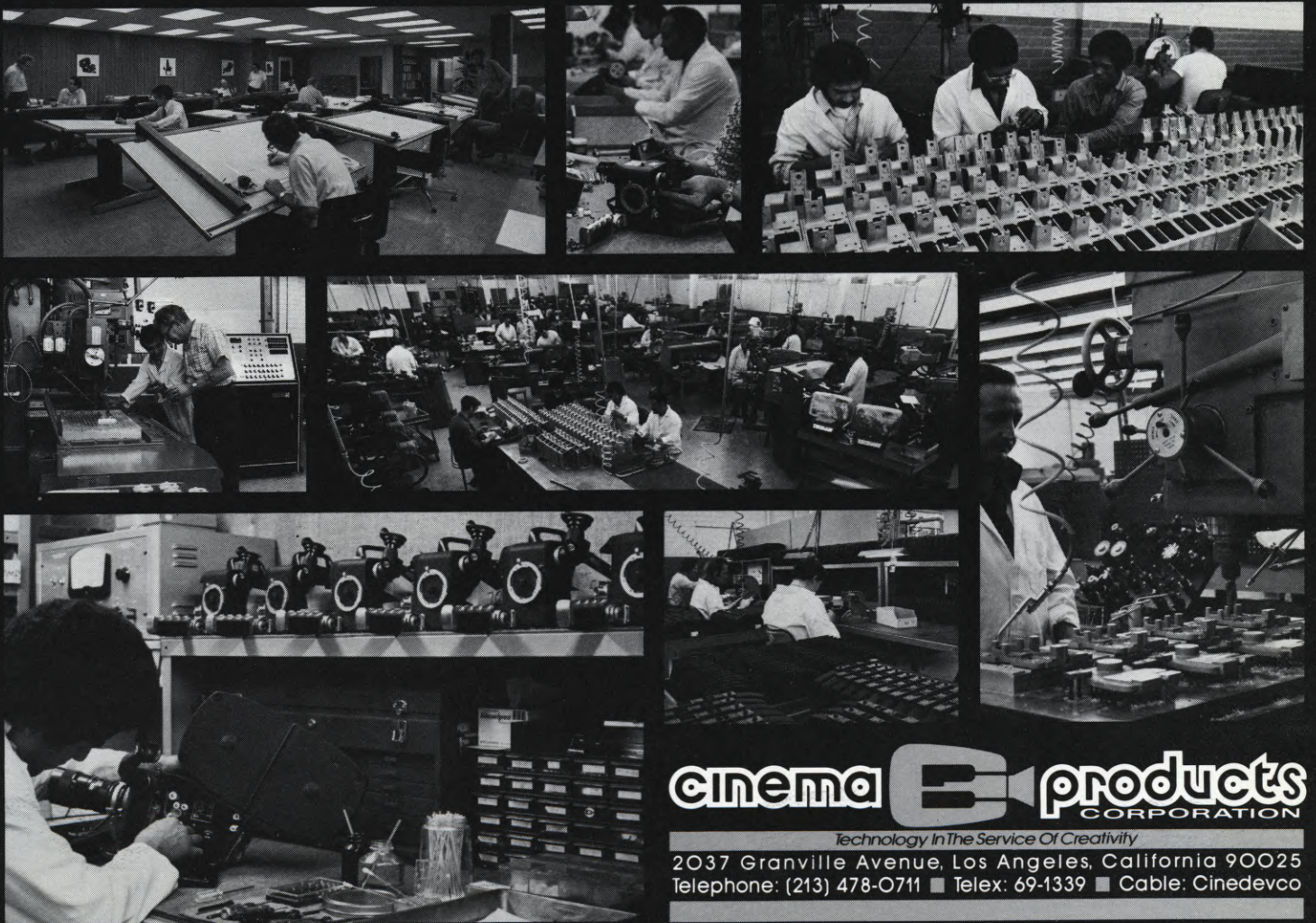
With more than 2000 reflex and non-reflex cameras actually delivered in a mere three years, our CP-16's have already proven themselves in the field beyond any question.

Furthermore, our CP-16's are backed by a world-wide network of dealer service centers, staffed by factory trained technicians, and well stocked with critical replacement parts.

Our CP-16R is the quietest, most reliable 16mm reflex camera system ever. And it is available here and now.

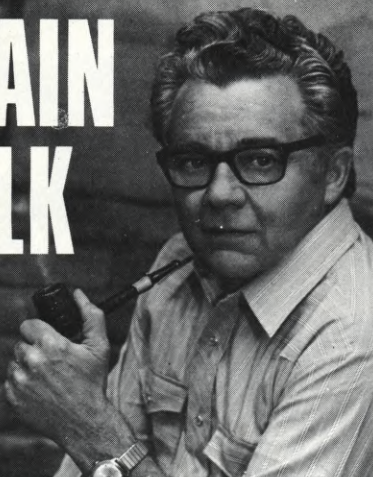
So, why settle for "pie-in-the-sky" promises from various camera manufacturers whose highly touted prototypes never quite seem to make it to the production line?

Don't wait. See your local CP-16 dealer now.





# PLAIN TALK



by *J. Carl Treise*

**They'll sell you anything  
... except a repair part!**

I can't figure out why some firms knock themselves out to sell you equipment, but don't give a damn about supplying a repair part when you need it.

Maybe they think their engineering is so good the processor will never need new parts. (I don't have to tell you how much baloney that is!)

Or maybe they're interested only in selling equipment.

In which case, you can bet their parts inventory is maintained just to keep their production going and not to help out their customers.

That's why their parts set-up is disorganized. And their numbering system is lousy. And when you call, you get some stockroom idiot that doesn't know what you're talking about and couldn't care less.

Sure, supplying parts can be a headache. To do it properly, the manufacturer needs a damn good system and a knowledgeable guy at the listening end.

Moreover, he has to be willing to take the time to go over the problem carefully with the customer so he can make sure exactly what part is needed.

Caring about the customer is what it's all about.

A sale without service is a dead-end road.

**TREISE**  
**ENGINEERING, INC.**

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## QUESTIONS & ANSWERS

Conducted by CHARLES G. CLARKE, ASC.  
and WINTON HOCH, ASC.

(Inquiries are invited relating to cinematographic problems. Address:  
Q. & A., AMERICAN CINEMATOGRAPHER, P. O. Box 2230, Holly-  
wood, Calif. 90028.)



*Editor's Note: In last's month's column the first answer had a typo in it. The last sentence of that first paragraph of the answer should have read: However-ever, it will appear squeezed in the ratio of 1.25-1.*

**Q** I am interested in inquiring about the Cinemascope Anamorphic unit of the original 2:55 to 1 ratio as opposed to the 2:35 ratio used today. Can you direct me to a dealer who would handle these units?

**A** Your question indicates confusion between the terms aspect ratio and anamorphic squeeze ratio. The original Cinemascope Anamorphic units had a squeeze ratio of 2 to 1 and were an attachment placed in front of a regular lens of the 50mm focal length or longer. Eventually Bausch and Lomb supplied composite lenses varying in focal length from 40mm on up. The squeeze ratio of all these lenses was 2 to 1. With the 4-track original sound format, the maximum aspect ratio of the picture was 2.55. The industry finally adopted the mag-optical format and the image aspect ratio became 2.35.

**Q** If THE HOUSE OF WAX or any of the films made in the 3-D process were shown on television and one donned the 3-D glasses from the theater to watch it on TV could the 3-D effect be seen or not?

**A** No. To obtain the three dimensional effect the films must be photographed by two cameras spaced about 2½ inches apart. Prints from these left and right hand negatives must be projected by two projectors in the theater. Each projector is equipped with a polaroid filter. One is set in front of the lens at an opposite angle of polarization of the other one. The viewing glasses supplied at the theater contain these same filters, set so that the left eye sees only the picture made by the left hand camera, while the right eye sees only that made by the right hand camera.

On the TV showing, only one side of

the pair is broadcast, therefore the picture can only appear as an ordinary, flat picture.

**Q** I am interested in obtaining detailed information on the widescreen process no longer in use, Technirama and VistaVision. Considering the optimum quality of their images, can you tell me why these systems were discontinued? They are not even available to the filmmaker willing to pay for the units.

**A** The VistaVision and Technirama processes are considered obsolete. The availability of finer grain films, improved optics and the improvements in Cinemascope and Panavision have made these cameras undesirable. If a larger film area is wanted, Todd-AO or the Panavision 65-70mm systems are available. Technicolor may have some old Technirama units and information could be obtained by writing directly to Technicolor, 4050 Lankershim Blvd., North Hollywood, CA or for VistaVision information to Paramount, 5451 Marathon, Hollywood, CA.

**Q** On our next production (with low budget, of course), we would like to add sound to our 16mm Kodachrome commercial, with narration and background music, and 10 release prints.

**A** The usual procedure to obtain the type of sound track you require is to begin with the use of magnetic tape; record your narration on one tape, then record your music on the second tape. If you have two-channel facilities available, you can combine these two tracks onto a single tape, obtaining the level of narration and music that you wish. If these facilities are not available to you, we suggest you contact a professional sound-recording company to combine these two units. From the single record tape that you now have, you then have a sound recording company transfer to an optical negative sound track for Kodachrome print. Sync your picture with your sound track and it is then possible to make release prints. ■



# HIGH FIDELITY IN SUPER-8 THE BEAULIEU "5008S"

Sound. The newest dimension in Super-8 movie making. With Kodak's new sound movie cartridges, you are now able to film perfect lip synchronized sound movies using only a sound-on-film Super-8 camera and a microphone.

Beaulieu was first to take this concept of sound-on-film Super-8 and give it a professional touch with the introduction of the "5008S".

## Professional "High Fidelity" Sound

Insert a new Super-8 sound-on-film cartridge. Plug in the mike. Then, focus. That's all the preparation you need. With the Beaulieu "5008S", you're now ready to start filming professional quality, high fidelity sound Super-8 movies.

An amplifier is built into the camera which records perfect lip synchronized sound directly onto the magnetic stripe of your sound film. The camera records high fidelity sound, both in treble as well as bass (*frequency response*: 50-12,000 Hz  $\pm$  1.5 dB; *distortion*: less than 0.75%; *signal-to-noise ratio*: 57 dB; *wow and flutter*, attenuated peak: less than 0.4%).

The "5008S" modulates the single system sound recording automatically. Or, you can modulate the sound "manually" as you are filming (by using the VU meter).

## From the "Widest" Wide Angle . . . To An Extremely Long Telephoto

Imagine what you could do in 35mm still photography with a 35-400mm zoom lens!

You can achieve this comparable effect with the Beaulieu-Optivaron 6-66mm (11 to 1 zoom ratio) lens on your "5008S".

## Continuously Variable Power Zoom

The power zoom of the Beaulieu "5008S" is continuously variable. You can travel the full focal length range in

2 seconds, or 12 seconds (*or any speed in between*).

## Macrocinematography (Special Effects)

Film macrocinematography (insects, coins, stamps, and other small objects)—*without the use of attachments or additional accessories*—at any distance ranging from the front lens element to five feet.

A unique, additional feature of the Beaulieu macro system is the ability to create special effects such as soft-focus fade-ins and fade-outs.

## Fully Automatic Exposure Control

The diaphragm of the "5008S" operates automatically and *stops in-*

*stantly* at the right aperture. Exposure accuracy is governed by a new Reflex-matic Motor (Beaulieu-patented). (This feature has "Manual Override".)

## Lens Interchangeability

Although the "5008S" comes equipped with a 6-66mm zoom lens . . . you can interchange an unlimited number of other lenses in order to create a certain feeling or effect in your films. The camera accepts all "C" mount lenses, as well as 35mm still camera lenses (when using the proper adapter).

For full information on the new Beaulieu "5008S" HIGH FIDELITY SOUND Super-8 Camera, please write to:

**HERVIC CORPORATION**  
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## The Beaulieu "5008S" Sound Movie Camera

(equipped with either a Beaulieu-Optivaron 6-66mm zoom lens, or an Angenieux 6-80mm, f1.2 "XL", zoom lens)



# Custom made equipment at mass produced prices.

Equipment recently released from a major studio.

## List 1

**Mitchell Standard/High Speed 35mm camera** mounted on an optical bench with a Kodak high intensity lamp, filter box, Power Stat, motor, and a Mitchell modified bi-pack magazine. This printer is set up to do step contact printing, but the optical bench allows the user to modify it more easily to other needs.

**WB# 12103-83 \$5,995.00**

**Mitchell Standard/High Speed 35mm camera** mounted on a pedestal with a Kodak high intensity lamphouse, a Power Stat, and a Mitchell Modified bi-pack magazine. This camera set up is similar to the one above, except it lacks a motor and is mounted on a pedestal. It is set up now to do bi-pack step contact printing, a bargain at;

**\$4,950.00**

### **Bell & Howell 35mm Camera/Projector**

This camera/projector is mounted on a pedestal with a Power Stat and motor mount for an Acme motor, a Kodak high intensity lamp, and a Mitchell 400 ft. magazine. It can be used for an aerial image projector, rotoscoping, bi-pack printing/projection. A fine versatile tool.

**\$3,495.00**

### **Anamorphic/Flat Optical Printer WB# 12106-83**

It uses a Bell & Howell 35mm camera and a Bell & Howell 35mm camera modified into a projector. Both

use the Bell & Howell movement, which is now used in the Acme and Oxberry printers. Camera and projector are mounted on an optical bench with calibrated movement up/down, right/left, and together/apart. It was used in anamorphic and normal printing with Bausch & Lomb Cinemascope lenses, and is capable of a multitude of special effects. Complete with motor, a Kodak high intensity lamp, filter box, 2 Cinemascope Bausch & Lomb lenses (1 for 1.85:1, and 1 for 1.33:1) mounted especially for this printer, and a 1000 ft. magazine. A special effects department in one machine.

**\$9,995.00**

### **3-D Optical Printer!! WB# 12107-83**

It uses a Bell & Howell 35mm camera modified to a pin registered projector, and a Houston Fearless 65mm camera with 2-35mm apertures side by side. The Houston Fearless camera is similar to the Mitchell NC in design and operation. It has 2, 4, & 8 ft. fade controls, a variable shutter from 0% to 100%. The main movement gears are enclosed in an oil tight chamber with an oil pool over part of the drive gears and a pump to circulate oil over the main movement gears not submerged. This same oil well also dampens the overall sound of the camera. Complete with motor, an individual black out matte for each aperture, a Power Stat, a Kodak high intensity lamp & filter box, and one Mitchell & one Fearless 65mm magazine.

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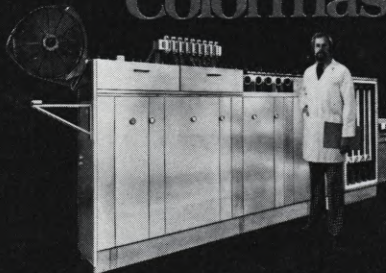
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# CINEMA WORKSHOP



By ANTON WILSON

## CHECKING CRYSTAL SPEED

It was only about ten years ago that the first homemade crystal motor drives began to appear. *Avant garde* documentary cameramen needed the mobility and freedom that the crystal system provided. Today the crystal motor is standard equipment on almost every new professional camera. The latest generation of crystal motors offers some interesting features. All the motors obviously eliminate the umbilical sync cord, and allow multiple camera and recorder systems over unlimited distances.

Other features may vary according to manufacturer, but usually include stabilized variable speed, automatic mirror positioning, single-framing, external reference (slave), etc. With all these features, plus the inherent mobility and flexibility, it is easy for the cameraman to overlook the main function of the crystal electronics — to keep the camera in sync with the sound track.

FIGURE 1 — The Communication Arts, Inc. P.O.M. Crystal Speed Meter provides a quick and simple means of checking correct camera operating speed.

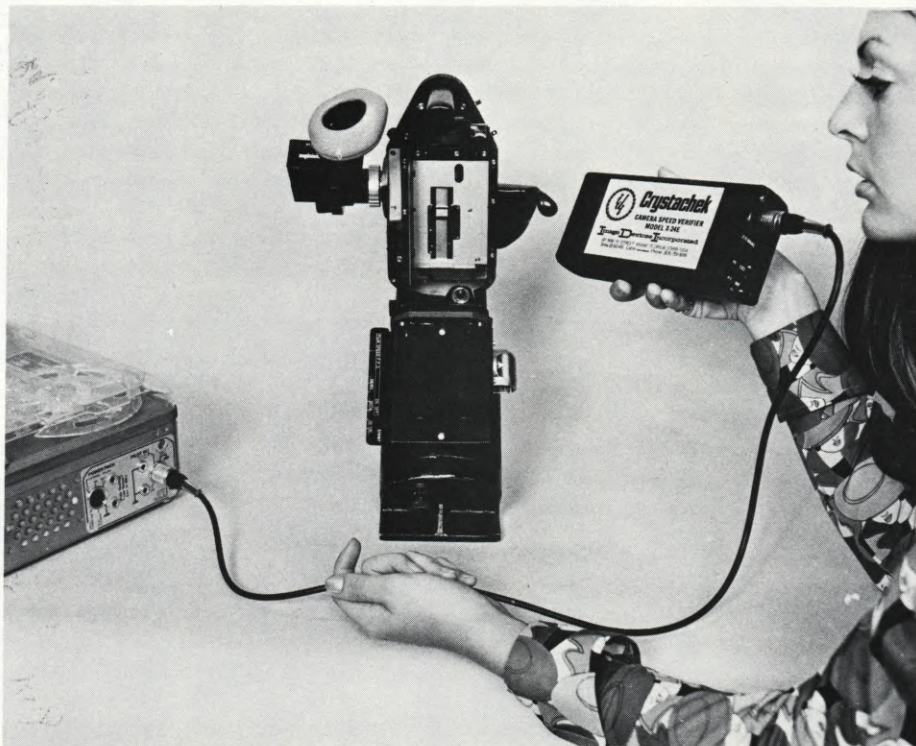
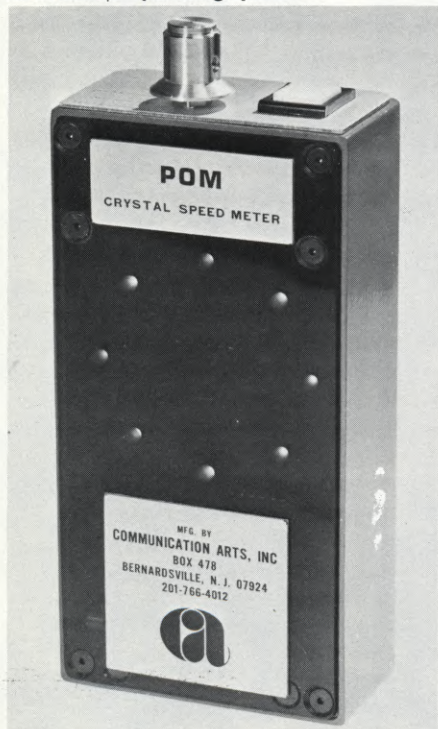


FIGURE 2 — Image Devices' "Crystacheck" works on a 24 fps (or 25 fps) strobe principle and can be used on any camera, whether reflex or not. The device is directed at the pulldown claw of the running camera. If speed is right on, the claw will appear frozen stopped. If it slowly creeps up or down, the camera speed is off. The amount of deviation is simply determined by clocking the time it takes the claw to make one complete stroke.

The crystal motor is usually a sophisticated electronic device incorporating speed sensors, feedback circuits, phase-locked closed-loop servos, pulse-width modulators, crystal oscillators, digital-divider networks, and the like. I don't expect these terms to mean anything to you except to convey the electronic complexity of the crystal motor. For comparison, the control circuits of the early governor motors consisted of a set of weighted contact points — that's it! The point is that with the increase in circuit complexity, there is also a larger chance of an electronic malfunction.

I am not trying to imply that crystal motors are unreliable: quite the contrary. Even with the electronic complexity, they are far more reliable than any other type of camera drive. Yet there is always that one-in-a-million chance of a circuit malfunction or crystal frequency drift. There is nothing as upsetting as spending an entire day on location with a large crew and

then finding out the next day that all the footage is out of sync. Several years ago I had to personally break the bad news to a military documentary team that the entire *two weeks* of footage they had shot on a remote expedition was entirely out of sync due to a crystal motor malfunction.

Such disappointing and costly incidents can be avoided. Firstly, choose a crystal drive with a good alarm and out-of-sync warning system. A good alarm circuit is extremely accurate and will trigger the instant that the motor deviates from the crystal signal. Some alarms will go as far as indicating the amount and rate of speed deviation. Most alarms, however, just indicate that the motor is not following the crystal.

Several new cameras incorporate the alarm indicator in the camera viewfinder. This is a very good feature, since even the best alarm circuit does no good if you don't see it. If you are

Continued on Page 960



# HOW CAN WE CONVINCE YOU TO BUY A BETTER CAMERA WHEN YOU ALREADY HAVE THE BEST?

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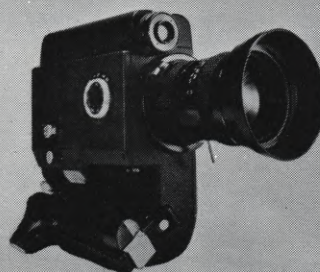
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Your camera, of whatever make, is no stronger than its weakest link. In battery operated cameras using D.C. motors, the electrical brushes or rotating electrical contacts are usually this "weakest link," consuming up to 40% of the power, by friction, and sooner or later wearing out (or burning out!) and calling for service or rebuilding of the motor. With D.C. motor brushes, this sometimes happens "far from home" or at a most inconvenient time, in the middle of an important "take"! Why take this chance? Now you can have the dependability of the Auricon-Pro 400, with the new Soundrive-XTL D.C. motor!

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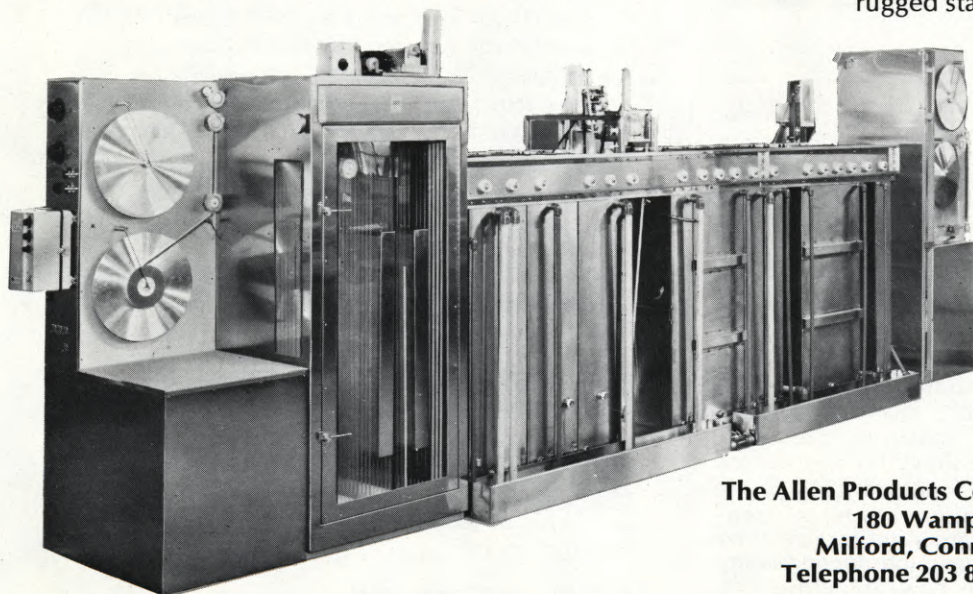
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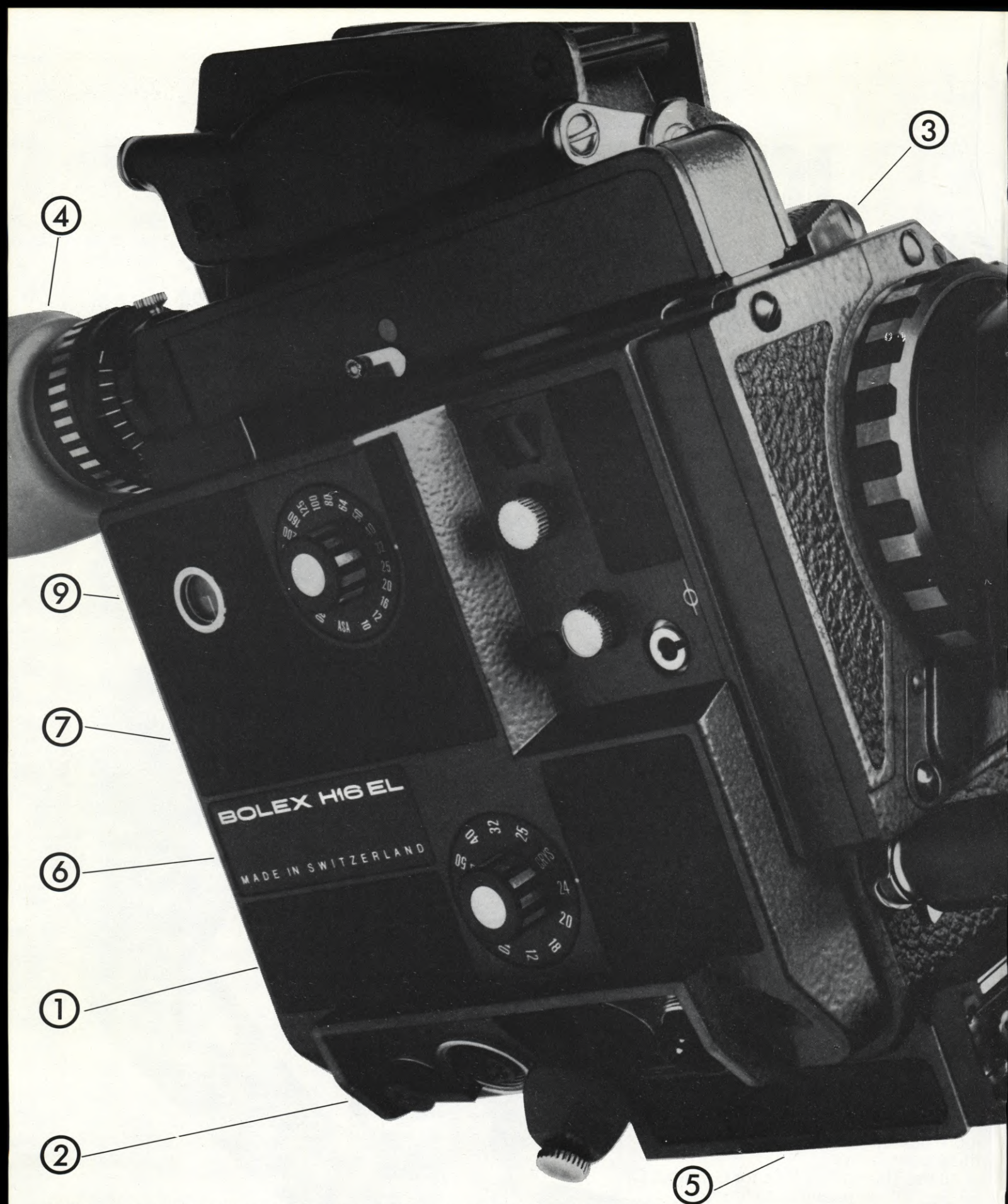
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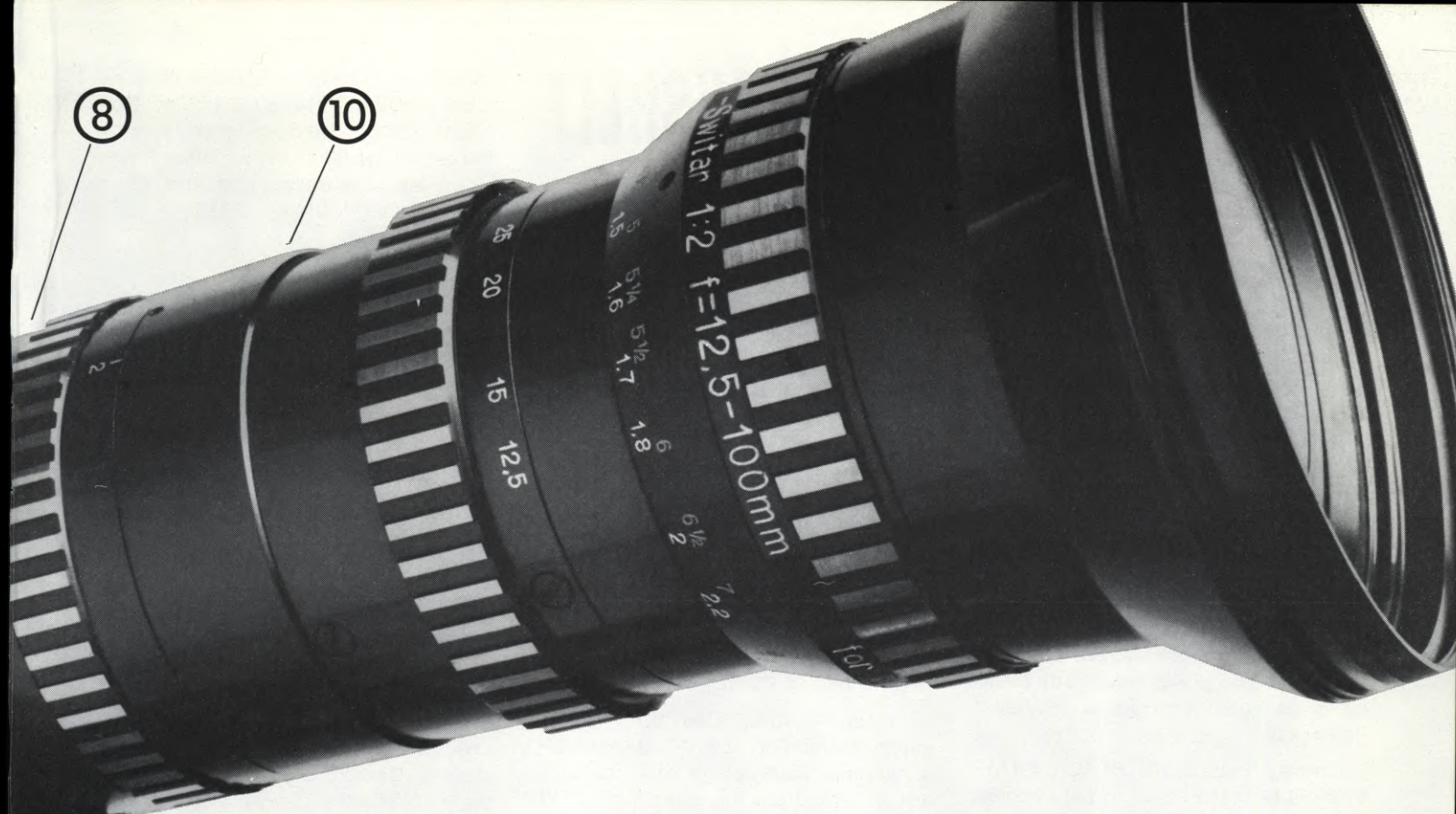
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## HISTORY REPEATS ITSELF

Contemporary aspects of the film industry have deep roots in the past, whose effect on personalities, methods and philosophies are traced in several significant current books.

Kenneth Anger's *HOLLYWOOD BABYLON*, largely rewritten from its original French edition of some 25 years ago, is a sizzling exposé, both factual and inferential, whose lyrical enthusiasm, nostalgic kitsch, and febrile doomsday warnings have the fascination of a sado-masochistic nightmare. (Straight Arrow \$14.95)

Long-time MGM story editor Samuel Marx has written, in *MAYER AND THALBERG: THE MAKE-BELIEVE SAINTS*, a topnotch "inside Hollywood" saga about the competitive relationship of the two giants who made MGM the great studio it once was. (Random House \$10.)

Lindsay Patterson's *BLACK FILMS AND FILM-MAKERS* is a documented and informative anthology about the development of a popular new film genre. (Dodd, Mead \$12.50)

In *THE BIRTH OF THE TALKIES: FROM EDISON TO JOLSON*, Prof. Harry M. Geduld presents an authoritative and data-filled survey of film history through the emergence of sound. (Indiana U. Press \$12.50)

Useful and perceptive, E. Bradford Burns' *LATIN AMERICAN CINEMA: FILM AND REALITY* offers revealing insights into aspects of Latin American social structure as seen through its films. (UCLA \$3.95)

Expertly compiled by John Stewart, *FILMARAMA* (Vol. I, 1893-1919) is a comprehensive cross-indexed listing of all performers appearing in the films of that period, an indispensable research tool for scholars. (Scarecrow \$15.)

Significant references to film are made in Jay W. Baird's important study, *THE MYTHICAL WORLD OF NAZI WAR PROPAGANDA, 1935-1945*, indicating the use of movies to shape and manipulate public opinion. (U. of Minnesota Press \$15.)

In *MARVELOUS MELIES*, Paul Hammond spins an entertaining tale, delightfully illustrated, about Georges Méliès, the magician turned filmmaker, who pioneered trick photography and launched movies on a new, magical path. (St. Martins \$10.)

Covering films, books and politics, attorney Charles Rembar, in *PER-SPECTIVE*, narrates with vigor and per-

# THE BOOKSHELF

By GEORGE L. GEORGE

suasiveness the battles he fought on behalf of the freedom of the screen and our basic civil liberties. (Arbor House \$8.95)

\* \* \*

## SCRIPTERS AND SCRIPTS

There are several methods of publishing screenplays. Editor Richard J. Anobile's consists in reconstructing a picture through 1000 or more frame blow-ups shown sequentially with accompanying full original dialogue. His two latest volumes in the series are *JOHN FORD'S STAGECOACH* and *ERNST LUBITSCH'S NINOTCHKA*. (Avon/Flare \$5.95 ea.)

Editor Anobile also presents in similar fashion "GODFREY DANIELS!", a hilarious assemblage of verbal and visual gems from the short films of W. C. Fields. (Crown \$8.95)

The complete script of François Truffaut's Oscar winner, *DAY FOR NIGHT*, ably translated by Sam Flores, is as enchanting between covers as it was on the screen. (Grove \$3.95)

A Blue Ribbon winner at the recent American Film Festival and originally made for television, Alvin H. Goldstein's *THE UNQUIET DEATH OF JULIUS AND ETHEL ROSENBERG* is a meticulously documented and movingly written screenplay about a traumatic episode in our recent history. (Lawrence Hill, 150 Fifth Ave., NYC 10011, \$8.95/4.95)

Nathanael West, the novelist who wrote *The Day of the Locust*, was long a Hollywood screenwriter. A comprehensive bibliography of all his literary work has been compiled by Prof. William White in a scholarly and significant volume. (Kent State U. Press \$8.)

In *THE RAY BRADBURY COMPANION*, William F. Nolan has compiled an exciting, abundantly illustrated bio-bibliography of the popular author of books and films, whose prolific output transcends the science-fiction label generally pinned on his work. (Gale, Book Tower, Detroit, MI 48226, \$28.50)

A brilliant chronicle of the Hollywood invasion by the literati at the time that movies found their voice and needed proper dialogue, Fred Lawrence Guiles' *HANGING ON IN PARADISE* tells vividly of the

stimulating effect of such writers as Scott Fitzgerald, Robert Benchley, Ben Hecht, Lillian Hellman and Dorothy Parker on the less cosmopolitan Hollywood establishment and the films themselves. (McGraw-Hill \$15.)

\* \* \*

## LOVING LOOKS AT YESTERDAY

Nostalgia time is with us more than ever and books about the "Good Old Days" feed a prevailing reader appetite. For example *THE GLAMOUR GIRLS*, a copious and well documented volume by James Robert Parish and Don E. Stanke, recaps entertainingly the lives and careers of "Silver Screen Idols" Rita Hayworth, Jennifer Jones, Joan Bennett and several of their stellar peers. (Arlington \$17.95)

Walt Disney's *MAGIC MOMENTS* is an attractive, large format album vividly evoking, through all-color frame blow-ups, the most memorable Mickey Mouse, Donald Duck and Ferdinand the Bull cartoons. (Crown \$9.98)

In *THOSE FABULOUS MOVIE YEARS: THE 30's*, Paul Trent offers a well-informed and most readable assessment, with over 500 illustrations, of 150 top pictures of that period, their stars, directors and producers. (Crown \$14.95)

Forty famous child performers, not included in Marc Best's earlier volume, *These Endearing Young Charms*, are profiled in *THEIR HEARTS WERE YOUNG AND GAY*, a detailed and illustrated survey of the juvenile careers of Elizabeth Taylor, Donald O'Connor, Patty Duke, Jackie Coogan and many others. (Barnes \$10.)

James Abbe was a gifted still camera artist, whose selected photographs appear in *STARS OF THE TWENTIES*, a lovely and revealing collection of beautifully insightful portraits of top performers of the day. (Viking \$10.)

A clever quiz book about the movies, *SCREEN TEST* will challenge your knowledge of all aspects of the medium, ingeniously compiled by Peter Bowen, Martin Hayden and Frank Riess. (Penguin \$2.50)

Mildred Constantine's *TINA MODOTTI: A FRAGILE LIFE* is the absorbing, superbly illustrated life story of a complex and fascinating personality of the 30's: actress, photographer, political militant and companion of still-cameraman Edward Weston. (Two Continents \$14.95)

Donald F. Glut's *THE DRACULA BOOK* expertly surveys all film/tv/a-v coverage of the popular vampire. (Scarecrow \$12.50) ■



The Sennheiser MKH 815  
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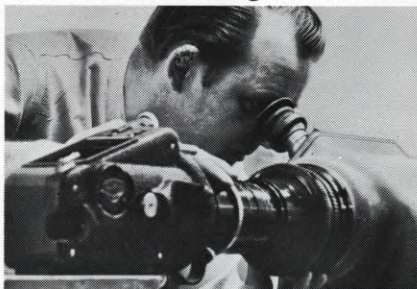
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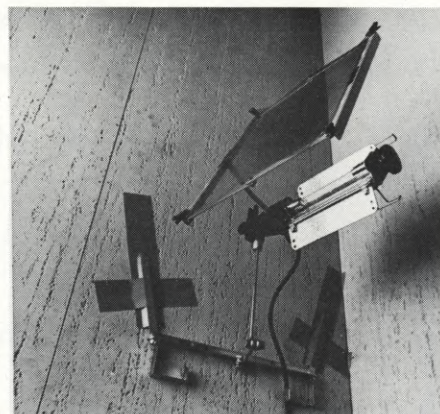
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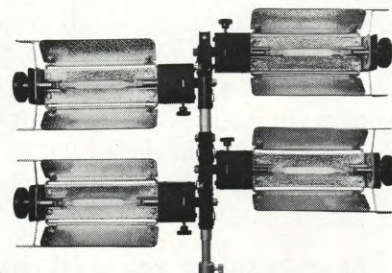
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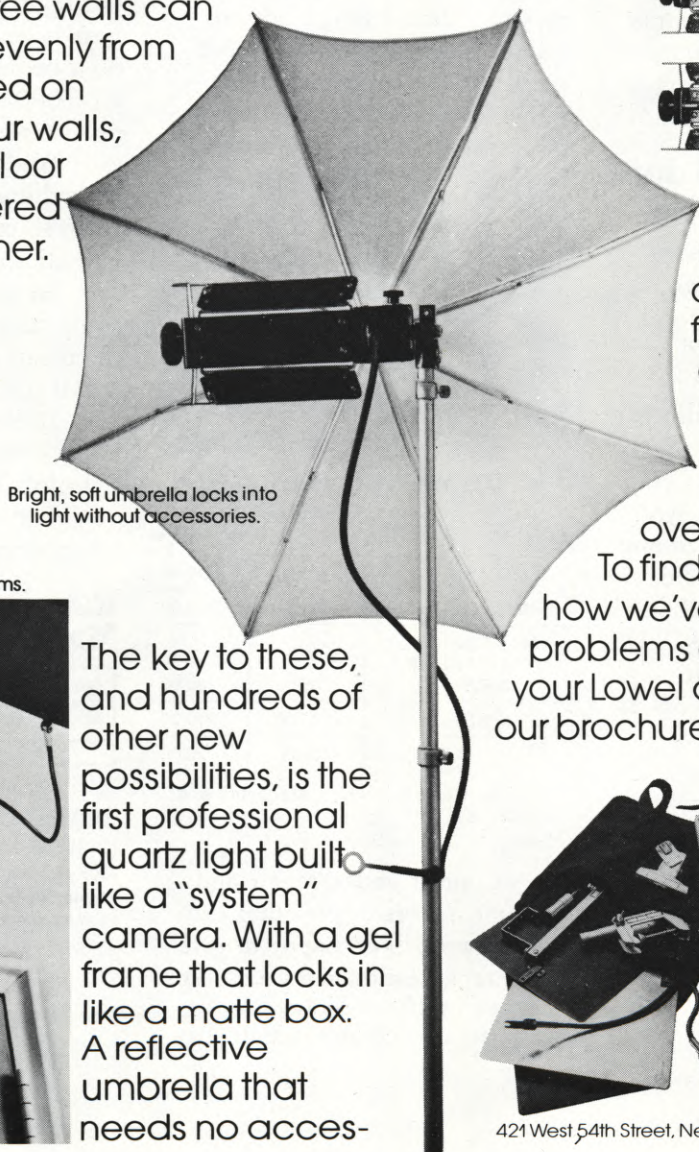
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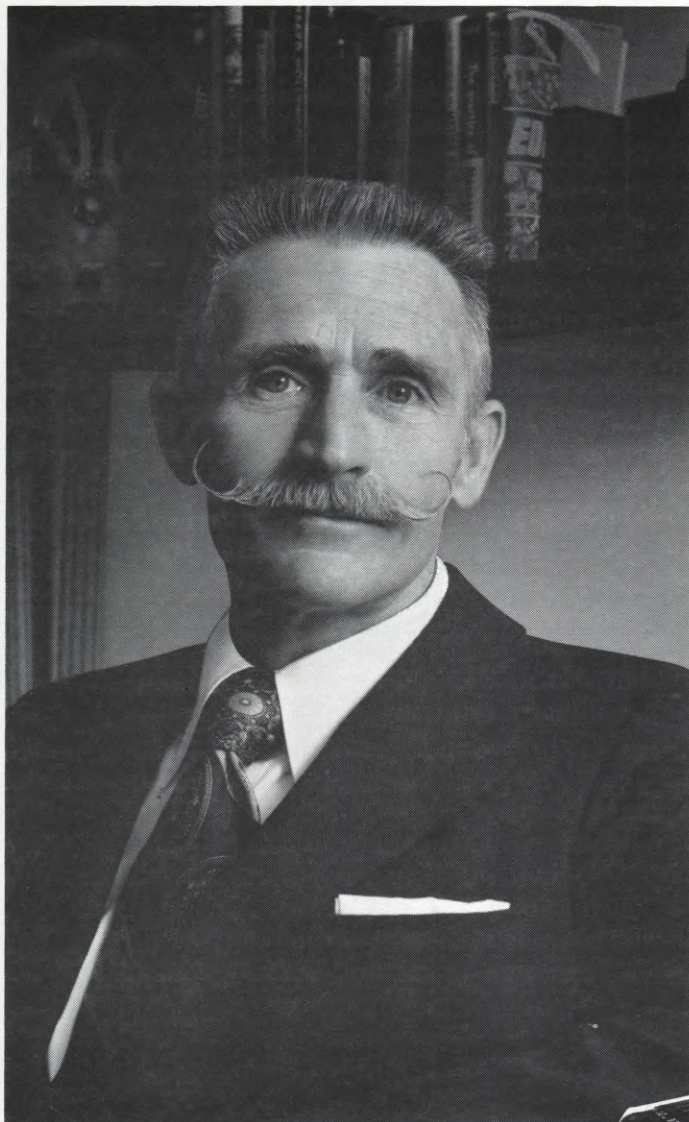


  
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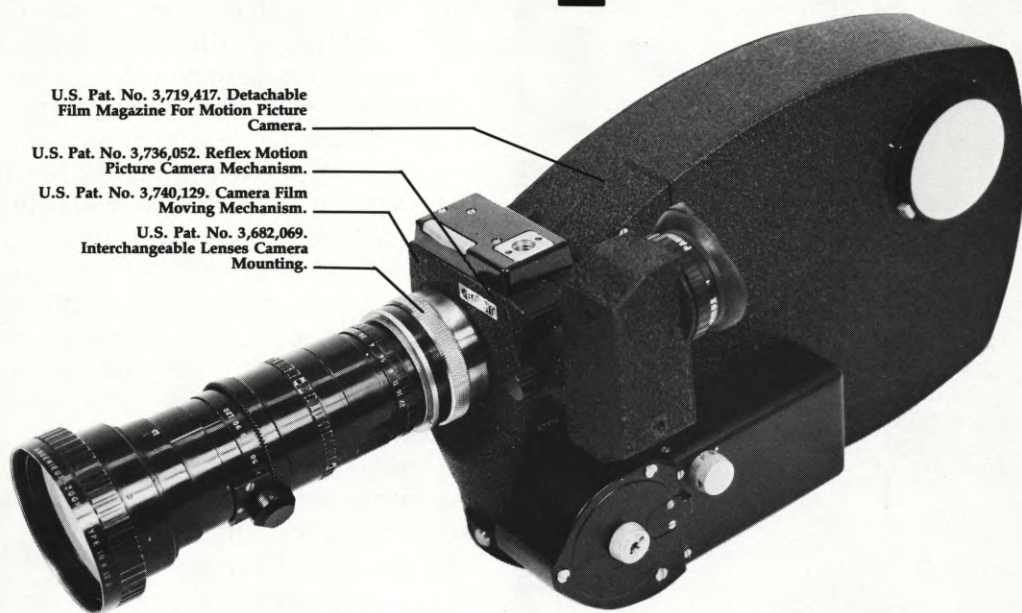
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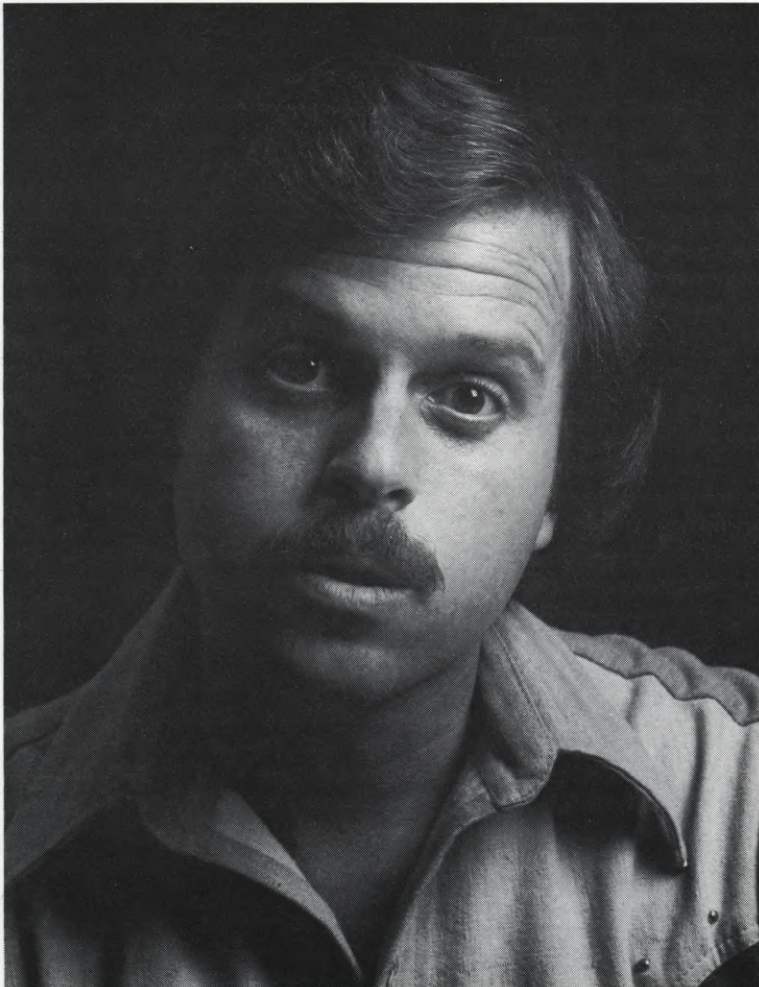
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# MAN-AGAINST-MOUNTAIN AND VICE VERSA DURING THE FILMING OF "THE EIGER SANCTION"

By MIKE HOOVER

Climbing Advisor/Cinematographer

Fritz von Almen is dead now but he, almost single-handedly, put the Eiger on the map. He made fame possible.

Cogwheel railways begin in the valleys of the Bernese Oberland, heartland of the Swiss Alps, and wind up past the ski-resort hotels. Halfway up on the long hauls from the valley floors to the highest points on the cogwheel railroads, the trains suddenly burst above the foothills and cliffs which, until then, have blocked the travelers' view, and the dominant characteristic of the

As mountain climber/cinematographer Mike Hoover prepares to film the scene for Universal's "THE EIGER SANCTION", dummy representing the body of dead climber is lowered to the valley below. At left, Clint Eastwood, star of the film and its director, and assistant director Jim Fargo supervise the action. Hoover, who received an Academy Award nomination for his stunning short film, "SOLO", did most of the filming on the mountain. The Director of Photography was Frank Stanley, ASC.

Bernese Oberland comes into awesome sight. Glazed with ice and mantled in perpetual snow, some of the most famous mountains of Europe leap into blue-white focus. The Wetterhorn, the Blumlisalp, the Bietschhorn, the Schreckhorn poke upward in apparent immutability. But most conspicuous of all is a mighty trinity of peaks lying side-by-side on the vast bulk of the Jungfrau Massif. Jutting upward from the broad base of the Massif are the Eiger (13,038 feet), the Monch (13,465 feet),

and the Jungfrau peak itself (tallest at 13,638 feet).

The smallest is the killer. The great German climber Andreas Heckmeier called the Eiger "the last great problem in the Alps." Centuries before, the Interlaken monks, without ever setting foot on the mountain, had known instinctively that it was an evil place. The two higher mountains of the triumvirate were given benign names: Monch (monk) and Jungfrau (virgin). But to the jutting pyramid lying alongside, the monks affixed the word for *ogre*, and history has borne out the aptness of their choice. A 6,000-foot concave wall facing north, a tilted saucer of rotten rock, waterfalls, hanging ice fields and gullies scoured smooth by thousands of years of avalanche. There is no mountain or cliff in the world so fraught with objective dangers — avalanche, rockfall and blizzard — over which the climber, regardless of his skill, has no control. In warm weather, the "mountain artillery" cascades in ear-splitting salvos and barrages, then skips off to fall unimpeded for thousands of feet to the base. Tons of snow from the summit hiss down in deadly, smothering avalanche. Electrically charged clouds swirl into the wall, enshrouding climbers, flicking sparks from their pitons, wreathing their heads in St. Elmo's fire, while the whole face hums and whines like a monster power generator.

Near the base of the Eiger the von Almens have run their hotel, the *Kleine Scheidegg*, for the past 129 years. But it was Fritz von Almen's fascination with the North Face in the 40's and 50's that inspired climbers upward. He was not a climber, but a watcher, an "Eigerbird". His hotel's strategic location and rental telescopes made instant heroes of those who dared the "Mordwand" (Eiger pseudonym coined by German Press — literally "Murder Wall"). The press and tourists were seldom disappointed by the early attempts on the Face. At one point in the long Eiger history the score was 16 successful and 18 killed. The list of those who retreated with broken bones or frozen limbs hasn't been kept.

Continued overleaf







(LEFT) The second day of shooting on the West Ridge of the Eiger. (CENTER) Straddling a ladder cantilevered into space, Hoover prepares to shoot scene in which Eastwood will cut the dummy loose for a 3,000-foot fall down the face of the Eiger. (RIGHT) Norman Dyhrenfurth, Clint Eastwood and Martin Boysen, after finishing the bivouac scene. Note who is carrying the heaviest load. Hoover says Eastwood was "the first guy to do the dirtiest job. If there's a heavy battery to carry, he's the one who does it — and not in a show-off way."



(ABOVE LEFT) Dougal Haston beginning to follow off of the Roto Fluh. Haston and Hoover spent two weeks on the Face, location hunting prior to shooting. (CENTER) The Eiger's North Face at sunset, under the warm rays of the "alpenglow". (RIGHT) King of the Mountain. Mike Hoover atop the Eiger, planning the body and camera POV drops. (BELOW LEFT) David Knowles being lowered onto the location, prior to his fatal accident. (CENTER) Hoover rigging on the Totem Pole, 640-foot high, 18-foot in diameter spire on the Navajo reservation in Monument Valley. (RIGHT) Eastwood being lowered from the Lama helicopter onto the West Ridge.



(LEFT) Mike Hoover on the West Ridge shooting inserts. Despite its six-pound weight, Panavision's 30mm wide angle lens proved to be the workhorse on the mountain. (CENTER) Lunch out of the wind, inside snow cave dug by Chick Scott (far right). (RIGHT) Clint Eastwood maneuvering into position to cut the rope in the final sequence. Hoover's legs and the 30mm Panavision lens can be seen in the foreground. Both are hanging off the North Face 3,000 feet up.

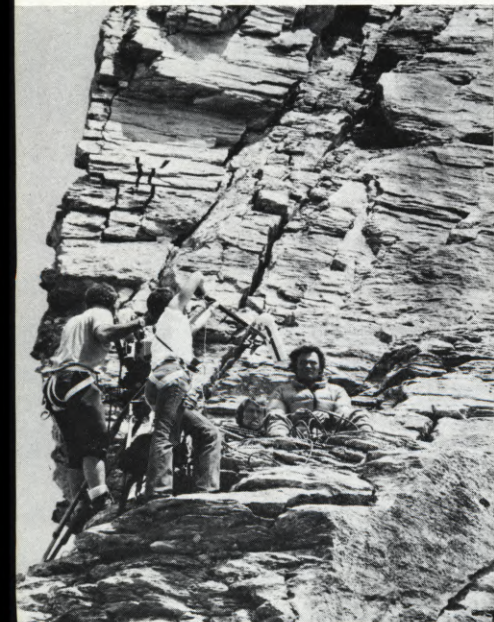






After falling from his precarious perch on the North Face of the Eiger Mountain, Jonathon Hemlock (Clint Eastwood) hangs suspended by his safety line, 4,000 feet above the ground. Eastwood did an exceptional job of starring in and directing the difficult assignment, which entailed tremendous exertion, considerable personal risk and precise attention to technical detail.

(LEFT) Eastwood is photographed with co-star Reiner Schoene by John Cleare and Peter Pilafian. This was one of the few times a tripod was used in filming on the mountain. (RIGHT) Eastwood lines up the camera before actually shooting an action scene from a window platform in Zurich, Switzerland.



The climb on which the best seller *The Eiger Sanction* was founded took place while Clint Eastwood was enjoying his summer vacation from kindergarten in Oakland, California. Eight thousand miles away Fritz von Almen studied another attempt on the North Face. He felt optimistic as he swept the twin-barreled 72-power Zeiss telescope up the ice and rock litter at the base of the wall, then slowly worked his field of vision upward across gulch and crevasse, pillar and snow field. A few hundred yards up, silhouetted against a patch of dirty snow were Edi Rainer, Willy Angerer, Andreas Hinterstoisser and the young Toni Kurz, who would play Eastwood's part for real. From the battery of telescopes watching from the *Kleine Scheidegg*, the climbers appeared inspired and strong. One by one, they vanquished difficult pitches, cramponed across the first ice field, and reached the "Red Cliff" leading to the second ice field. But suddenly, the two Austrians, Rainer and Angerer, were seen to stop. Kurz and Hinterstoisser, up above on a narrow ledge, lowered a rope and pulled the pair alongside. The climbers, now linked as a rope of four, were already halfway up the wall, a remarkable climb on a single day. But Angerer plainly was in trouble, barely able to negotiate the slippery rock. The next day, the party again moved upward, but far more slowly, with frequent stops to nurse Angerer, who seemed to have a head wound. On the following morning they gave up and headed down. With precise movements they lowered themselves on the doubled rope, and as night fell they had crossed the first ice field. Now they had only to reverse the traverse pioneered by Hinterstoisser, rope down the "Difficult Crack," and the rest would be relatively simple. On July 21, their fourth day on the mountain, they reached Hinterstoisser's traverse and found that the Eiger north wall, in its usual quixotic fashion, had changed. The temperature had dropped sharply. The water which had been cascading down the face now had frozen against the sheer walls of the traverse. All day long the brave and skillful Hinterstoisser could be seen attacking the polished ice of the cliff, and all day long he was beaten back. Finally, the four climbers were seen trying to lower themselves straight down the sheer cliff, 650 feet deep, to the easier pitches below. As the afternoon mists deepened, they all disappeared from the telescopes below.

Fortunately for future climbers, when the cogwheel tunnel was being hacked through the innards of the Eiger back in





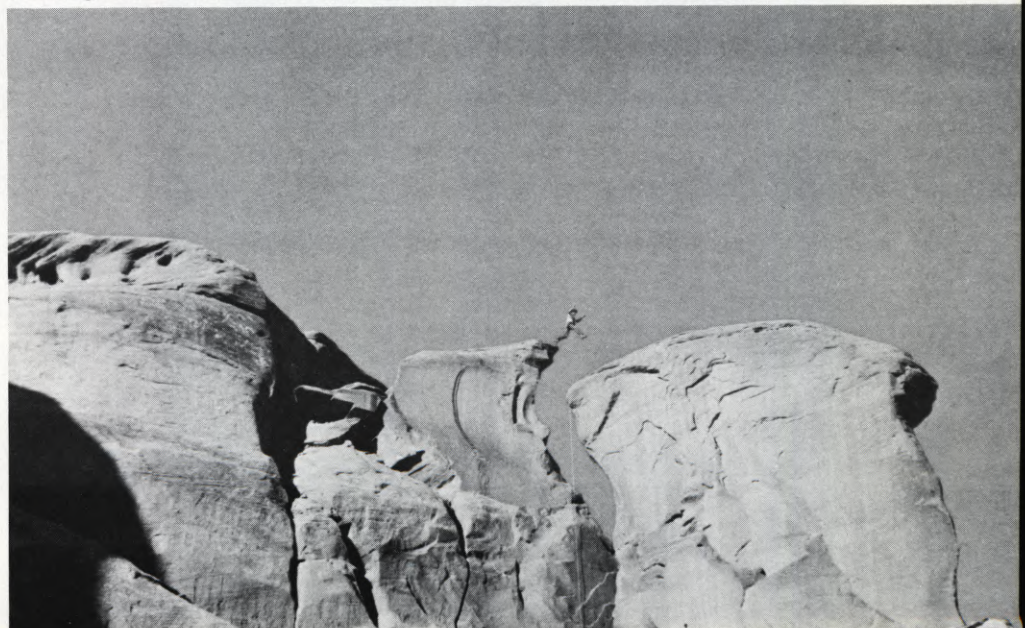
**Mike Hoover, Peter Pilafian (soundman/second cameraman/sometime stunt man), George Kennedy and Clint Eastwood atop the Totem Pole in Monument Valley. The rock spire is 640 feet high and 18 feet in diameter. Shot on this "location" was an extensive sync-sound sequence which would have been impossible to shoot without the combination of the Panaflex camera and the miniature sound mixer designed and built by Pilafian. Climbing of the Totem Pole is now banned. Hoover managed to get permission by agreeing to remove pitons and other hardware left by previous climbers.**

the late 1800's, several holes were bored out to the North Face in order to dump the debris from the tunnel diggings. When the tunnel was completed, these holes were covered over by heavily bolted doors. Now these doors were opened in order to try and contact the climbers. To the rescuers' amazement, they heard yodels of the four men. One of them shouted: "We're coming down. All's well!" They went inside the tunnel to wait the climbers and brew them some tea.

Two hours later when no one had arrived they opened the doors again and called into the mists. But now there were no happy yodels or cheers of optimism. The voice of Toni Kurz called weakly: "Help! Help! The others are all dead. I am the only one alive. Help!"

**Continued on Page 932**

**Hoover joyfully leaps a chasm while scouting locations in Monument Valley for "THE EIGER SANCTION". The young daredevil film-maker will soon leave for Mount Everest country to start production on his own feature film. Between assignments he practices mountain-climbing near his home, which is located in Grand Teton National Park, Wyoming.**





# SVEN NYKVIST, ASC TALKS ABOUT FILMING INGMAR BERGMAN'S "THE MAGIC FLUTE"

Famed Swedish cinematographer photographs Mozart's fantasy opera in colorful style, using the new Eastman 7247 Color Negative film stock

Because he has for the past 15 years photographed all of the films of Ingmar Bergman (including "CRIES AND WHISPERS", which won him the 1973 "Best Achievement in Cinematography" Academy Award), Swedish cinematographer Sven Nykvist, ASC has come to be known as "Ingmar Bergman's cameraman" and, while that is certainly true as far as it goes, after



The photographs on these pages are from Ingmar Bergman's highly stylized film production of Mozart's "The Magic Flute", photographed on Eastman 7247 16mm Color Negative stock by Sven Nykvist, ASC.



giving first allegiance to Bergman, he very often steps outside that famed director's charmed circle to photograph features for diverse other producers and directors. The results of these extra-curricular forays have included such memorable films as "A DAY IN THE LIFE ON IVAN DENISOVICH", "SIDDHARTHA", "THE LAST RUN" and "THE DOVE", to name a few.

During the course of a recent trip to Hollywood, he was interviewed as follows for *American Cinematographer*:

**QUESTION:** Even if it had been shot in the 35mm Panavision anamorphic format, Ingmar Bergman's highly stylized film version of Mozart's opera, "THE MAGIC





**FLUTE", with all of its fantasy and special effects, would have been a tall order to photograph. That being the case, it's especially interesting that you photographed it in 16mm, using the relatively new Eastman 7247 color negative. Would you like to tell me why it was shot in 16mm negative and what the particular problems and challenges of shooting it that way may have been?**

*NYKVIST: Well, in order to answer your question about the 16mm negative aspect of photographing "THE MAGIC FLUTE", I really have to go back to "SCENES FROM A MARRIAGE", which was the previous project I had done with Ingmar. It, too, was shot in 16mm negative — although not the new 7247*

*negative — and it was the first big project I had ever photographed in 16mm. Before that I had only used 16mm for short films.*

*We had just finished "CRIES AND WHISPERS" and now we wanted to do something "small" and for television. Ingmar had written a script about a marriage and the Swedish television people were interested in it, but they didn't have very much money to put into it. So we decided among ourselves that we wanted to make an experiment to see how quickly we could do the shooting. The project would be made up of six episodes, with each episode running 50 minutes — and we had to shoot all of that in eight weeks — 42 days, actually. Ingmar's shooting schedules are always 42 days*

*long — but this time it meant that we had to shoot 5½ hours of cut film in the 42 days. In other words, instead of shooting three minutes of cut film each day, we would have to shoot almost 10 minutes. The reason we decided to shoot it in 16mm was because we were assured that the finished film would be shown only on television.*

*Basically, we had to shoot a 50-minute episode each week, and the way we did that was remarkable. On Monday and Tuesday of the week we had rehearsal, with only Ingmar, myself and the actors present. During that two days of rehearsal, the actors really learned their dialogue — and there was a lot of dialogue to learn. On the third day, Wednesday, we were ready to shoot and we would start at 9:00 a.m.*





with camera rehearsal. We tried to time each scene so that it would run 10 minutes long in a single continuous take — just enough to fill a magazine load of film. During that 10 minutes we made many camera moves and zooms, and that was very difficult for me, because I not only had to light the set, but I was also the camera operator, as is the custom in Sweden. I had to learn all the places where I had to zoom and sometimes there would be 20 separate zooms during the 10 minutes. Besides that, I had to watch the lighting. It was quite interesting.

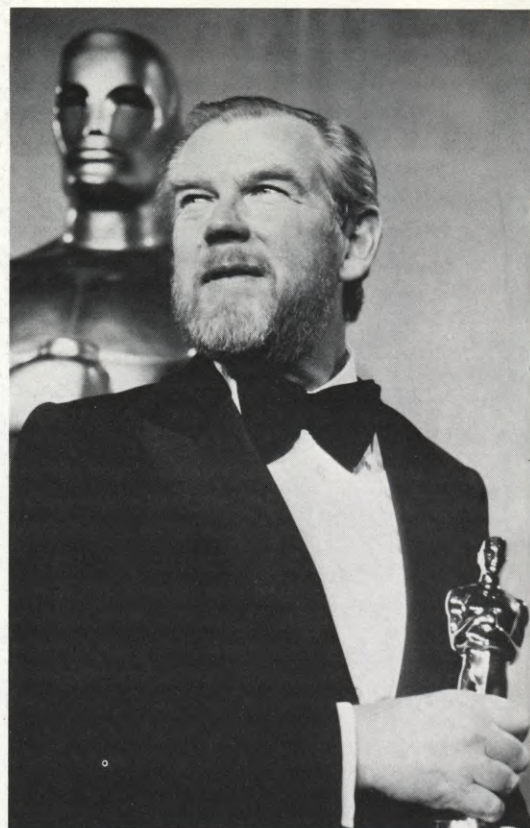
**QUESTION: That sounds like the understatement of the year. Were you using only one camera?**

**NYKVIST:** That's right — only one camera. At first, we said to each other: "We have to make it a little easier for ourselves — so let's use two cameras."

On the first day we used two cameras, but I was not very satisfied with the lighting. If you have such a

long-running continuous scene — 10 minutes — and the actors are moving everywhere, then it's difficult enough to light for one camera, let alone two. Then a very interesting thing happened. Ingmar discovered that we were starting to get lazy when we were using the two cameras. We weren't making our scenes as precise as usual, because we'd say: "Well, we can cut to the other camera, and the actor can be sitting because we can cut back and forth."

So, after two days, we stopped using two cameras and shot the whole series with one camera. I always think about that now when a director suggests using two cameras. I tell him about our experience, and about how, without realizing it, you start to get lazy and begin talking about "cutting to the other camera." Anyway, except for the first two days, we shot the entire project with one camera — sometimes as much as 20 minutes of "cut" film each day — except that the only cuts came after each 10 minutes of action.



Sven Nykvist, ASC, shown immediately after having won the 1973 Academy "Oscar" for his striking photography of "CRIES AND WHISPERS".

**QUESTION: In other words, as you said, you'd run the scene through for an entire 400-foot magazine of 16mm film?**

**NYKVIST:** Right. It started out as a kind of sport for us to shoot such a long scene — to run it for the whole magazine. But now, when I see the picture, it doesn't look like that, because Ingmar cut out some of the panning and tilting to make the action move faster.

**QUESTION. Yes. The problem with those long continuous takes is that**

**(ABOVE LEFT)** The bizarre elements and personalities indigenous to Mozart's "The Magic Flute" lent themselves easily to innovative lighting and bold applications of color. **(BELOW LEFT)** Nykvist gives lighting instructions amid scenery that doesn't pretend to be realistic. **(RIGHT)** The figures in many of the scenes seem to be from some different world, other than that of living normal human beings.





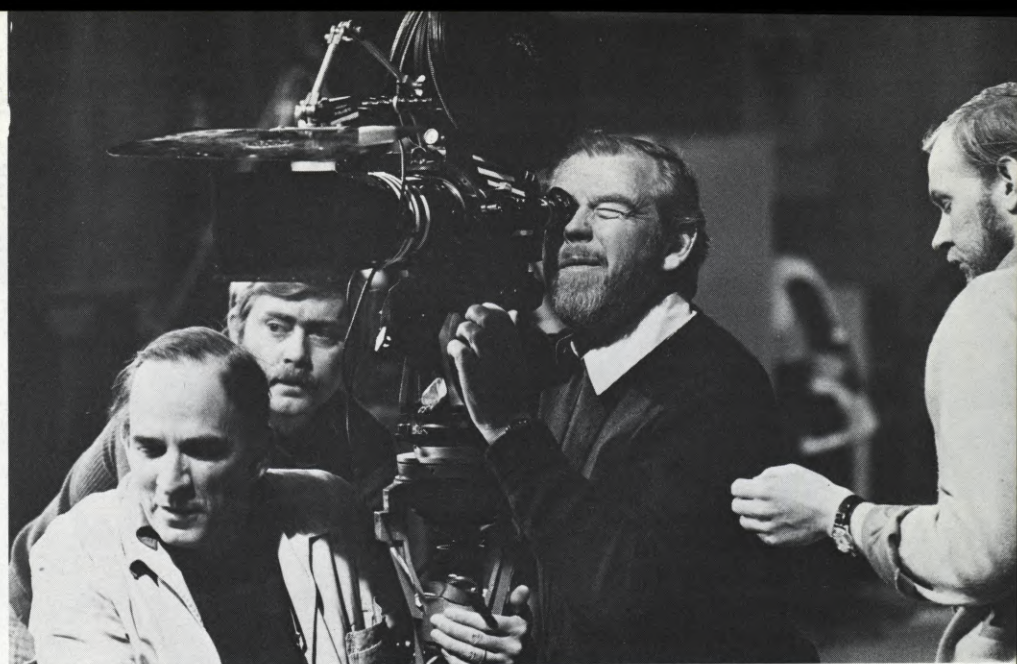
you're usually absolutely stuck with what you have. It's very hard to tighten up or change things around when the action is all on one continuous piece of film. I believe that Hitchcock had to fight that problem when, years ago, he made such a picture with each scene 10 minutes long. You may remember his film called "ROPE".

*NYKVIST: I remember it very well — but he moved walls and furniture and everything during the take. We said to ourselves: "This picture is not about a milieu; it is about a marriage, and we are interested in the faces." So, during the entire time, we worked very close to the faces and tried to get very interesting shots of the faces.*

**QUESTION: With respect to working in close to the faces, do I understand correctly that "SCENES FROM A MARRIAGE" was conceived exclusively for television, with no thought given to subsequent 35mm blow-up for theatrical release? If so, didn't the "working very close to the faces" cause some problems when it came to making the 35mm blow-up?**

*NYKVIST: Yes, it certainly did. I photographed it in the 1.33 format because we had been assured that it would be shown only on television. We never thought that it would be blown up for theatrical release. If I had known in advance that there was a possibility of that, then, of course, I would have moved back a bit and given the compositions more space.*

**QUESTION: How did it happen that it ended up being shown in the theatres, after all those assurances that it would be shown only on television?**



While the internationally famous Swedish director, Ingmar Bergman (left) looks on, Director of Photography Nykvist lines up the camera for the next shot. Nykvist has photographed all of Bergman's films since "THE VIRGIN SPRING" in 1960, and they average one a year. In between Nykvist accepts other assignments that take him all over the world.

*NYKVIST: Apparently in response to a demand. It was such a big success on Swedish television that people began to ask — especially in America — if it couldn't be shown in the cinemas. So a print was sent to America and it was about five hours long. At first they thought that the whole thing could be shown with an intermission, but it was still too long. So they cut it down to two and a half hours and it has been a big success in America — which seems very strange to me.*

**QUESTION: How did you feel when you heard that it was going to be blown up to 35mm for theatrical release?**

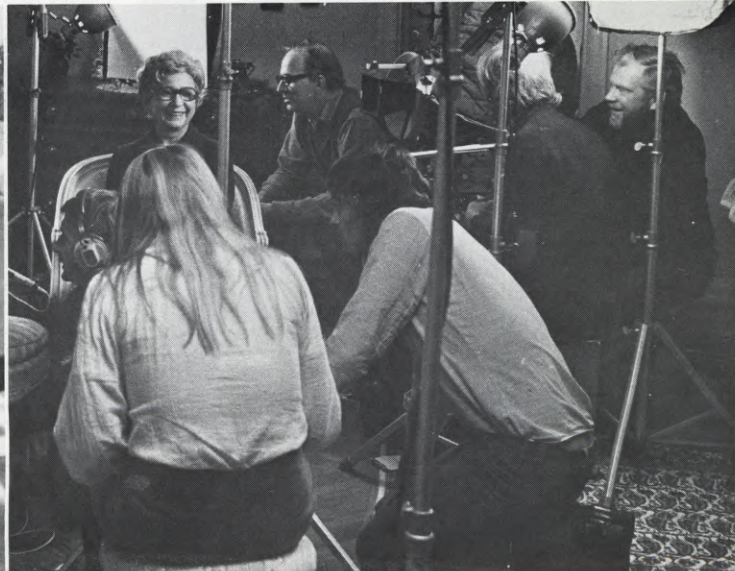
*NYKVIST: From the purely personal standpoint, I was sorry to hear it. I thought it would destroy my reputation as a cinematographer, because it couldn't possibly be up to the high*

*technical quality one is used to seeing in the cinemas. I've asked many cinematographers here in Hollywood how it looks to them on the big screen and they say: "Okay, in the beginning we think it looks grainy, but the story is so interesting that after a short while we forget that it's grainy."*

**QUESTION: You mentioned earlier that "SCENES FROM A MARRIAGE" was shot on the old Eastman 16mm color negative — the 7254 emulsion. Was there any debate about which emulsion to use, or were you absolutely convinced that negative was the way to go?**

*NYKVIST: Well, at the time we couldn't very well choose anything else. The new 7247 negative was not yet available and we knew it wouldn't be for about a year. I made tests with the reversal (7252) film, but it didn't show at all as*

(LEFT) Bergman conducts an al fresco production meeting with key members of his staff. (RIGHT) Bergman employs most of the same crew members and many of the same actors on each film he makes, so that these people have by now become a loyal and cohesive "family". They are totally dedicated and the famed director feels most comfortable working with them.







In "The Magic Flute", Sven Nykvist, who achieved fame as a strictly realistic cinematographer, found himself with subject matter that allowed for the use of heavy backlight, multi-colored key and fill lights and unusual camera angles. He found that the experience considerably loosened up his usual conventional style, permitting him to heighten the realism for dramatic effect.





good a result as Eastman negative — so we really didn't have a choice. And, of course, it was very, very important to have the extra speed because of all the moves that had to be made and the necessity for staying in focus. The 7254 was a very grainy emulsion, but we didn't have anything better. I remember saying, when we finally talked about it being blown up, that I hoped it would be written in the titles that it was originally shot in 16mm, so that people would understand the reason why it was so grainy.

**QUESTION: Have you seen the blow-up yourself on a big theatre screen?**

**NYKVIST:** Yes, I saw it in the biggest cinema in Stockholm and it was strange, I must say. Shots which in 16mm I had found to be a little soft looked quite sharp when blown up to 35mm. I wondered how that could be possible. Then I discovered that it was due to what I call "grain sharpness." The grain, as it is blown up, stays sharp and creates an impression that the picture itself is sharp. So I said to myself: "Well, I've made a picture in which some of the shots are soft in 16mm, but sharp in 35mm." Very strange. After 30 years as a cinematographer, you think that you know everything about it, but on every picture I find that there is always something new to learn.

**QUESTION: Since, as you've said, the picture was shot with only television in mind, and composed accordingly, how did you handle the problem of cropping when it actually came to making the 35mm blow-up?**

**NYKVIST:** It was a very big problem. When we were promised that it would be shown only on television, I framed everything so that there would be very little "air" around the people, because that isn't good on television. So I stayed in as close as possible. When it came to making the blow-up, the only thing that we could do generally was to crop less at the top of the frame and more at the bottom. Still, there were many scenes in which we couldn't automatically do that and I had to sit with the man at the optical printer and scan the frame so that he wouldn't cut off too much. What made it even more difficult, of course, was the fact that this picture would be shown abroad with sub-titles in many cases, and the sub-title would usually appear right over the mouth.

Anyway, this experience taught me that even though you shoot in 16mm



In this interview, Nykvist speaks of the curiosity to which he has always been heir and which has impelled him to question orthodox techniques and explore innovative ways of putting a story onto the screen. This element does much to keep his work fresh and alive.

"only for television", you must consider the possibility that sooner or later it may be blown up to 35mm for the cinemas — and frame with that in mind. That brings us to "THE MAGIC FLUTE" — which was your original question.

**QUESTION: Yes. Can you tell me**

**how that project developed and why the decision was made to shoot it in 16mm negative?**

**NYKVIST:** Well, Ingmar Bergman had always wanted to film an opera, but it's terribly difficult to do an opera and get

Continued on Page 953

On the set during the filming of "The Magic Flute" in Stockholm. Tests have been made in blowing up scenes from the film to 35mm from the original 16mm version filmed for television with the 7247 negative and, while no decision has been made at this writing, there is talk of releasing the feature in theatres, just as in the case of "Scenes From a Marriage".





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Our Samcinevision systems have been, or are being, re-designed and re-built to incorporate the very latest in CCTV technology to give better pictures, increased low light sensitivity, greater reliability and added facilities for extra versatility.

The industry is responding too. Gene Wilder, directing and acting in *'The Adventure of Sherlock Holmes' Smarter Brother'* (shooting with a Panavision R200), uses Samcinevision all the time to check his performance and those of his fellow artists. Oxford Scientific Films, doing the micro and macro work for Harry Saltzman's *'The Micro-nauts'* have a Samcinevision system incorporated with a Mitchell S/35. In addition, an increasing number of producers of TV commercials use Samcinevision as an aid for the director (many of whom hail from TV), to keep the agency and clients happy and to reduce costs by replaying all possible takes prior to ordering prints at the end of the day. Used like this, Samcinevision may actually cost nothing.

Cameras, too, find it useful; especially the slow motion and freeze frame play-back facilities. Future equipment, now under development, includes compact units for Arriflex IIC & 35BL cameras and . . . . colour.

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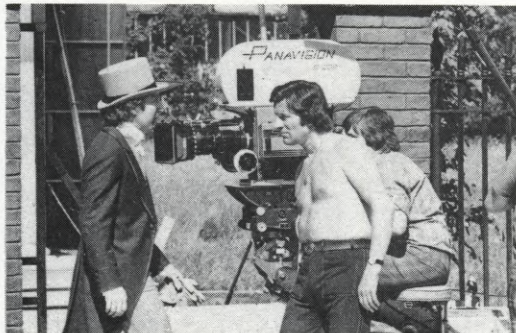
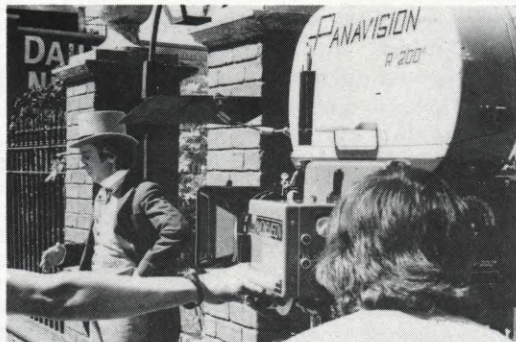
It's our principal growth area for 1975.



*Alan Howe: Past experience includes 15 years with Pye, TVT Ltd. starting as an apprentice followed by work on TV transmitter and camera development, and as manager of one of their service departments and 5 years with Thames TV as an engineer and TV cameraman.*



**Gene Wilder—Director  
Gene Wilder—Actor/Director**



**Gene Wilder—Actor  
(!)**

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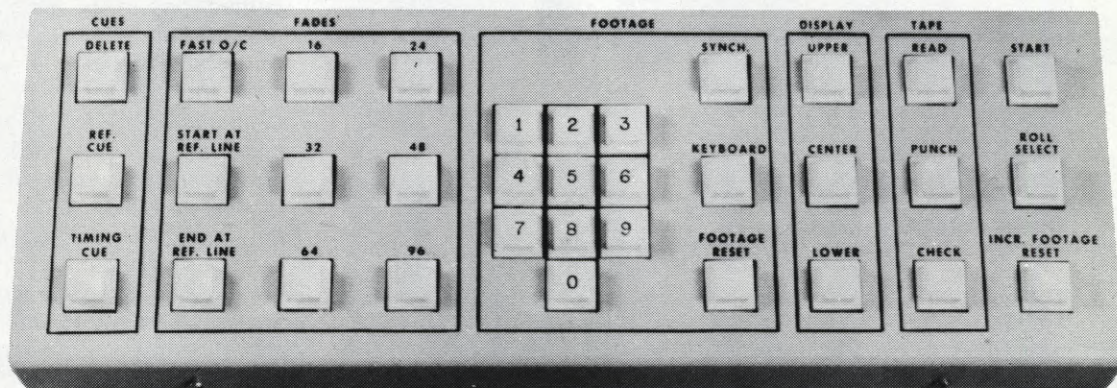
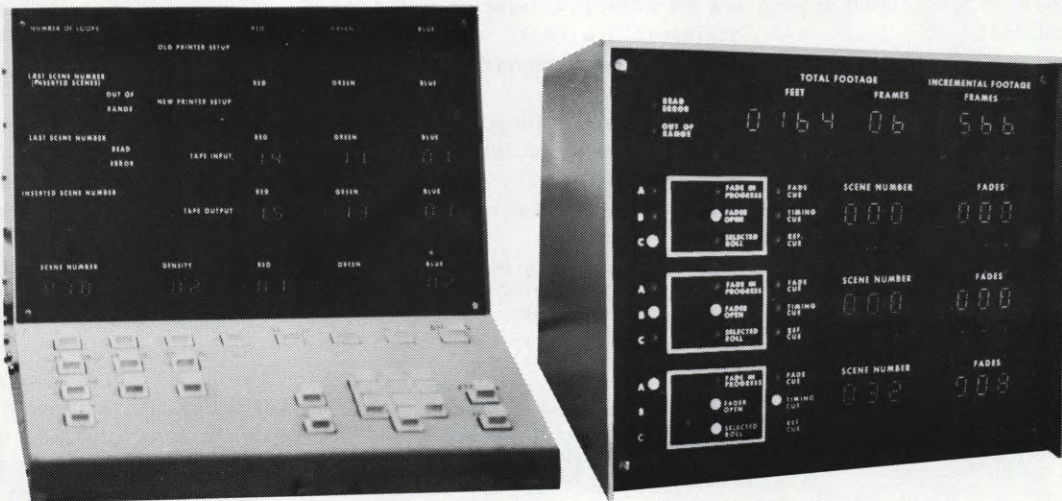
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# REPORT FROM



Paris plays host — as only it can — to a new trade exposition: the First International Fair for Cinema, Theatre and Convention Hall Equipment

CISCO, an acronym for the 1st International Fair for Cinema, Theatre and Convention Hall Equipment, was held June 13-18, 1975 at the Palais de la Defense in Paris.

Visitors to the Fair were very much impressed with the spaciousness and sumptuous character of the vast hall in which the event took place. Also impressive was the obvious care and attention to detail that went into the planning and organizing of CISCO's debut.

As for the exhibits, one can say honestly that it seemed to be a "mixed bag", bringing together displays of Cinema, Theatre and Convention Hall equipment. The great emphasis by far, judged in terms of the number of exhibitors represented, was on theatre equipment. Never have so many lush and elegant theatre seats been displayed under one roof!

There was one of those air-supported tents devoted to displays of various convention goods and facilities.

As far as motion picture production equipment was concerned, the representation was rather sparse. Several of

the biggest names (and a few of the smaller ones) were represented, but most of these were grouped with other products in distributors' booths. Few companies had their own booths.

One wonders why this was the case — whether motion picture production equipment was an afterthought, not given sufficient time for promotion, of whether CISCO's proximity on the calendar to *Photokina* and *Film '75* (held a few days later in London) had something to do with it.

In the following interview, conducted the day before the close of the Fair, John Nathan, CISCO's New York Manager, sums up the prevailing reactions to the event:

**QUESTION: Up until a week ago, CISCO was just an idea. Now that it's an actuality, how do you feel it matches up with what its organizers and designers had in mind?**

*NATHAN: Well, I think the results are very heartening to the organizers. It was a gamble and I think that it was only really after the show opened that it*

*was realized that there had been a need for such a show. This became evident in talking to the exhibitors, many of whom have voiced their satisfaction with not only the quantity, but the quality of the visitors who have attended. Many of these exhibitors have made special mention of the fact that the visitors who have been here were those who could sign contracts — Presidents, Vice Presidents, General Managers, and the like. That was really a question that could not have been answered before the show started, despite the fact that there were 171 exhibitors and that, strictly on those terms, the show could have been considered a success. But unless they were satisfied and planned on coming back in 1977, it really would not have been a success. As it stands, I haven't spoken to one exhibitor who isn't planning to come back in 1977. As a result, we feel that the gamble has paid off and that CISCO '77 is going to be a much better show.*

**QUESTION: What prompted the conception of this show in the first place?**

*NATHAN: It was felt that there was a need for such a show. For example, many people felt that although much of the same equipment was on view at Photokina, that event was just too large and diverse, with too many onlookers and tourists and what-not, to be a good marketplace. I must say that, as far as the United States was concerned, one of the main boosters was the Motion Picture Association of America. Their people were in touch with the organizer from the very beginning and did all they could to promote the event. From the theatre equipment standpoint, it was certainly in their interests to do so. Naturally, they would like to see all the theatres in Europe, America and elsewhere upgraded and they were very fervent supporters. If I'm not mistaken, even Jack Valenti made a statement to the effect that he absolutely supported CISCO and thought it was a great idea.*

**QUESTION: Apropos of that particular point, there is here a very great emphasis on theatre presentation,**

The Palais de la Defense, a new and ultra-modern convention center in the heart of the "City of Light", was a fine choice of location for the premiere edition of CISCO. Spacious aisles and booths in the vast hall provided a welcome change from the cramped quarters so often encountered at trade fairs. All of the ancillary facilities were first rate, as well. Approximately 7,000 professional visitors attended the six-day event.







The First International Fair for Cinema, Theatre and Convention Hall Equipment and Motion Picture Production Equipment, as CISCO is formally dubbed, was supposed to feature an equal mix between Theatre Equipment and Motion Picture Equipment, but the Theatre Equipment was very much in the majority. The organizers of the event hope to change that ratio in accordance with their original intent when the second edition of CISCO is held in 1977. Unlike Photokina, Film '75 and the SMPTE Conference, CISCO is not industry sponsored, but is presented by entrepreneurs who specialize in setting up trade fairs for specific industries.

**as compared with film production. I am wondering how that equates with the original aim of the organizers and whether you anticipate more emphasis on film production in future years?**

*NATHAN: Well, I'd say that the original aim was to have a show that was 50-50, with equal emphasis on theatre equipment and film production equipment. It turned out to be much more difficult to sell the film production equipment people on the idea than the theatre equipment people. What's very heartening, though, is that the film production equipment people who are here are apparently very happy and are planning to come back in 1977. Hopefully, they will communicate their happiness with the show to those who did not show up, and we are very hopeful that it will be 50-50 in the future. We planned for that this year, but it just didn't work out that way.*

**QUESTION: Can you give me some figures pertaining to attendance so far, and a projected total for the entire show?**

*NATHAN: Yes. We have a total of 171 booths, and in those 171 booths we have 381 companies exhibiting. The total number of countries represented, as of the fifth day, is 59. Through the fourth day of the show there were 3,850 visitors and today there were 1,500 new visitors. Those who come back more than once are not counted again. So, as of the end of the fifth day, there have been 5,350 professional visitors, and it is definitely felt that the total will reach*

*7,000 by the end of the show, which is tomorrow.*

**QUESTION: And the character of these visitors. Is there any way of telling how that breaks down?**

*NATHAN: I can't give you that answer at this time, because we don't have such a breakdown yet. However, as soon as the show has ended there is going to be sent out a breakdown according to country and category and that will show exactly how the 7,000 visitors break down.*

**QUESTION: On the basis of what you may have learned from this initial edition of CISCO, what changes do you think might be desirable for the next one?**

*NATHAN: I see a couple of things. In the first place, we hope to convince many of the companies that are represented at their distributors' booths to take their own booths at the next show — because, in view of the number of countries represented, we feel that it will be worthwhile for them to have individual booths and sign up licensees and distributors worldwide. We're also going to make a particularly large effort in regard to the film production equipment companies, and we hope to have more of them represented. As far as the technical conferences are concerned, I think that they went well — except that we have decided that, in future years, we will have them all in the afternoon, rather than both morning and afternoon. The morning attendance was not what we had hoped for,*

*but the afternoon was alright.*

**QUESTION: Will these conferences extend more into the full run of the show, rather than being held just on the first couple of days, as they were this year?**

*NATHAN: No decision has been made on that as yet, but I assume that if they are to be held only in the afternoons, they will certainly extend over more days than they did this year. I also feel that for the next conferences we will want more input from the United States. There was some this time, but not as much as we'd hoped for or would have liked.*

**QUESTION: Is there any point which I haven't asked you about which you might want to comment on?**

*NATHAN: Only that in reference to those of us who have been involved in organizing CISCO — and who knew very little about the industries involved six or nine months ago — we certainly know a lot more now, and I think we will be in a position to do a much better job of promoting the show the next time around.*

**QUESTION: One more question — what does the acronym "CISCO" stand for?**

*NATHAN: It's just a name that was chosen by the organizers. I really don't think that they were trying to come up with something that included "Cinema" or "Conference" or anything like that. CISCO seems like a good choice, and I'm sure they will stick with it. ■*



# THE TGX-16 SINGLE/DOUBLE-SYSTEM 16mm SOUND CAMERA

By **DICK DI BONA**

*President, General Camera Corporation*

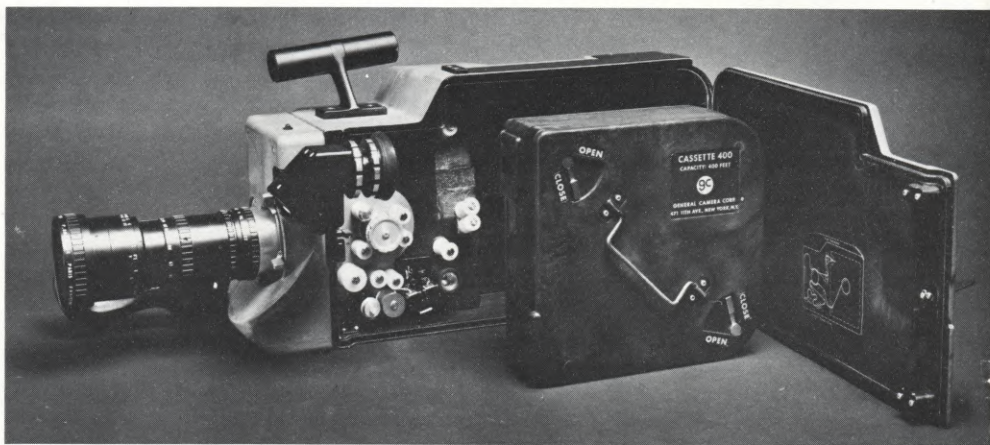
It has always been the cinematographer's dream that the camera manufacturers would supply him with a compact, lightweight, silent, efficient reflex camera. Many cameras of this type have been built, but since the introduction of the 16mm Eclair NPR camera in 1960, there truly has not been a successful new concept in camera design.

In our time, we have experienced the remarkable technical advances made by the world's space program, introducing electronic and other material marvels, and yet the motion picture camera manufacturers continue manufacturing converted, worked over, and repainted cameras that were originally designed and built forty years ago.

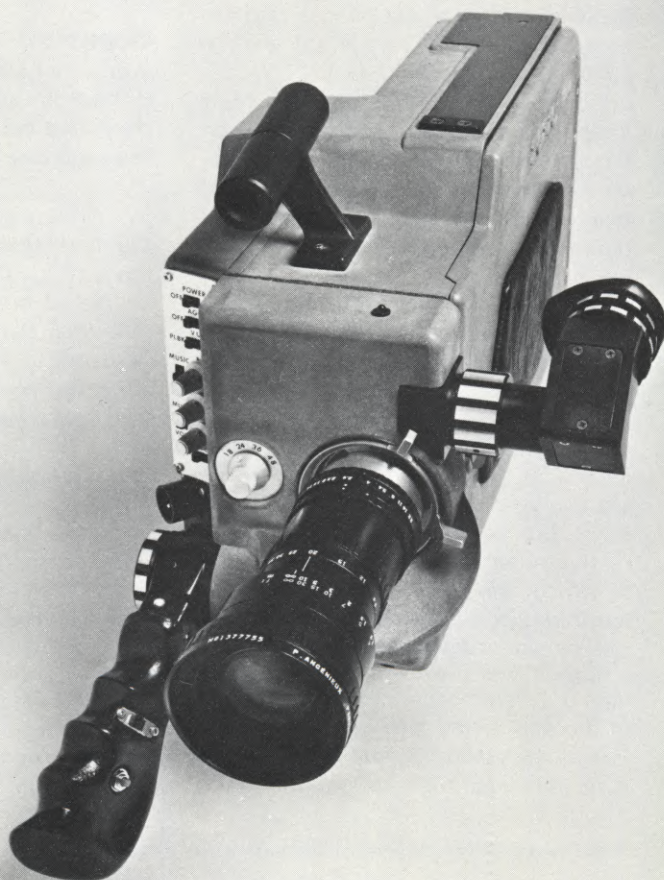
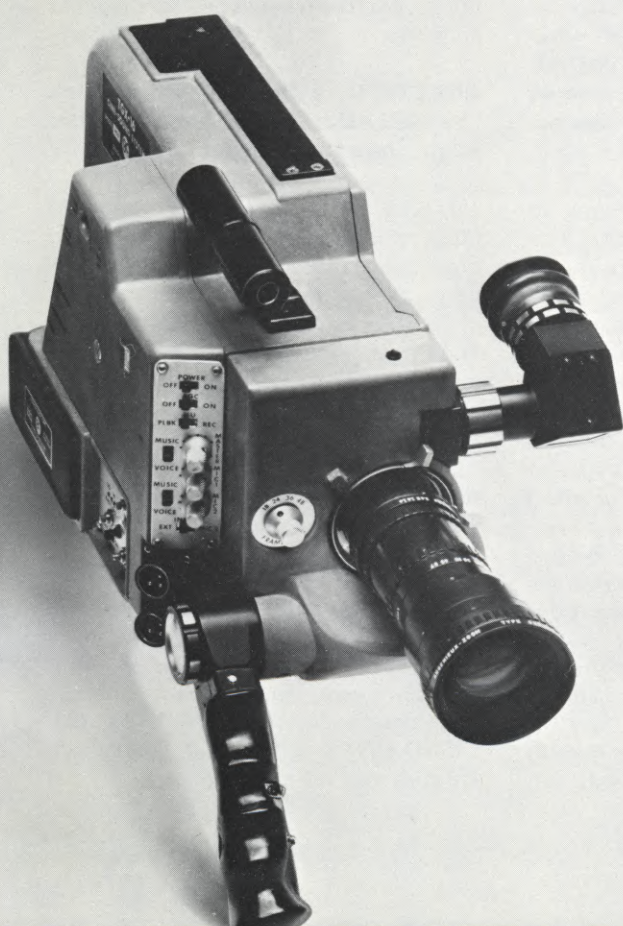
With this in mind, General Camera Corporation initiated a program in December, 1972 to design a 16mm single-system/double system, documentary/production film camera that would be the answer to the cinematographers' dreams. Our first step was to determine what film register and trans-

port system to use. After designing and building three different types of movements we chose the "half heart generator" cam type, because of its steadiness, durability, dependability and simplicity. The quality performance of this type of intermittent movement is accomplished by its fast acceleration film pull-down and deceleration at the point of film registration. Our next step was to select a

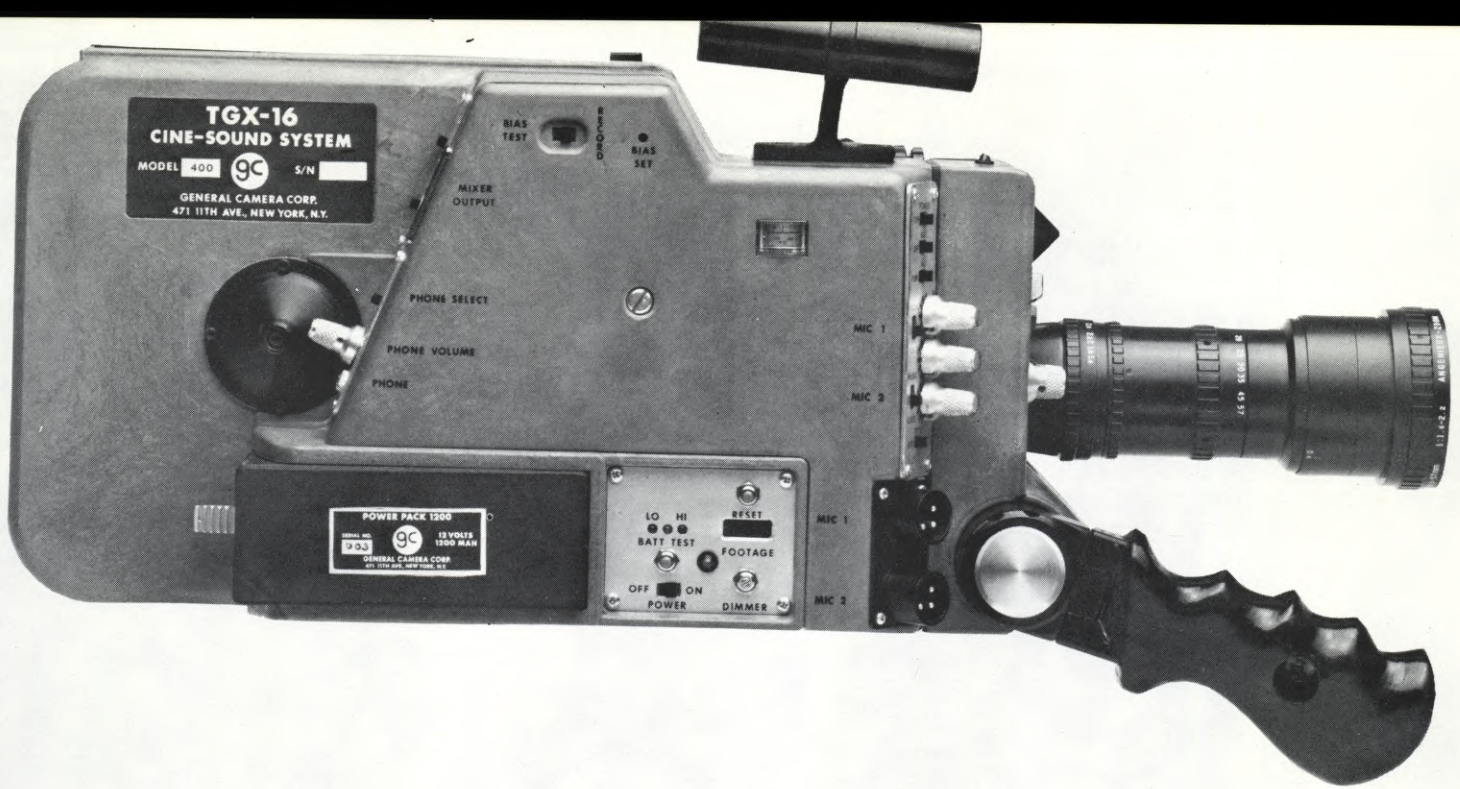
reflex system that would be a true companion to our "half heart generator" intermittent movement. This was accomplished by building a true reflex viewing system using a rotating mirror shutter. When this was completed we felt we had to incorporate these items with a completely new concept in camera design, for portability, balance, and compact-  
**Continued on Page 924**



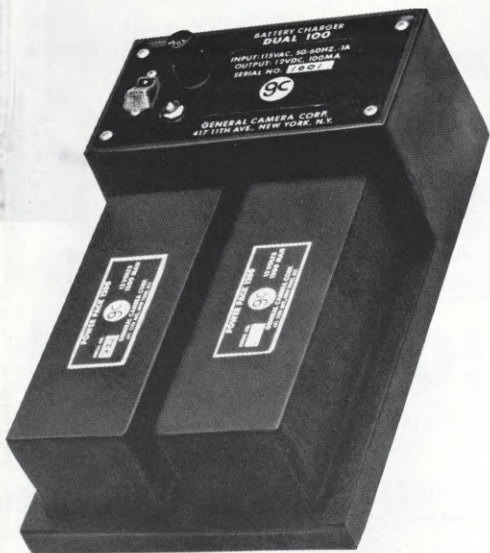
**(BELOW)** Two views of the new TGX-16 16mm single-system/double-system documentary/production film camera, designed and manufactured by the Texas General Cine Corporation. The basic concept was to create a design that would include all that modern electronic space technology could provide. **(ABOVE RIGHT)** The TGX-16 regularly utilizes a 400-foot internal coaxial cassette magazine. Unlike the Eclair NPR and ACL cameras and the Arriflex 16SR which feature true "quick-change" magazines, film in the TGX-16 must be threaded through rollers to form loops. The camera will also accept a top-load 1200-foot Mitchell magazine.





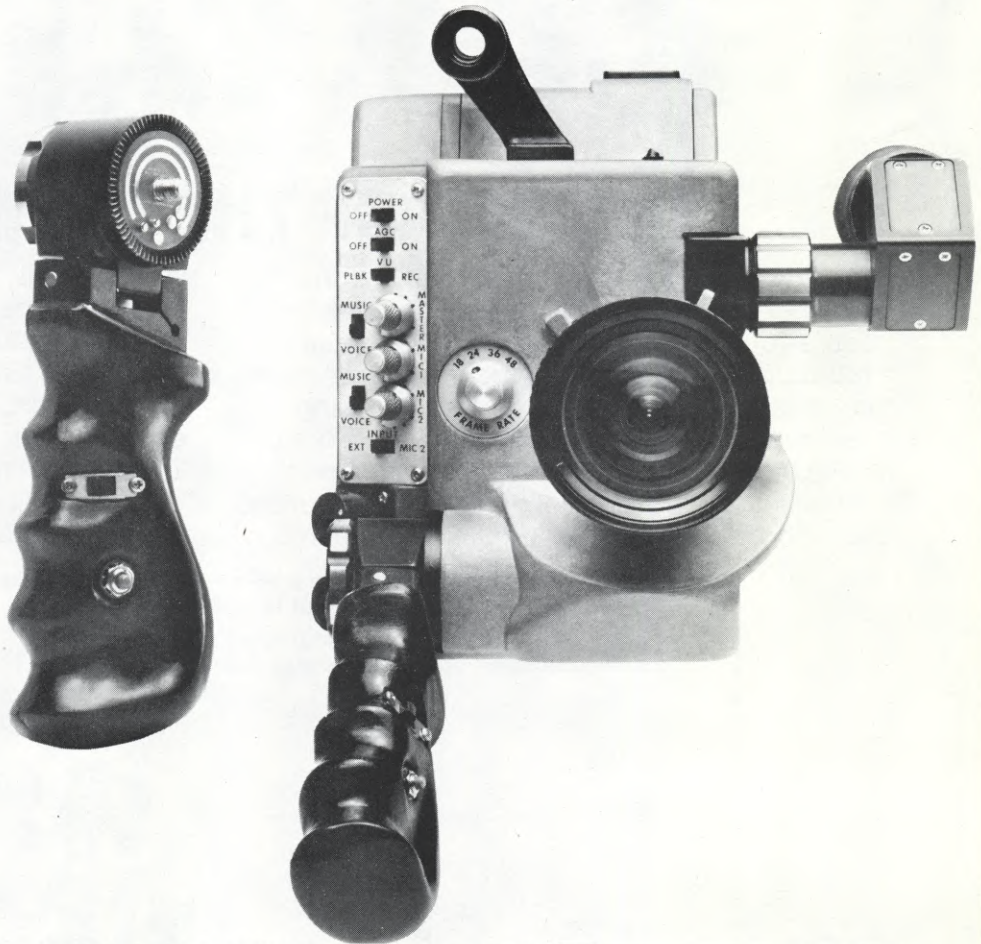
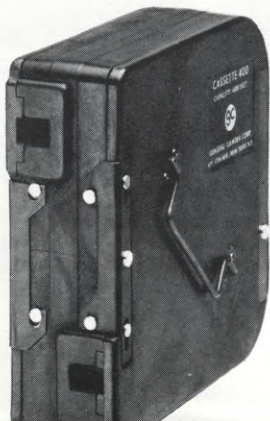


(BELOW LEFT) The removable handle is fully adjustable, vertically and horizontally. The finger grip ON/OFF switch and viewfinder display button are conveniently placed on the handle. (RIGHT) A heavy-duty flange mount accepts all 16mm format lenses and there is an adaptor available for C-mount lenses. The stability is exceptional, allowing the use of zoom lenses without support rods.



In addition to the standard charger that requires 10-14 hours for full charge, a dual charger for charging two batteries simultaneously is offered, plus a fast charger that charges batteries in 15 minutes.

The 400-foot coaxial cassette magazine, encased in the TGX-16, is self-insulating and eliminates any possibility of light leaks or damage to the magazine. It is also relatively inexpensive.



The electronics of the TGX-16 are all solid state with plug-in circuit boards that make emergency field service relatively simple. The camera's modular design takes much of the complication out of replacing components.





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**Come to the SMPTE Conference Technical Sessions if you want to hear about the latest developments and innovations in motion pictures and television.**

Every day for five days Conference week, the SMPTE holds technical sessions on new developments in motion-picture and television technology. There will be a wide range of subjects, with presentations touching on every corner of film and TV technology. A sampling of subjects to be considered is Film and Television Production, News Gathering for Television, Laboratory Practices, Television, Lighting, Sound Recording, Theater and Projection Practices, to mention a few. Each session begins with a short film of interest to film and television professionals.

**"Mini-Conference" covering all Conference subjects will be among highlights of SMPTE meeting.**

Two-evening sessions have been set aside as a "Mini-Conference" where all the subjects of the Conference as a whole will be discussed by leading professionals in the fields, like Sid Solow, John Frayne, and Ralph Wuerker. The "Mini-Conference" is for the benefit of students, technicians and beginning film-makers and television people who can benefit from general coverage of Conference subjects.

## Partial List of Exhibitors (as of May 22, 1975)

Angenieux Corp. of America	F&B/Ceco Industries	Magna-Tech Electronic Co.
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Cinema Products Corp.	Hollywood Film Co.	Photo Research
Cinema Research — Research Products Inc.	Image Devices Inc.	Plastic Reel Corp.
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## Added Attraction: A "Hands-on" Motion-Picture Equipment Demonstration at 20th Century Fox Studios.

A hands-on motion-picture equipment demonstration session in which noted cinematographers, lighting, and sound experts will show how movies are made, is set for the last day of the Conference, Friday, Oct. 3. The event, which is being planned and organized by the Professional Motion Picture Equipment Association (PMPEA), will give film-makers the chance to see and participate in a hands-on demonstration of the newest film-making equipment under actual production conditions on a real Hollywood soundstage. The session will be held on the soundstage of the 20th Century Fox Studios, which is directly behind the Century Plaza Hotel.

## Jack Valenti will be guest speaker at the SMPTE Get-Together Luncheon.

MPAA President Jack Valenti will be the guest speaker at the SMPTE Get-Together Luncheon on Monday noon, Sept. 29. The luncheon will also feature the presentation of SMPTE annual awards which recognizes outstanding achievements to the motion-picture and television industries and service to the SMPTE. All member and nonmember weekly registrants and member and nonmember Monday registrants for the Conference will receive a free ticket to the luncheon, courtesy of Agfa-Gevaert.

For your free exhibit pass, further information on the Conference, and registration forms, mail the coupon today.

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# "STREETS OF SAN FRANCISCO" TRULY A MOVING EXPERIENCE

A custom-modified mobile location unit, the new 5247 color negative and CFI's film speed enhancement system for an always-on-the-road TV series

By JACQUES MARQUETTE, ASC

Prior to being Director of Photography for "FUZZ" in 1972, a cops-and-robber feature starring Burt Reynolds, I had been experimenting with various photographic techniques — techniques that were applied to the filming of "FUZZ" and that have been ultimately carried over and used for the past three years in making Quinn Martin's ABC-TV series, "STREETS OF SAN FRANCISCO," starring Karl Malden and Michael Douglas.

Mr. Martin initially wanted "STREETS" to have a documentary

quality to it. He saw "FUZZ" and liked the "look" we had achieved and wanted it for his San Francisco-based series.

With a custom-modified Cinemobile mobile location unit (more about that later) assigned to the series (we had utilized Cinemobile on "FUZZ"), I took on the project and brought with me many of the same technicians I had worked with on "FUZZ": Robert Blair, key grip, Tony Askins, first assistant, William Beam, crab dolly operator and Robert Pedzoldt, gaffer.

Creating a documentary "look" for

"STREETS" was our primary concern. One of our first decisions was to use Eastman-Kodak 5247 stock. It's a fine grained film and the color ratio gives a very realistic look. After exhaustive testing with Eastman and CFI reps, we arrived at the film's limitations. It was determined that the 5247 could be processed under the AL-200 or AL-400 method for a higher ASA rating. This processing method enabled us to light the series on problem locations to as low as five foot-candles, which made for a more realistic feel. To my knowledge, "STREETS OF SAN FRANCISCO" was the first TV series to use this stock.

The first year of shooting the series was spent shuttling between The Burbank Studios and San Francisco, sometimes as often as twice a week. At the beginning of the second year, Howard Alston, in charge of production for Q.M., asked a few of us to remain in San Francisco and scout suitable locations for interior sets.

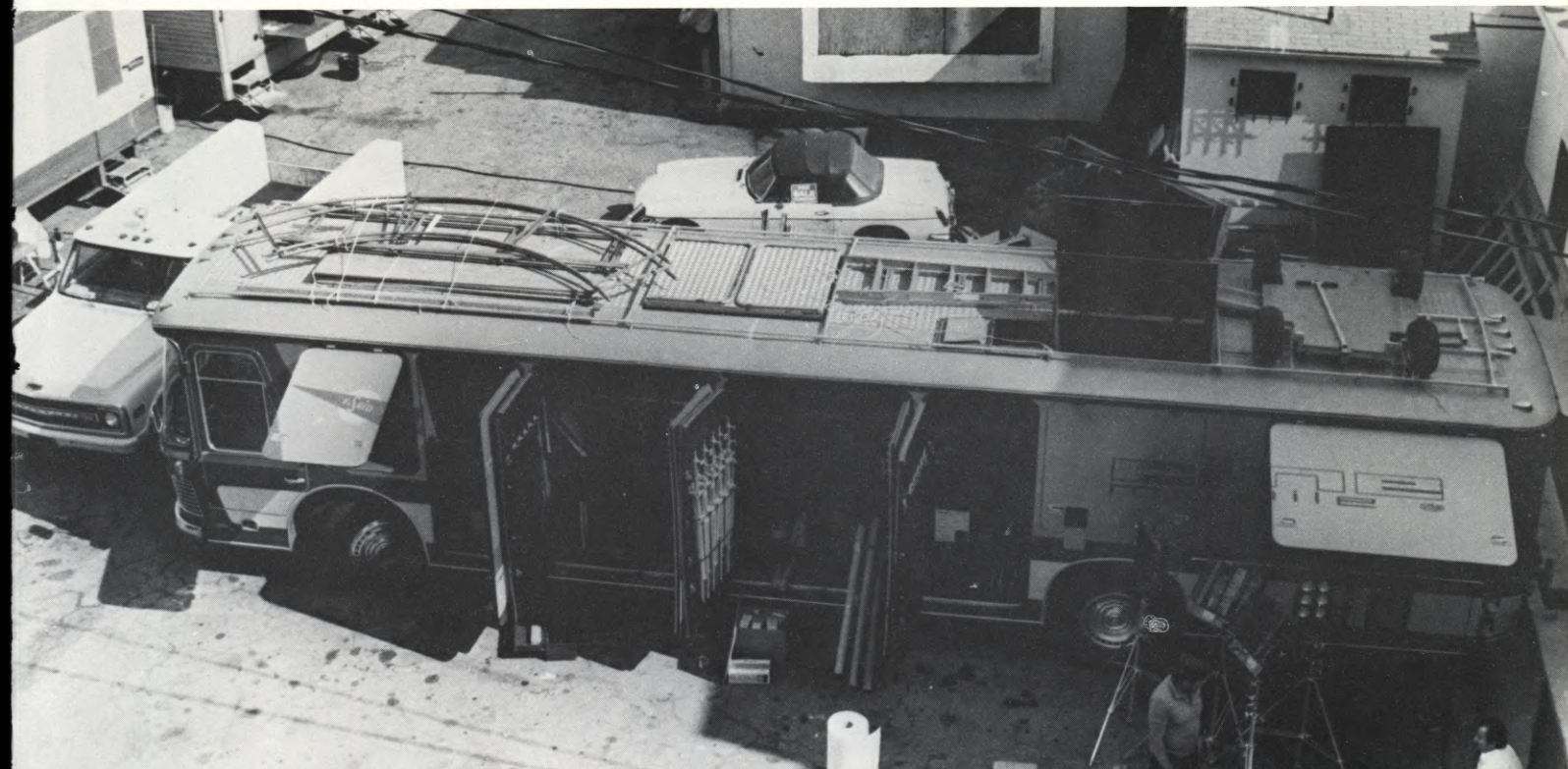
Our key interior was the police precinct which was ultimately built, under the watchful eyes of art director George Chan and production manager Dick Gallegly, in a warehouse on the Embarcadero. In keeping with the documentary look, we wanted to frame most shots of the police station to include ceiling and fluorescent fixtures by shooting at low camera angles. I wanted to use the fluorescents as our source light to create a more normal look, rather than lighting the set externally. The decision was to simulate the fluorescents at a higher light level and retain the proper color temperature. We did this by using "chicken coops" that Cinemobile built to my specifications and hung them

**ABOUT THE AUTHOR:** Jacques Marquette is one of the most respected and experienced Directors of Photography in the motion picture and television industry. Mr. Marquette's credits include two Elvis Presley features, "FRANKIE AND JOHNNY" and "THE TROUBLE WITH GIRLS"; "FUZZ," "RETURN TO MACON COUNTY"; numerous Quinn Martin TV projects: "ALVIN CARPUS"; "MELVIN PURVIS: G MAN"; "ATTACK ON TERROR". Mr. Marquette spent three years on "STREETS OF SAN FRANCISCO" and has just completed a Movie of the Week, "A HOME OF OUR OWN". He is currently shooting the theatrical feature, "BURNT OFFERINGS".

Jacques Marquette, ASC was director of photography for the "STREETS OF SAN FRANCISCO" TV series during its first three years of production. Marquette created a documentary look to the series by utilizing a Panaflex, with fast lenses and shooting noiseless sync-sound — often in very close quarters. Here he watches a rehearsal on one of the constantly changing actual locations utilized for the popular series.







**Pictured is a Cinemobile Mark VI modified to Jacques Marquette's specifications to include a dovetail slip plate in the camera department, which allows a camera to ride intact without having to be broken down. Upon arrival at the first location of the day, the camera was placed on the Fisher dolly with Worrall head in the dolly compartment, allowing the camera to remain intact for the rest of the day. A 110-volt AC source was installed behind the driver's cab and a special rack for 14-foot sections of lumber was designed for the rear portion.**

above the fluorescent grid. There were a total of 19 chicken coops, each equipped with six 1000-watt Silver-bowl lamps.

Because of our tight television location shooting schedule (seven days were allotted to shoot each episode), locations had to be evaluated on the same day of shooting, so there wasn't much opportunity to analyze set-ups in advance. In order to stick to our demanding schedule, we made approximately four major moves a day, which often entailed up to 40 set-ups. This meant we had to travel light. We used minimal lighting equipment, adhering to the philosophy that one light can do for two or three if placed in the proper position. For our exterior set-ups, I used a new soft reflector material and keyed it from the sun side. In that way I used only minimal or no lighting at all. Where there were any windows or outside areas exposed, I evaluated interiors to determine if corrected color temperature lights or acrylic correction panels of 85N3 and 85N6 should be used.

Considering our production schedule, the location requirements and my particular style of shooting "STREETS", in consultation with Cinemobile engineers, we employed a modified Cinemobile Mark 6 — a unit specially designed to allow production companies like ours to set-up and wrap quickly. Cinemobile's time-saving

modifications included a second hydraulic lift installed 10 feet behind the driver's cab. This lift is used primarily for elevation of the Carbon Arc 20 to 25 feet in the air. The lift was designed with four square feet of platform so the operator could stay with the arc. The arc light and cable are semi-permanently attached to the Cinemobile and its internal 1250-amp generator.

In the camera department Cinemobile installed a dovetail slip plate so that the camera could be taken off the dolly intact and locked down on the slip plate in the compartment. This allowed the camera to ride intact without having to be broken down into numerous cases. Upon arrival at the first location of the day, the camera could then be placed on the Fisher dolly with Worrall head in the modified dolly compartment, allowing the camera to remain intact for the rest of the day.

A 110-volt AC source was installed in the driver's cab behind the passenger's seat. This became quite useful for charging camera and lighting batteries, operation of power tools, etc. on location. A special rack for 14-foot sections of lumber was designed for the rear portion of the Cinemobile. Also a custom box for 4 X 8 acrylic panels was installed.

These modifications together with the inherent design of the Cinemobile are perfect for the "shoot and run"

operation of a TV series and, ultimately, with the expertise of Cinemobile technician, Rudy Beilicke, shaved hours off our daily production schedule.

The Panaflex, used in coordination with the Cinemobile Mark 6, was a real jewel. Using a combination of fast lenses and shooting with noiseless sync-sound, allowed us to film in amazingly close quarters — cars, elevators, bathrooms — at an extremely low key. The camera was truly an invaluable piece of equipment for our production needs.

During the past three years that I was involved with the making of "STREETS OF SAN FRANCISCO", I worked in every conceivable location and condition imaginable. For example, one of our most grueling assignments was an episode for which we had to go out on a small fishing boat beyond the Golden Gate Bridge to photograph four other boats. The swells were huge and dangerous. People were getting sick and we really had our hands full trying to keep the equipment dry. But, I can assure you, we definitely achieved a "real" look.

The rigors of shooting "STREETS OF SAN FRANCISCO" totally on location for three consecutive years proved to be not only one of the most challenging experiences of my career, but also provided an enormous education that I will carry with me to each assignment in the future. ■



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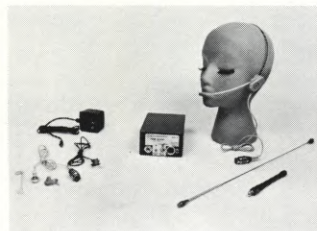
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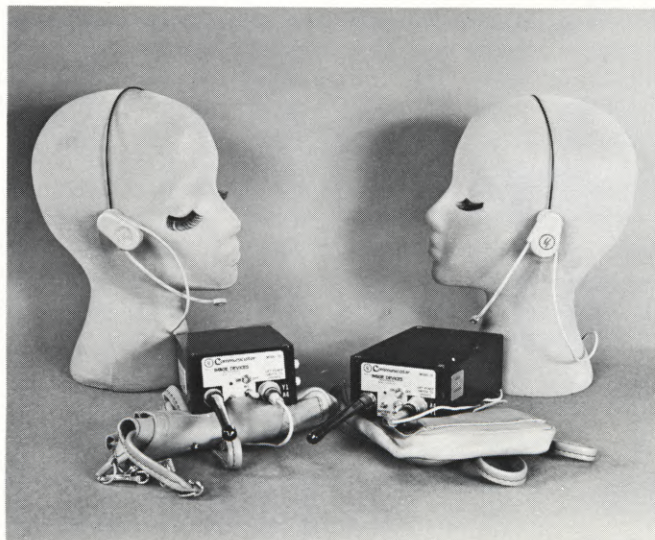
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# THE NEW PERSONAL PORTABLE FULL-DUPLEX "COMMUNICATOR"

By **DAVID HAYLOCK**

*President, Image Devices Incorporated*

Image Devices Model 50 Portable Communicator is the world's first personal, portable intercom system. It gives constant two-way wireless voice contact up to 100 yards apart. It has noise-cancelling microphones, so that a whisper is audible in the face of high-level ambience — without touching a button!

A broad range of accessories and options adapts the system to just about any circumstances: push-to-talk for system expansion, concealable units for talent, mixer for superimposition of any analog data, etc.

The basic concept of this Communicator begins with a two-way, full duplex wireless intercom with which two people can talk to each other, as on a telephone, without any interruptions or one-way stopping of the other voice. The director, for instance, can have a Communicator in which he can hear cameraman or other production personnel, but he can always override their discussion and interrupt them or ask questions. He can direct the various cameras and the camera personnel can interject problems or observations about the shooting situation, much as in video, giving a much more live and immediate effect to the filming.

The device is equipped with a noise-cancelling electret condenser boom on the headset, which will allow a very, very slight whisper to be heard throughout the communications system. A mixer can be added to one of the Communicators, which will allow the input of the sound track (the complete mixed sound track), so that everyone on the line can hear all of the microphones as they are being mixed and as they are being recorded. This allows the crew to sense the action and film it according to what is actually going on.

Into this second input can be fed all kinds of signals, such as turning on and off lights, and turning up and down volume controls. With this addition to the satellite units, each station can be called, other than the director, by pushing the talk button, which is located in a little cable extending from the unit to the hand of the user. You can have an

**An ingenious communications device that puts walkie-talkies in the shade when it comes to linking up members of motion picture production crews**

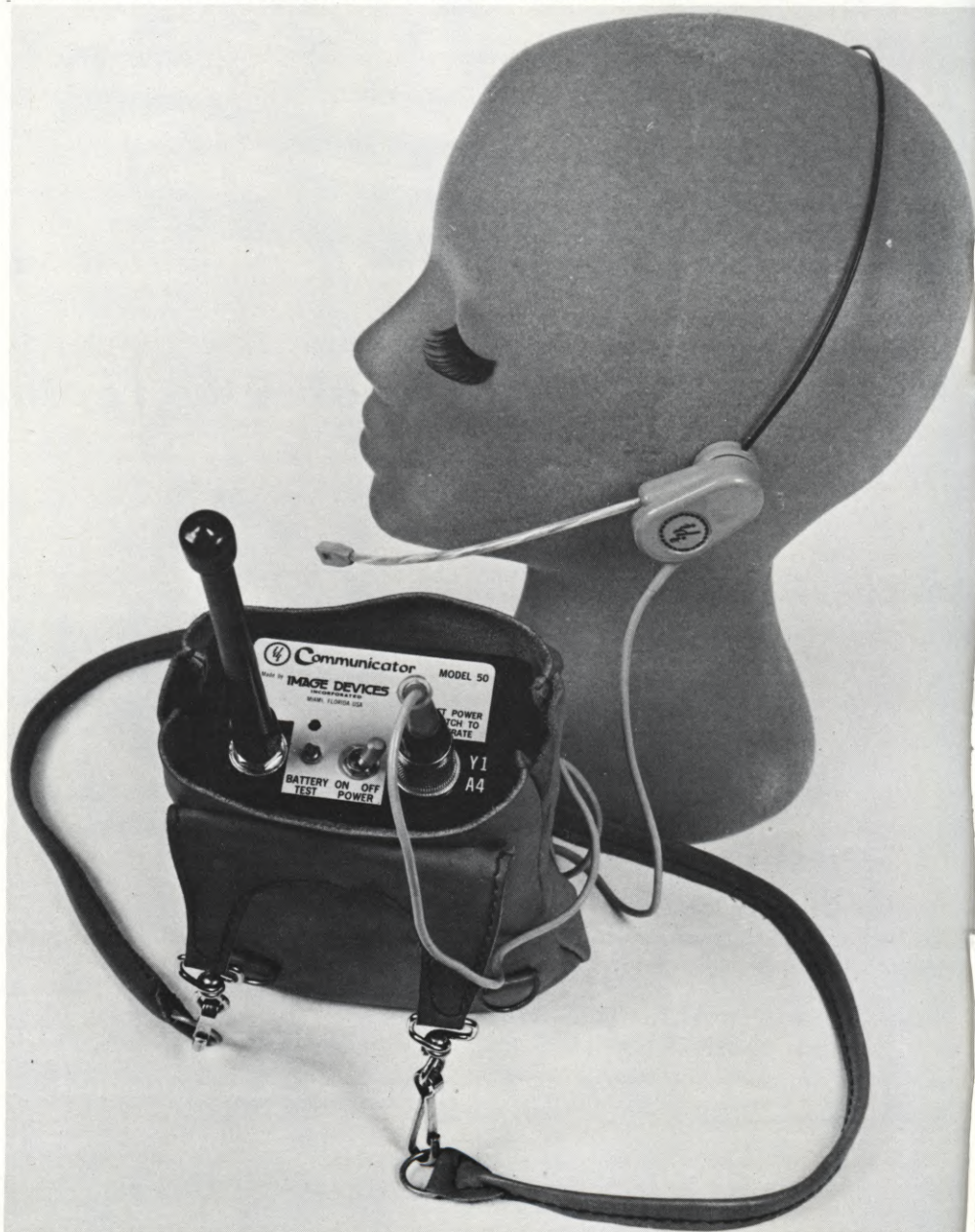
unlimited number of stations always listening to the program and to the director.

A talent set, as we call it, has been devised to plug in in place of the headset, allowing for unobtrusive and, in fact, absolutely invisible communications, as far as the face of the actor is

concerned.

There is a pouch which must be concealed on the body or in a vehicle, but it is basically a two-way wireless cueing system, as well. With this the director can talk talent through a very difficult scene, can cue them, feed them lines, feed them action, and the camera

**The new Image Devices Communicator is the first and only personal, portable, full-duplex VHF-FM intercom system designed to provide constant two-way cable-free voice contact between members of any kind of operating crew over distances of approximately 100 yards. This is an "open line" communication in which, if desired, no buttons need be pushed.**





people can hear this conversation and be able to feed back and forth instantly, without any real action or time delay occurring in the filming.

On the end of the talent set, there is a lavalier microphone and an earpiece which gives the two-way communication to the talent and does not involve the program microphone, which is on a separate system and never used for audition or cueing.

The unit has an induction system which will send the sound from about 18 inches away from the ear, to the ear — into an invisible, very tiny module which goes inside the ear. There is no wire or plastic tube visible going up into the ear and you can shoot almost all sides or all angles of the talent, while still maintaining the ability to cue them with specific words and instructions.

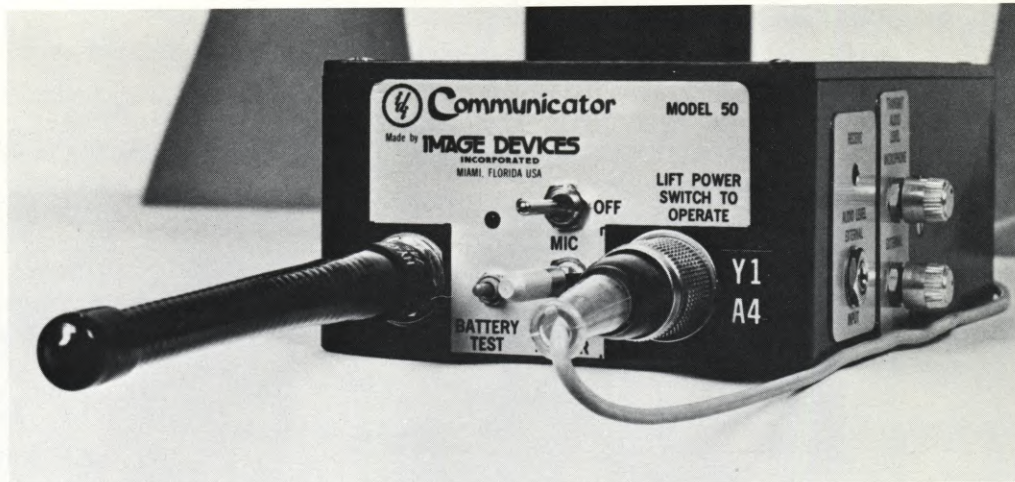
There is a listener model which doesn't talk back but which has, in addition to the headset or earpiece capability, a large speaker which can be set up in a production area somewhere within the range, which we generally call 100 yards or 100 meters. This distance can be more or less, depending upon the terrain and the conditions. The listener makes it possible for a script girl or someone else to set the machine on a desk, table, or in a van or a truck to listen to the soundtrack and the director's instruction (or, if necessary, the entire conversation) by using two receiver boards installed in that for listening to the whole gamut of both sides of all the conference. In addition, all cueing and comments can be recorded, in addition to being used at the immediate time. It can be used later for editing purposes and for general notes.

People have used this system, we understand, to feed start marks and sync pulses and other information from the camera to the recorder, and, since it is a two-way system, you can do any kind of a servo system by using only two units. You can also receive from where you have sent signals, confirming that the action has taken place. The light is on, or whatever has happened, so you can have an instant feedback and a continuous feedback without waiting. With any kind of analog data, cueing signals, tone pulses, probably telephone calls if you wanted — just about anything you want to put on the line. ■

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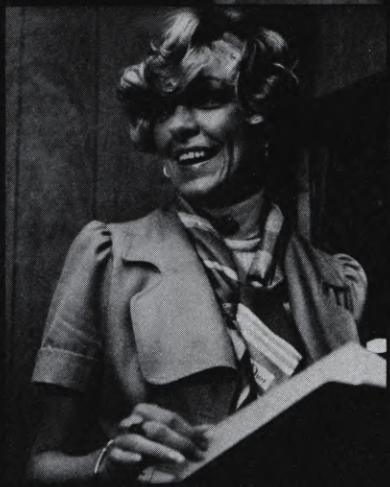
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# A FILM STUDENT LEARNS FROM A VETERAN CINEMATOGRAPHER

A famed Hollywood Director of Photography, recently retired, shares his expertise and some good advice with a young potential film-maker

By ROBERT LA BONGE

Like most film students of today, I learn the most about my field of endeavor from studying the works of the great directors and cinematographers of the past, as well as of the present.

The master veterans among film technicians possess a fund of knowledge that could only have been acquired over many years of experience in the industry. They know how to do just about everything, because at some point, during the course of their lengthy careers, they have *had* to do everything.

One of the most highly skilled and most knowledgeable of the veteran cinematographers, quite recently retired, is Charles B. Lang, Jr., ASC, who has received 17 Academy nominations for cinematography and an Academy Award "Oscar" for his work on "A FAREWELL TO ARMS".

Born in 1902 in Bluff, Utah, Charles Lang, Jr. was three years old when his parents moved to Los Angeles. He attended Lincoln High School. At the age of twenty, a career in cinematography was the furthest thing from his mind, as his parents encouraged him to be a lawyer. In 1922 Lang enrolled in the Law School of the University of Southern California.

However, law studies ended abruptly with the sudden illness of his father. Lang took a job with Real Art Studios,

where his father had been a negative developer. This job eventually led to another as an assistant cameraman. At the laboratory he was earning forty dollars a week and, when the assistant cameraman's job came along, he took a cut in pay to twenty dollars a week, but his aspirations to be a photographer were more important, at this point, than the money. Finally, several years later, he got a job as a second cameraman. Lang became a full-fledged Director of Photography in 1929 at the young age of twenty-seven.

In 1931 he received his first Oscar nomination for the movie "THE RIGHT TO LOVE". Ruth Chatterton starred in this film and she was so well pleased with the way Lang photographed her, making her look very beautiful, that Paramount Studios put him under contract.

Lang worked almost exclusively for Paramount during the thirties and forties but over the years he has worked for Twentieth Century-Fox, RKO, MGM, Columbia, Warner Brothers, United Artists, Universal and Revue Productions.

Lang has received seventeen nominations for the Academy Award. He actually won the Oscar for "FAREWELL TO ARMS" in 1933 at the age of thirty-one. During the decades of the forties and fifties he received nominations almost every year and his last

nomination was for "BUTTERFLIES ARE FREE" which was made just prior to his retirement from the industry.

From the approximately one hundred movies he has photographed since 1929 he has received nominations for: "THE RIGHT TO LOVE", 1931; "A FAREWELL TO ARMS", 1933; "SUNDOWN", 1942; "SO PROUDLY WE HAIL", 1943; "THE UNINVITED", 1944; "THE GHOST AND MRS. MUIR", 1947; "A FOREIGN AFFAIR", 1948; "SUDDEN FEAR", 1952; "SABRINA", 1954; "QUEEN BEE", 1955; "SOME LIKE IT HOT", 1959; "SEPARATE TABLES", 1958; "THE FACTS OF LIFE", 1960; "ONE-EYED JACKS", 1961; "HOW THE WEST WAS WON", 1962; "BOB AND CAROL AND TED AND ALICE", 1969; and "BUTTERFLIES ARE FREE", 1973.

Lang's film career has spanned the spectrum of cinematic presentations. During one period he went from the shooting of the rapid sequence in "HOW THE WEST WAS WON" to the drama of "CRITIC'S CHOICE".

One of the most versatile cameramen, he photographed the rugged Western, "THE MAGNIFICENT SEVEN" and then moved to the suspense comedy "CHARADE" and then on to the panoramic drama of "THE GREATEST STORY EVER TOLD". These transitions were made with a complete mastery of lighting difficulties, language barriers, work distribution problems, mood changes, equipment requirements, scene changes and treatment difficulties.

With the retirement of this film giant, Charles Lang, Jr., ASC closes a forty-five year career rich in associations with some of Hollywood's most illustrious personages.

In the following interview with Mr. Lang, which was tape-recorded at his home, I had the opportunity to gain an insight into the life and cultural contributions of one of Hollywood's great Directors of Photography:

QUESTION: HOW DID YOU ACQUIRE THE TITLE OF "THE WOMEN'S PHOTOGRAPHER?"

LANG: Well, perhaps starting back as early as Ruth Chatterton. She was a star coming from the New York stage.

**Charles Lang, Jr., ASC, recently retired after a long and illustrious career as one of Hollywood's top cinematographers, shown being interviewed by cinema student Robert La Bonge. Ever the realist, Lang told him: "In getting into this business, you'd better cultivate the right people to get an opening. Then prove you can do the job . . . Once you're in, be sure you can perform, because if you can't you're dead . . ."**





*She wasn't a beauty, but she was an attractive woman. I worked very hard to find out the best angles; high camera shooting down on her and lighting to enhance her looks. That started me off as being a woman's photographer.*

*In those days women stars were very important. They aren't nowadays. There are only a few now, but in those days it seemed like most big films were starring women. Stars like Marlene Dietrich, Mae West, (in her first starring role "She Done Him Wrong") Joan Crawford, Marilyn Monroe, Claudette Colbert, Helen Hayes, Audrey Hepburn and many more who wanted me to photograph them. I just got the reputation, but I worked hard at it.*

**QUESTION: PRETTY NICE REPUTATION!**

**LANG:** *In those days, as far as making money and getting under contract, it was the thing to be. To be known as a good women's photographer. Because women were so important and they demanded a certain photographer.*

*Nowadays you don't hear about women's photographers. I'm sure Barbra Streisand has certain cameramen she likes better than others. She demands the best ones, but how many Barbra Streisand's are there nowadays?*

**QUESTION: WHAT ARE THE QUALITIES THAT MAKE A SUCCESSFUL CAMERAMAN SPECIAL, OTHER THAN BEING A GREAT PHOTOGRAPHER?**

**LANG:** *I believe you have to fit in with whomever you are working with. I've seen very talented photographers have problems with directors that they didn't like; they wouldn't put up with directors who seemed to be getting into their end of it too much. I feel that hurts you. I believe you have to give a lot. Basically, you have to have the ability to work with people, because you are going to work with all kinds of directors who have different feelings of what they want to see visually. Sometimes it's not too comfortable, but you've still got to do it. You have to be somewhat of a salesman, but in photography the results are up on the screen, so too much of a salesman without results doesn't come off.*

**QUESTION: DID YOU PARTICIPATE IN ANY NEW EQUIPMENT DEVELOPMENT OR NEW TECHNIQUES?**

**LANG:** *It's hard to say. Photographers, like artists, evolve to develop new tech-*



**Lang shown with star Rex Harrison on the set of "THE GHOST AND MRS. MUIR" (1974). His career as a cinematographer spanned forty five years, during which time he photographed the entire spectrum of motion picture subject matter, ranging from love stories to sophisticated comedies to westerns to historical spectacles. During his career he received 17 Academy nominations and the Academy Award for "A FAREWELL TO ARMS" (1933).**

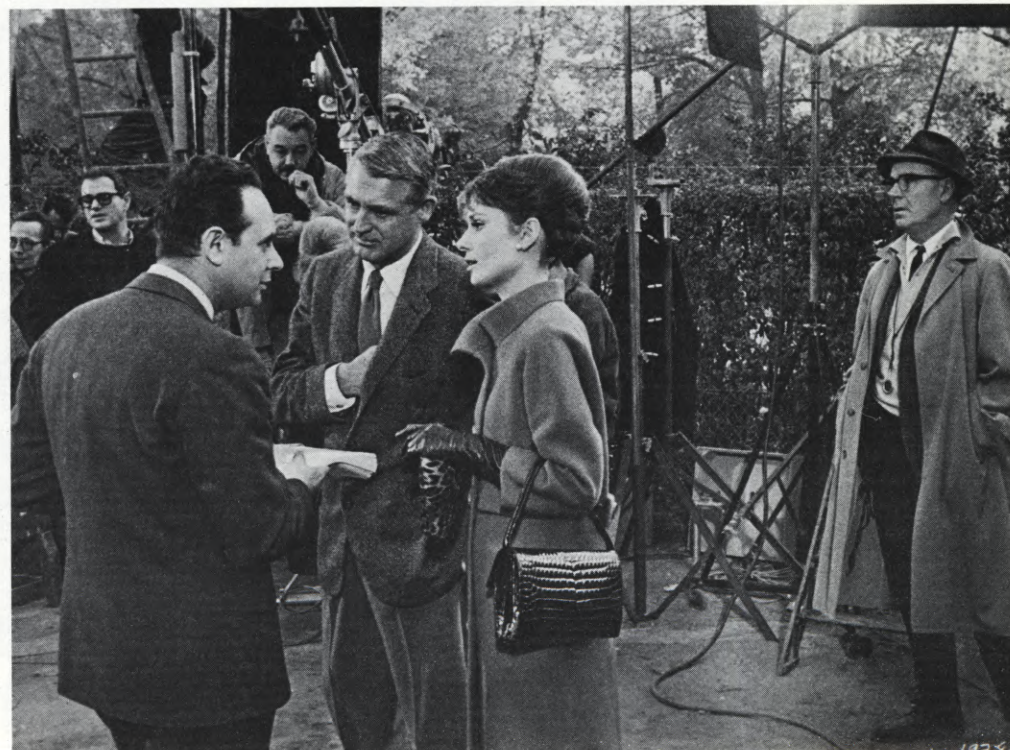
*niques or styles. One photographer would suggest something and I would go a little further with it. I would see certain uses of diffusions we were experimenting with or shooting with gauze backgrounds, by putting gauze behind people; nowadays they attain that similar effect by using long focal length and wide open lens to give that complete disintegration of the background, but we didn't have those fast*

*lenses at that time, so in those days we would stretch out a big piece of gauze behind the people and that would diffuse the background.*

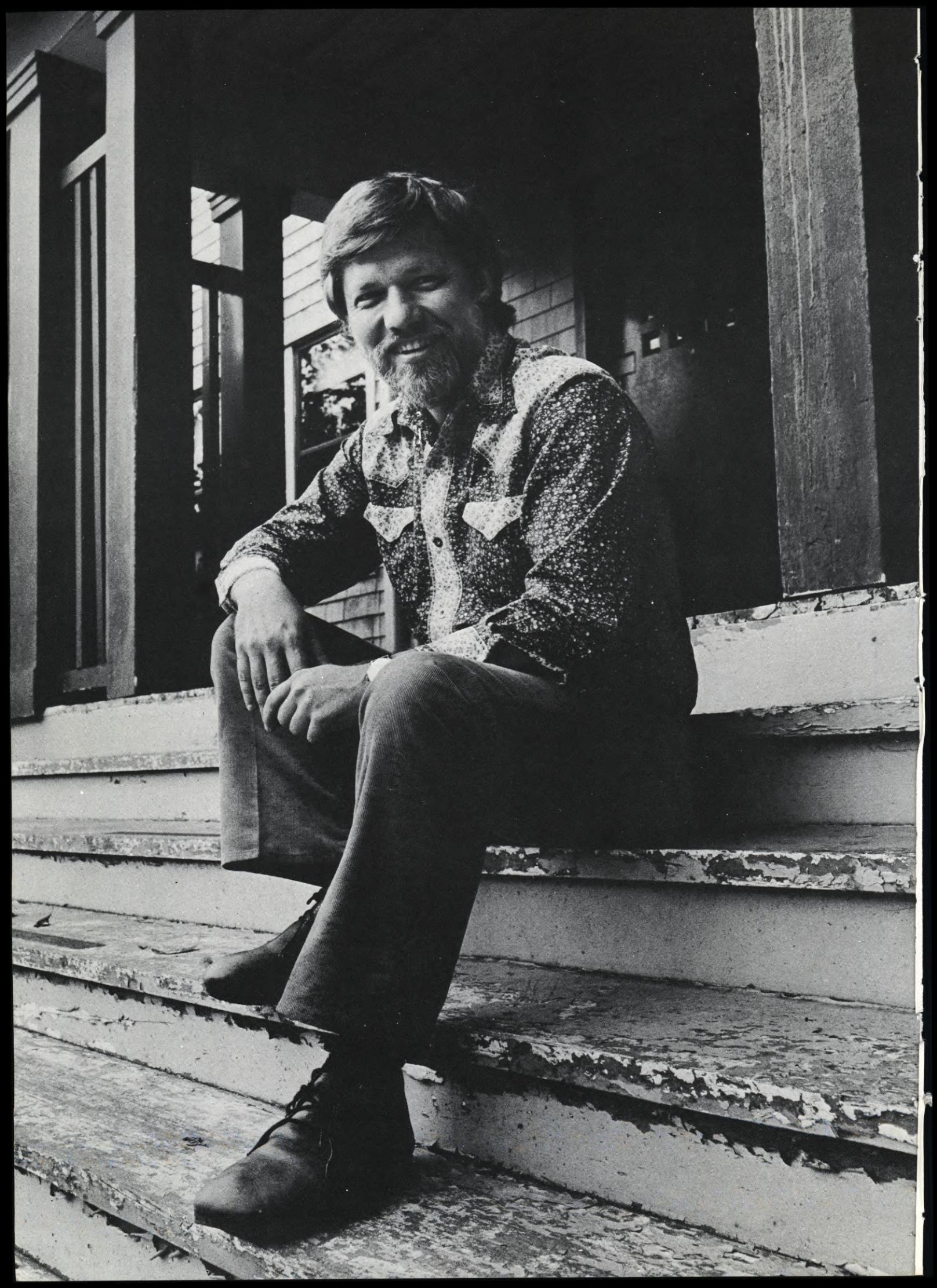
**QUESTION: WHAT ARE YOUR THOUGHTS ON THE PRESENT-DAY TECHNIQUES OF COMMERCIAL PHOTOGRAPHY, SPECIFICALLY THE HOT WINDOWS?**

**Continued on Page 920**

**At left, director Stanley Donen gives instructions to stars Cary Grant and Audrey Hepburn on the set of "CHARADE", while Lang (at right) studies the lighting. He found this an interesting assignment because of the foreign locations: Paris, the ski resort at Mecheve, and various other locations in France. Lang first worked with Hepburn when he was brought in to replace a French cameraman on "PARIS WHEN IT SIZZLES" (1962).**

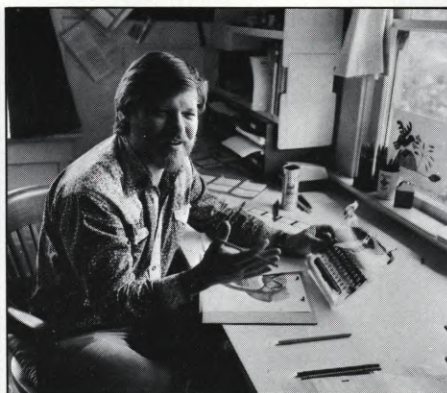








# JOHN KORTY



"Being picked to direct 'The Autobiography of Miss Jane Pittman' was a big surprise to me. Of all the directors considered, I was probably the youngest and least established in terms of the industry. On the other hand, I had been making films outside of Hollywood for twenty years, so I was not exactly a beginner.

"It was the scale of that production that was new to me. We had about fifty different locations within Louisiana and Mississippi, eighty speaking parts, hundreds of extras and, according to our wardrobe department, about a thousand costume changes.

"Making the film was like running a small army. Six days a week, we left at 6:30 a.m. in a caravan of about fifteen vehicles. One morning I realized I was dreaming that someone ran into us and I was able to go to the hospital for a nice rest. It was like a war, too, in the way that hardships and problems can draw people together. We suffered heat, humidity, near-hurricanes and lots of hungry ants and mosquitos, but we suffered them together. And the end result made all that seem worthwhile.

"I really can't take any credit for Cicely Tyson's performance. As soon as she had the part, she started working on it by herself, visiting several elderly women and studying their voices and movements. By the time she got to Louisiana, she was so convincing that whenever she came out of her trailer in that makeup, someone would rush to take her arm and help her to the set. But once she was under the lights and the cameras were rolling, we all knew we were watching a great actress at work.

"After an experience like that, it's hard to be satisfied with other jobs. That's why I'm still here in Mill Valley, working on my own projects. We've turned an old house into a small studio with offices, editing rooms and some space for animation, which is my other love. We've done a lot of the letter and number spots for 'Sesame Street' and 'The Electric Company' and now we are finishing a series for a new show, 'Vegetable Soup,' which tries to answer children's questions about race and ethnic identity.

"But the new film I'm most pleased with is an adaptation of a short story by John Updike titled, 'The Music School.' It's part of a series on American short stories being funded by the National Endowment for the Humanities for public television. I was able to photograph 'The Music School' myself, as I had 'The Crazy-Quilt' and my early features. We used the new 16 mm Eastman color negative II film 7247, but when we looked at rushes, we felt as though we were working in 35 mm. I had always liked the look of color negative, but the sharpness of 7247 makes 16 mm usable in many new ways. I used a great deal of natural sunlight and window light inside our locations and the finished film has a very luminous quality, which fits the story beautifully.

"Since I worked as a one-man production company for a long time, I still identify with 'filmmakers' more than directors. We are the ones who drive labs crazy because we follow our films through the maze like bloodhounds. But we do that because we're really excited about film. We see creative possibilities, not only in the shooting, but all the way through the processing, printing and optical work. On several of my films, I've determined the final printing lights myself, scene by scene.

"Over the last twenty years, I've tried almost every brand of film I could lay my hands on, and I learned a lot doing that. But eventually you need more than a single film; you need a choice to work with and that's where you can't beat Eastman film. There are so many choices that a filmmaker has a full keyboard of effects to play—different kinds of color, contrast and grain structure. It can also be economical too, because if you test something on 7247, you can be pretty sure of the effect on 5247.

"One of the scraps of paper in my desk is a running list of technical questions to ask Joe Semmelmayr, our local Kodak man. It seems like every other shipment we send off is marked 'Test Roll'—usually trying something we're not supposed to do. 'The Music School' intercuts 7247 with 4X negative, for instance. Some experiments work, some don't, but we're building up a lot of information. And when you've got this many variables to deal with, you have to have a few constants to depend on. Eastman film is one of them."

*For a revealing look at people and ideas in the moving visuals industry, Kodak has combined this and other interviews into a fascinating and informative booklet. For a free copy write: Eastman Kodak Company, Dept. 640-D, Rochester, New York 14650.*



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## FILM STUDENT LEARNS FROM VETERAN CINEMATOGRAPHER

**LANG:** *I believe it can be overdone. When I look out a window and if it's interesting, I see no reason to let it go Blah. I guess that's part of the "new realism" in today's films. Filmmakers thought they shouldn't make any corrections. It seemed kind of effective for awhile, but I don't think so anymore. You see so much of it nowadays.*

**QUESTION:** MORE FILMS TODAY SEEM TO BE EMPLOYING THE USE OF THE AVAILABLE-LIGHT TECHNIQUE. HOW HAS THIS EVOLVED?

**LANG:** *Now that's the great change in photography. When we think back on the real lighting, we think of the Von Sternberg films where you could see it was lighted; it wasn't natural looking but it was very interesting, with deep shadows, where normally there wouldn't be deep shadows. Now, the trend recently has been to make everything look like available light. I did a film called "BUTTERFLIES ARE FREE" (1973) and I feel that is one of my better jobs I've done on the use of the available-light look.*

*I'm not too sure it's the most interesting. I am kind of torn between interesting, almost manipulated light, if it's interesting, rather than available light which doesn't seem to have any real definition. I think even with available light you should always give a look of one particular light source. You can call it a "Rembrandt look."*

*The cameraman of today has a big*

*advantage over the cameraman of yesteryear, particularly in color film. The film is much faster. The color film of today is as fast as the fastest black and white films we used in my early pictures. Black and white films are harder to light than color film. With color film you can do almost anything, if you get the exposure right, and it will come out reasonably well. But, with black and white you have got to light everything so you can differentiate between the colors. There is a tremendous difference between the two.*

**QUESTION:** WHEN PLANNING TO PHOTOGRAPH A PARTICULAR SCENE, HOW DO YOU DECIDE WHETHER TO USE A ZOOM SHOT AS OPPOSED TO A DOLLY SHOT OR A CLOSE-UP VERSUS A MEDIUM SHOT?

**LANG:** *What most directors and I do is to watch the action; what the actors do, for instance. If they enter a room on the left and sit down, then the director and I will discuss whether to bring them in with a close-up and pan them over or should we get back with a full shot to see the place and then push in on the dolly or zoom in, whichever we want to use. We always look at the action first, then discuss what would be the most effective shot. Then we'll make the decision.*

*I believe what you always have to have is variety. That you don't repeat too much. Like anything else, you repeat too much and it becomes boring. When making cuts — use variations. Don't go over the shoulder on one shot and then back over the*

*shoulder on the next shot and then back again. Try over the shoulder to say a close up or maybe a piece of the ear. Give your editor a variety so you don't have repetitious cuts. Explore as much as your time schedule will allow.*

**QUESTION:** ARE FILMS BEING SHOT ON A QUICKER SCHEDULE NOWADAYS?

**LANG:** *No. When I first started making films, sound was brand new. In the 1930's there was a terrific demand to get a lot of pictures out so we would work day and night on a film. Often times the schedule was only twenty or thirty days, which is a fast schedule. Very seldom have I had unlimited time on a film. I've worked with a few directors who just took the time anyway and went way over schedule. But not very often. I once worked with Marlon Brando on a film called "One Eyed Jacks" (1961). He took an awful long time directing that. Of course, he was at the peak of his popularity so they gave him six months to do the film, which is a tremendous amount of time to do a picture. We shot about twice more than we needed which presented a problem cutting the film, because we had so much.*

**QUESTION:** SPEAKING OF MARLON BRANDO, WHAT WAS IT LIKE WORKING WITH THIS FAMOUS ACTOR?

**LANG:** *Good fellow. I liked working with him as an actor as well as a director. We got along very well.*

**QUESTION:** DID BRANDO DEPEND A LOT ON YOUR VAST KNOWLEDGE OF MOVIE MAKING?

**LANG:** *Yes, because that was the first film he directed. But I will say he was very quick to learn.*

**QUESTION:** YOU WORKED ON A FEW FILMS IN FRANCE. WOULD YOU ELABORATE ON WHAT IT WAS LIKE TO WORK OVER THERE?

**LANG:** *My first job in France happened when a French cameraman, who was working on a film called "Paris When It Sizzles" (1962), was having problems. He didn't want to use any diffusion on women. He felt it was wrong to do it. Audrey Hepburn was in the film and she was displeased with the way she looked. She needed diffusion like a lot of women do, if you want to enhance their looks. Now they photograph warts and all. Well, Hepburn demanded that she look well. So they brought me over from the states to complete the picture.*

**A scene from "BUTTERFLIES ARE FREE", starring Edward Albert and Goldie Hawn. This was one of the last pictures photographed by Charles Lang, Jr., ASC prior to his retirement and it earned him his latest Academy nomination. Of it he says, "I feel it is one of the better jobs I've done in the use of the 'available light' look."**





Right after that I went to work on "Charades" (1963) with the same crew. That was a successful picture.

There was a crew in Paris who had worked with American companies a lot and they knew how Americans worked, so it worked out fairly well. They didn't speak English, so I had to work with hand motions and a few French words that I picked up. I enjoyed working over there.

QUESTION: WERE THE FRENCH CREWS BETTER OR FASTER THAN AMERICAN CREWS?

LANG: No, I don't think so, just good. They were like the crews in Mexico, Japan or wherever I've been. They all work hard. They have a lot of respect for photographers, particularly if the cameraman is a TAKE CHARGE guy, and I've always been that.

QUESTION: IS THAT ANOTHER TRAIT THAT MAKES A SUCCESSFUL CAMERAMAN?

LANG: That's important, to have the ability to take charge. You listen just like any good man who is in charge. To take charge doesn't mean you have to be a tyrant. But when you listen to someone you say right now, "That's a good idea", or "It isn't," and move along. If I hear a good suggestion — bang, I'll switch right quick and give the fellow credit.

The cameraman is really the man who keeps the film on schedule and everything else. The way he takes charge and goes about his work actually sets the tempo. I believe most successful cameramen work this way.

QUESTION: IS THERE ANYTHING YOU WOULD LIKE TO SAY ON THE MOVIE "CHARADES"?

LANG: It was interesting because we had different places to go. We worked on the Metro (the underground subway), and then we also went to Macheve, the ski resort. I think back and it was kind of interesting, all those different locations in France. We worked in Paris where all the children go to see the Marionette puppets, the stamp scene, the chases. It was interesting in that respect.

QUESTION: WAS THERE ANY PARTICULAR DIRECTOR THAT YOU WERE FOND OF WORKING WITH?

LANG: There were a number of directors who would fall into that category. The one in particular, that I was most fond of, was Frank Borzage. Perhaps I

## THE FILMS OF CHARLES LANG, ASC

Twenties: *The Night Patrol* (co-ph. Jack Stevens), *Ritz*, *The Shopworn Angel*, *Innocents of Paris*, *Half-Way to Heaven* (co-ph. Alfred Gilks):

Thirties: *Behind the Make-Up*, *Seven Days Leave*, *Street of Chance*, *Sarah and Son*, *The Light of Western Stars*, *Shadow of the Law*, *For the Defense*, *Anybody's Woman*, *Tom Sawyer*, *The Right to Love*, *Unfaithful*, *The Vice Squad*, *Newly Rich*, *The Magnificent Lie*, *Caught*, *Once a Lady*, *No One Man*, *Tomorrow and Tomorrow*, *Thunder Below*, *The Devil and the Deep*, *He Learned about Women*, *A Farewell to Arms* (Academy Award 1933), *She Done Him Wrong*, *A Bedtime Story*, *Gambling Ship*, *The Way to Love*, *The Cradle Song*, *Death Takes a Holiday*, *We're Not Dressing*, *She Loves Me Not*, *Mrs. Wiggs of the Cabbage Patch*, *The Lives of a Bengal Lancer*, *Mississippi*, *Peter Ibbetson* (co-ph. Gordon Jennings), *Desire*, *Souls at Sea*, *Angel*, *Tovarich*, *Doctor Rhythm*, *You and Me*, *Spawn of the North*, *Zaza*, *Midnight*, *Gracie Allen Murder Case*, *The Cat and the Canary*.

Forties: *Women without Names*, *Adventure in Diamonds*, *Buck Benny Rides Again*, *The Ghost Breakers*, *Arise My Love*, *Dancing on a Dime*, *Nothing but the Truth*, *The Shepherd of the Hills*, *Sundown*, *The Lady Has Plans*, *Are Husbands Necessary?*, *Forest Rangers*, *No Time for Love*, *Standing Room Only*, *The Uninvited*, *Blue Skies*, *The Ghost and Mrs. Muir*, *Desert Fury* (co-ph. Edward Cronjager), *Where There's Life*, *A Foreign Affair*, *Miss Tatlock's Millions*, *My Own True Love*, *Rope of Sand*, *The Great Lover*.

Fifties: *Fancy Pants*, *Copper Canyon*, *Branded*, *September Affair*, *The Mating Season*, *The Big Carnival/Ace in the Hole*, *Peking Express*, *Aaron Slick from Punkin Crick*, *Marshmallow Moon*, *Red Mountain*, *Atomic City*, *Sudden Fear*, *Salome*, *The Big Heat*, *It Should Happen to You*, *Sabrina/Sabrina Fair*, *Phfft!*, *The Man from Laramie*, *Female on the Beach*, *Queen Bee*, *Autumn Leaves*, *The Solid Gold Cadillac*, *The Rainmaker*, *Gunfight at the OK Corral*, *Loving You*, *A Farewell to Arms*, *Wild is the Wind*, *The Matchmaker*, *Separate Tables*, *Some Like It Hot*, *The Last Train from Gun Hill*.

Sixties: *Strangers When We Meet*, *The Magnificent Seven*, *The Facts of Life*, *One Eyed Jacks*, *Blue Hawaii*, *Summer and Smoke*, *How the West Was Won*, *A Girl Named Tamiko*, *Critic's Choice*, *The Wheeler Dealers/Separate Beds*, *Charade*, *Paris When it Sizzles*, *Father Goose*, *Sex and the Single Girl*, *Inside Daisy Clover*, *How to Steal a Million*, *Not with My Wife*, *You Don't*, *Hotel*, *The Flim-Flam Man/One Born Every Minute*, *Wait Until Dark*, *A Flea in her ear/La Ponce a L'oreille*, *The Stalking Moon*, *A Walk in the Spring Rain*, *How to Commit Marriage*, *Bob and Carol and Ted and Alice*.

Seventies: *Cactus Flower*, *Doctors' Wives*, *The Love Machine*, *Butterflies Are Free*, *40 Carats*.

was so fond of him because I received the Academy Award on a film we worked on together, "A Farewell to Arms" (1933). I also have good memories of working with him on the film "Desire" (1936). Another director of whom I have fond memories was Billy Wilder. I worked with him on a number of films.

QUESTION: WHAT DID YOU ADMIRE ABOUT THOSE TWO DIRECTORS?

LANG: They had just great ideas, but didn't interfere with your work. They appreciated your ability and knew something about what the visuals should be on the screen. They would suggest, "Let's go into a deep effect on this one," and when someone encourages you, you get into it more.

QUESTION: WILL EACH SCRIPT DESCRIBE WHAT TYPE OF MOOD IS NEEDED FOR EACH PARTICULAR SCENE?

LANG: Some types of scripts will describe mood, but I've worked with a lot of scripts that never describe anything and you have to dream it up with the director. You'll talk with him. For instance, suggest maybe, "Let's go into a silhouette effect on this whole scene, with possibly a little light on the eyes," and the director will say, "Well, no, it's not quite that kind of scene." So we'll

bring the lights up a bit. We are constantly kicking around different ideas. Then we decide.

QUESTION: DOES THIS DECISION TAKE PLACE THE DAY BEFORE YOU SHOOT?

LANG: I like to work with a director that will wait a little while after we finish at night. Maybe fifteen minutes or so and go through the script. We will talk about the next day's shooting. That's a nice way to do it. Then you have overnight to think about it. Your preparation the next morning, before all the people arrive, will be more complete. Rather than waiting until the director arrives, which would waste a lot of time. It's best to be pretty well set on what you're going to do in the morning, what kind of shot. I'd really like the people to rehearse it the night before so I can see where I'm going to place the light and so on.

QUESTION: ARE SCRIPTS IMPROVISED A LOT?

LANG: Some directors, like Billy Wilder, write their own scripts. Now that's a big advantage because he knows exactly what he wants and he doesn't want a word changed. Other directors, particularly the ones that are not in on the writing of the script, are

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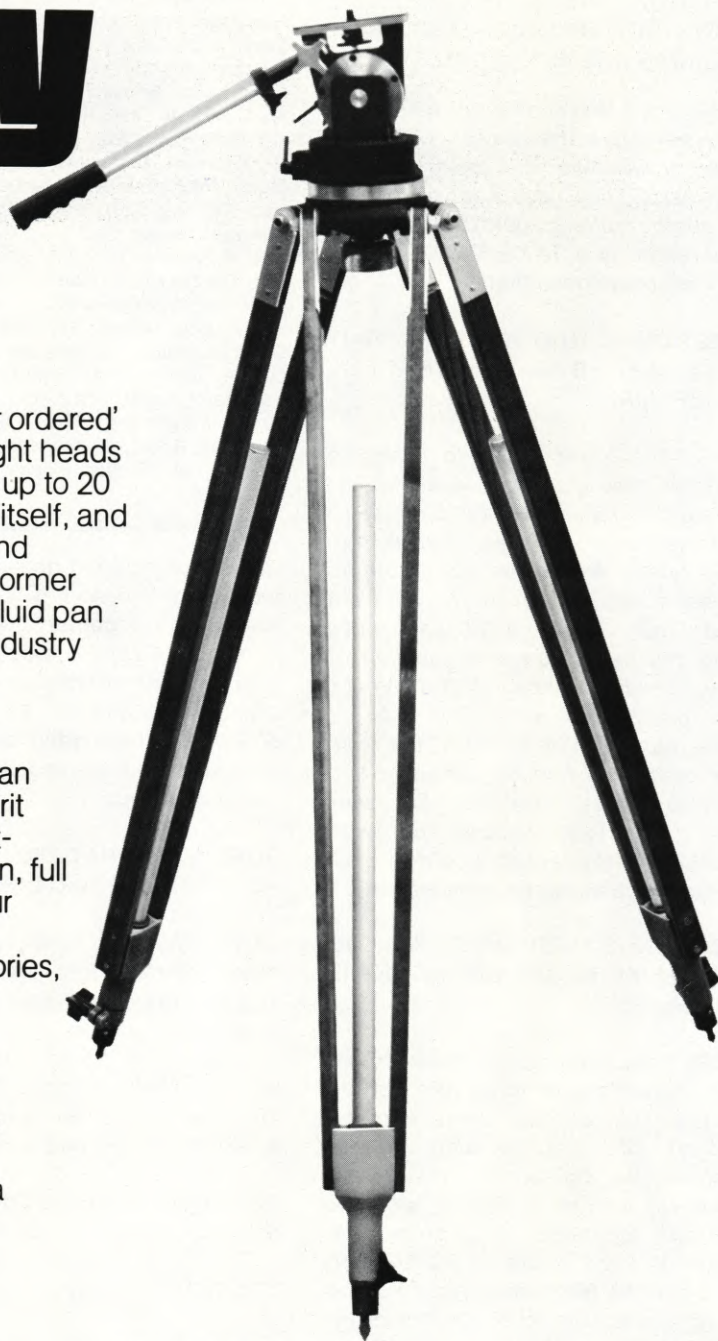


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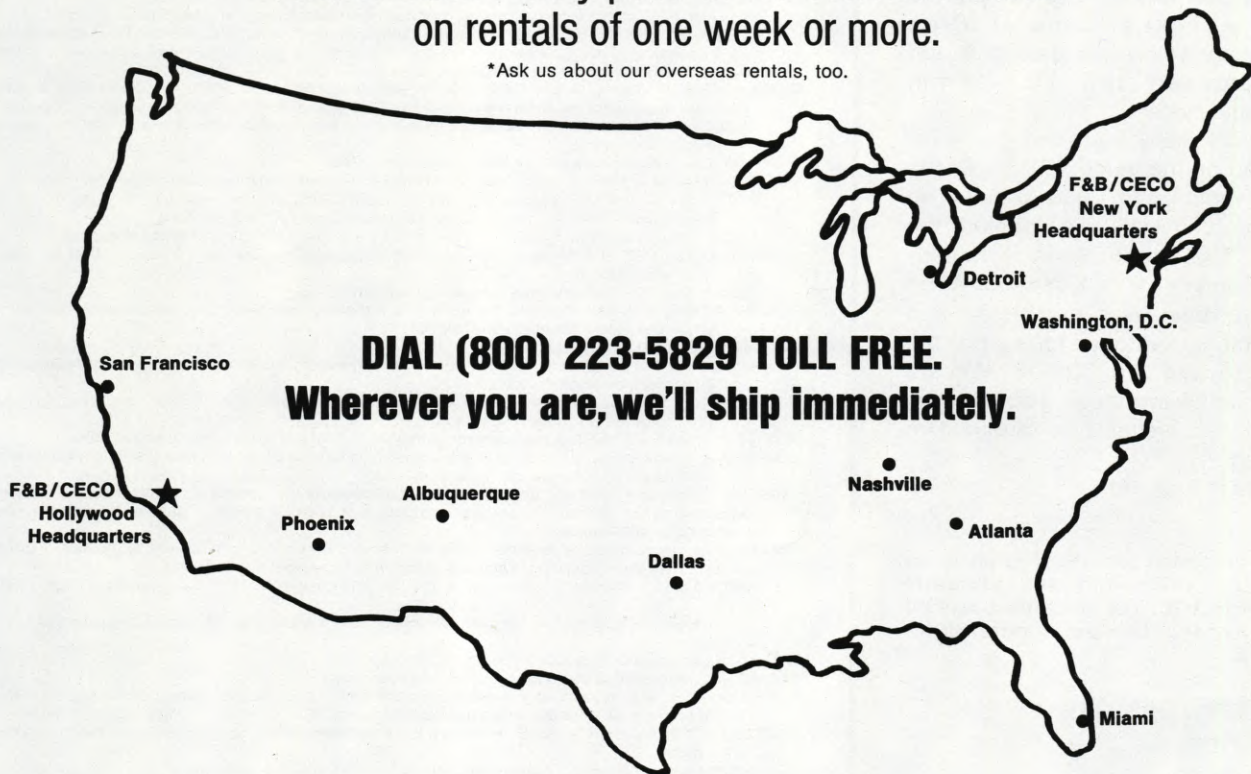
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**THE NEW TGX-16 CAMERA**  
Continued from Page 904

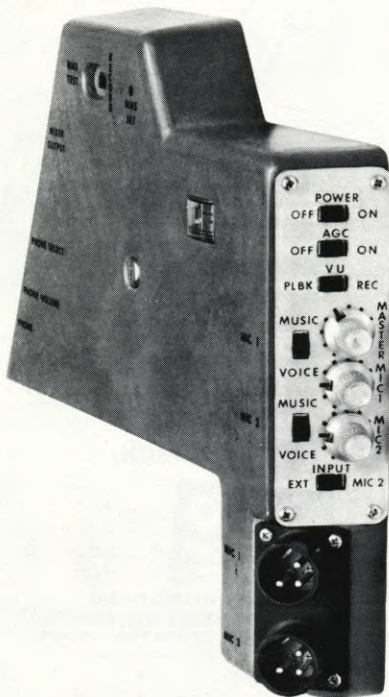
ness. This concept would also have to include all that electronic space technology could supply, a system to power our camera efficiently, accurately and quietly and also to marry a sound amplifier and record system to complement it.

It was at this point about fourteen months ago that we engaged the services of mechanical and electronic engineers whose experiences had been with the space program in Texas. After many trips between New York and Texas for the researching and the development of our camera, it was necessary to establish a research and development company in Texas to complete this project. This company is now the Texas General Cine Corporation which has designed and manufactured the TGX-16mm Cine/sound system.

I am sure many will wonder how we happened on the name TGX-16. At the time we ventured to Texas to build two prototype cameras, we labeled the project "The Texas General Experimental Camera" or TGX camera. When the prototypes were completed and acceptable we searched for a name but nothing topped the TGX-16. We are now proud to introduce a totally new concept for visual and audio film recording.

Continued on Page 961

The self-contained amplifier has filters for music and voice and an automatic squelcher in AGC. The multi-functional VU selector has a five-point control for versatility.



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**RECORD CHANNEL**

Microphone Inputs: 150 ohms Input Impedance  
Frequency Response:  $\pm 2$  dB, 50 Hz to KHz in MUSIC position. Speech roll off at 300 Hz with 6 dB per octave roll off below 300 Hz in VOICE position.  
Signal-to-Noise Ratio: -55 dB  
Input Sensitivity: 40 microvolts to 40 millivolts at 1 KHz  
Total Harmonic Distortion: 3% at 1 KHz  
Line Input: 10K ohms Input Impedance  
Frequency Response:  $\pm 2$  dB, 50 Hz to 10 KHz  
Signal-to-Noise Ratio: -55 dB  
Sensitivity: 1 volt rms  
Wow-and-Flutter: 0.2% max. total  
Bias Frequency: 60 KHz  
Bias Current: 7 ma  
VU Meter: Standard VU Meter

**PLAYBACK CHANNEL**

Frequency Response:  $\pm 1.5$  dB, 50 Hz to 10 KHz  
AGC: Attack time = 10 ms.; Release time = 1 sec.

**ASTROSONIC SOLID STATE AMPLIFIER CONTROLS AND FUNCTIONS**

**POWER ON/OFF** — Controls power to amplifier.  
**AGC ON/OFF** — Permits operator to select manual or automatic gain control.  
ON — Amplifier automatically controls record level to adjust for changing sound levels entering the amplifier. The MASTER gain control is inoperative in the AGC ON mode.  
OFF — The amplifier is normal. The operator controls the record level using master and individual mic. controls.  
**VU PLBK/REC** — Allows operator to select one of two functions to be metered.  
REC — In REC position the VU meter monitors the source program material at all times.  
PLBK — In PLBK the VU meter is automatically switched to monitor the playback level while recording. This operation is performed with an electronic relay activated by the MOTOR switch on the TGX 16 camera.  
**MUSIC/VOICE** — There is a MUSIC/VOICE switch for both the MIC 1 and the MIC 2/EXT channels. The switch nearest the respective MIC gain adjust is associated with that control.  
MUSIC — In MUSIC the full frequency response of the amplifier from 50 Hz to 10 KHz is used during recording.  
VOICE — Frequencies below 300 Hz are attenuated.  
**INPUT EXT/MIC 2** — A two position switch located at the extreme lower part of the control panel.  
EXT — In EXT the MIC 2 input is intended for HI LEVEL or LINE type inputs. Typical signal level required is 0.4 V rms; the input impedance in EXT is 10K ohms.  
MIC 2 — In this position MIC 2 input serves as a standard 150 ohm microphone input.  
**RECORD/BIAS TEST** — A two-position switch that permits the operator to check that the bias oscillator is functional.  
RECORD — This is the normal operating position.  
BIAS TEST — In this position, the VU meter indicates that the bias oscillator is functioning when the meter is approximately "0".  
**PHONE SELECT** — MICS/FILM  
MICS — In this position the phone continually monitors incoming MIC signals independent of camera on or off condition.  
FILM — In this position the phones are switched from record to playback automatically as the motor is switched from off to on.  
**PHONE VOLUME** — Provides the operator with a means for controlling headset volume.  
**BIAS SET** — A recessed potentiometer adjustment in the side cover that permits field adjustment of the bias level to optimize the recording level.  
**MASTER** — This is a master gain adjustment that controls the combined MIC inputs for proper recording level. Normal operating position is 2 o'clock (master gain is disabled when operating in AGC mode).  
**MIC 1** — This nomenclature appears twice, on the amplifier housing adjacent to the MIC 1 input and again on the front panel adjacent to the MIC 1 channel gain control.  
MIC 1 Input — Standard 3 conductor microphone connector. (Pin 1 shield, Pin 2 high, Pin 3 low).  
MIC 1 Gain — Provides 30 dB gain control of MIC 1 input. Normal operating position is 10 o'clock.  
MIC 2 — Same as MIC 1 above.  
**PHONE** — This identifies the phone jack on the rear panel.  
**MIXER OUTPUT** — A 3 conductor male receptacle which provides an output of the signal in the record channel at -50 dBm when the VU is reading "0". (Pin 1 shield, Pin 2 high, Pin 3 low)  
**BIAS OFF** — This switch is located internal to the amplifier and is accessible only by removing the cover plate.  
NORMAL — The normal operating position is with the white dot visible.  
OFF — When the white dot is hidden the bias oscillator is deactivated and cannot be turned on either through the motor run switch, or the RECORD/BIAS switch.

**ASTROSONIC SOLID STATE AMPLIFIER OPERATING PROCEDURE**

**MOUNTING**

The Astrosonic Solid State Amplifier is mounted on the side of the TGX 16 Cine/Sound camera by mating the male and female nine-pin Amphenol connectors and tightening (do not over tighten) the single screw located in the center of the Astrosonic Amplifier housing.

**PRELIMINARY SET UP**

1. POWER off
2. AGC off
3. VU PLBK/REC in PLBK position
4. MIC 1 in VOICE position
5. MIC 2 in VOICE position
6. MIC 2/EXT in MIC 2 position
7. MASTER gain at 2 o'clock position
8. MIC 1 and MIC 2 gains at 10 o'clock position
9. RECORD/BIAS TEST in RECORD position
10. PHONE SELECT in FILM position
11. PHONE VOLUME at 12 o'clock position

**POWER-ON SET UP**

1. Install headset (20 to 50 ohm)
2. Install microphone (150 to 200 ohm dynamic)
3. Camera master POWER on
4. Amplifier master POWER on
5. RECORD/BIAS TEST to BIAS TEST. VU should read approximately "0". The Astrosonic bias-oscillator is preadjusted at the factory and does not require continuous in-the-field adjustment. Bias recording effect may be optimized by adjusting BIAS SET for maximum sound amplitude without affecting the factory adjustment.
6. Speak into microphone at a distance of 5" to 6". VU should deflect to approximately 0. Average deflection should be mid scale.
7. Set PHONE VOLUME to suitable monitoring level.
8. Adjust MASTER gain as needed.
9. If Automatic Gain Control is desired set AGC selector switch to ON position. The MASTER gain control is inoperative in the AGC ON mode.
10. Operate total TGX 16 Cine/Sound System.




  
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## FILMING ON "THE EDGE" Continued from Page 945

lady, for instance, was supposed to get pulmonary edema (a high altitude breakdown of the lungs which acts like pneumonia) on Mt. Kenya in East Africa, the closing sequence in the film. What happened was that the actor, Tom Babson, really got it. Fortunately he recognized the symptoms and got down to a hospital before it became serious. He came back up to our base camp at 14,000 feet a week later, and, with considerable courage and no small amount of pain, did his part.

Another section of the script talks about how some people get it (killed) as passengers, from circumstances beyond their control. In the last days of our last shoot (kayaking) in the Grand Canyon, this line haunted me as I watched a raft containing my partner, his seventy-seven-year-old father, and the actor's sixty-one-year-old mother, turn totally upside down in the biggest rapids on the river, Lava Falls, a good place to die. It was a long twenty minutes before I found out they had all survived the plunge.

As a matter of fact, they loved it, the highlight of their trip. They had asked the boatman to take them down the rough right side. I felt foolish, but a year or two older just the same.

### PRODUCTION (CLIMBING)

The crew. I started out planning to operate as a director-cameraman. I had two more cameramen, one a rock-climbing specialist (we were filming in

**(LEFT)** Yvon Chouinard on the ice of Mount Kenya. This marked the first time that this section of the Diamond Couloir had been climbed and it is the last ice fall before going onto the Diamond Glacier. **(RIGHT)** Using two ice axes, Mike Covington demonstrates ice climbing technique on Mount Kenya. Brown, who had not brought along crampons or ice axes, had a hair-raising climb up the ice on a rope.



Roger Brown films Yvon Chouinard climbing at the 16,000-foot level on Mount Kenya in East Africa. The ascent of the mountain was a two-day affair, with the bivouac at 16,500 feet, so that the summit scenes could be shot on the following day. The author tied himself to a rock to avoid rolling to the bottom while asleep — and woke up coated with ice in the morning.

Yosemite Valley), a soundman, and a production manager.

My second cameraman, Bob Fulton (the most exciting cameraman I know, although in a somewhat esoteric sense), found himself uncomfortable on cliffs,

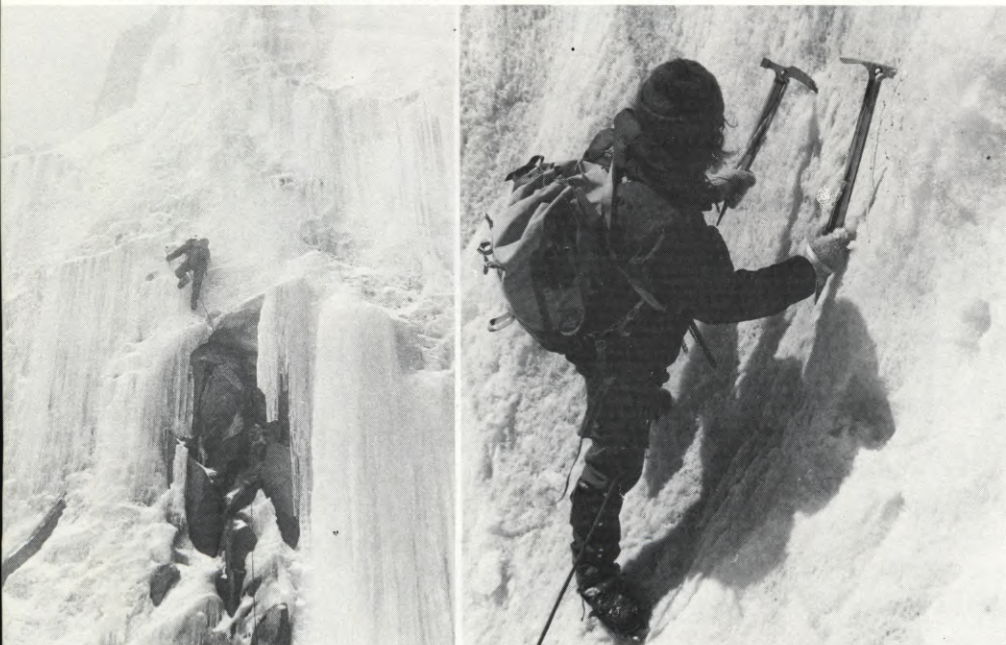
and voluntarily left. The production manager was willing, but green. He took more of my time than he freed up, so I had to let him go. The soundman had a serious conflict with my actor, so he had to go also. The big cliffs blew the actress's mind, but fortunately she fell in love with one of our climbers who helped her hang onto her sanity until she got used to the "verticalness" of everything.

Good news? The climbing cameraman, Tom Frost, is pure genius. He is good, strong, comfortable in terrible places, even-tempered, and so hard-working that it's unbelievable. I used him again later on Mt. Kenya where he put in an even better performance. I hung off the cliffs too, but nothing like Frost.

Our two climbing stars, Yvon Chouinard and Mike Covington, are among the best in the world. The more uncomfortable (vertical) it got, the better they liked it. They also went to Mt. Kenya in East Africa with us and did some really frightening ice climbing over there.

### MOUNT KENYA

When we first arrived, the climbers discovered a monkey frozen in a glacier (at approximately 15,200 feet in altitude). How it got there is anyone's





guess. We were so many more monkeys on the ice, you might say.

We did not lack for excitement in our journey. Upon arrival we were told that a German climber had rappelled off the end of his rope and had fallen several hundred feet to his death. Early in the morning of the first day at 10,000 feet, an elephant bounced out of the bamboo and across our trail. This prompted a ranger to point out that just the night before several porters had been treed by a herd of elephants. A few years ago a biologist was actually killed by a cow elephant when he got between her and her calf while descending the trail at night. While filming in the giant heather we followed elephant trails. Some of the footprints were a foot across and a yard deep — real leg-breakers if you happened to step into one without seeing it.

We did several partial ascents of the mountain and one complete ascent. This was a two-day affair. We bivouacked high up (16,500 feet) so that we could have most of the following day to shoot the summit scenes. I slept on blocks of rock that were anything but flat. It was no place to toss and turn, since the wrong turn would have resulted in a long, fast roll to the bottom (I finally tied myself to a rock). During the night the weather changed and we were buffeted by a freezing wind for several hours. We woke up coated with ice in the morning. When we tried to climb, our hands froze so we had to wait for it to warm up.

Frost, Chouinard and Covington traversed from their bivouac site to the Diamond glacier to film ice-climbing scenes. Since Roger Gossick (a Trinidadian who had learned to climb in the Sierra and just happened to stumble onto the Hubbards when they were coming up the mountain) and I were temporarily turned back from the summit we followed them. This effort consumed more time than it should have. It was mid-afternoon and we still had several hundred vertical feet to cover to reach the summit.

Roger and I had not brought crampons or ice axes with us, since we had planned to climb entirely on rock, but now the fastest way was up the Diamond glacier. So, in order to save time, Chouinard threw us a rope and told us to pull ourselves up. This proved to be one of the most frightening things I have ever done. Our boots would not hold on the ice unless we leaned back to a point where we were perpendicular to the ice. My pack (which had thirty pounds of camera gear in it) cut the circulation off in my arms. I had great difficulty pulling myself up the rope. Covington tugged



**When they first arrived on Mount Kenya, the climbers discovered a monkey frozen in the glacier (at approximately 15,200 feet in altitude). How it got there is anybody's guess. It was also impossible to tell whether the frozen remains were ten or a thousand years old. A real danger on Mount Kenya was a possible attack by elephants encountered at 10,000 feet.**

from the other end; otherwise, I wouldn't have made it. If for some reason my belay had given way I would have fallen 2,000 feet down the ice gully to the foot of the Darwin glacier.

The waist loops felt loose as they slipped up onto my rib cage. For a brief second I thought the bowline knot was coming loose. My oxygen supply was even further restricted by the pressure on my chest. The whole situation seemed ridiculous. It would have been far easier if we had taken a little longer and climbed up the rock beside the glacier.

Tom Frost, in my opinion, was the hero of the trip, in spite of his camera problems. He worked tirelessly, never uttered a complaint, and never lost sight of our objective, which was to make a film. He not only had time to film, he also acted as a guide in the fullest sense of the word, keeping less-experienced people like me from getting into trouble, looking out for our comfort, cheering us up when the going was tough. Without him the entire expedition could have turned into a disaster.

Tom Babson tried to climb up to

**Roger Brown with African porters on Mount Kenya. They were fascinated by the Arriflex camera and could not resist looking through the Leitz 400mm telephoto lens. Brown gives special credit to cameraman Tom Frost, whom he characterizes as "the hero of the trip" up Mount Kenya: "He worked tirelessly, never uttered a complaint and never lost sight of our objective . . . Without him the entire expedition would have turned into disaster."**





base camp while he still had a touch of the flu. This is seriously advised against in all the guide books and, predictably, he came down with pulmonary edema. Fortunately, he recognized the symptoms and retreated to a lower elevation, and a hospital, before the problem became really serious. Usually people wait too long and have to be carried down the mountain in a coma.

### SURFING

Luck; buy all you can get. The budget can stand any amount. We sat in Hawaii for two weeks, in the rain, watching flat waves. My wife and I made four puka shell necklaces and still no waves came in. Then, when we were just about to leave, word came through that some big swells were on the way. A few days later 35-to-40-foot monsters rolled into Waimea Bay. The sun was out and Smirnoff was holding a contest which attracted the world's best surfers. The last time those conditions existed was over eight years ago.

Surfing cinematographers. There are lots of fast-talkers, and I got burned by one. His ability was not what he professed, and he was chicken when it came to going out in the big ones (can't say I blame him). I did hire another cinematographer, Yuri Farrent, who is a

real hero in my mind, since he photographed from his board on that big day at Waimea. I cried when the footage came back — his camera was broken and the film was out of focus. I know he's a good photographer — I've seen

other stuff he's done — but on this day his luck was bad.

### HANG GLIDING

More luck. In a three day shoot in the  
Continued on Page 971

### A PERSONAL PHILOSOPHY (written just prior to the beginning of filming on THE EDGE):

*I am forty. I am no longer a young man. Life is not over, but the end now has to be given at least some consideration.*

*So, in conjunction with the production of THE EDGE and my 40th birthday, I have developed what I feel is an appropriate philosophy.*

*Approaching the age of desirable death.*

*It is fitting, I think, that man should recognize and accept an appropriate life span, based on functional physiology.*

*This is not to say that one should not aspire to a healthy old age — but as time runs out, one should cling less, rather than more tenaciously, to what remains. Why not? Obviously, there is less to lose.*

*Traditionally, young people are more reckless than older people. Some call it bravery, others foolishness. Then experience and survival eventually lead to wisdom and caution.*

*Energy is used more efficiently. Unnecessary work is avoided. Only the useful parts of the body are utilized — a corner of the mind that brings in an income, the muscles needed to get up and sit down, or drive a car. Meanwhile, much of the rest of the body starts to die.*

*Yet, why? Surely, if you watch a child playing, you can understand what is happening. He utilizes every muscle, stretches every joint and uses every corner of his mind. Little or none of this is equated with purpose. It is simply a natural part of his growth.*

*So part of the problem lies in figuring out a way to keep the mind and body active and tuned, when its natural inclination is towards rest. One way is to begin pursuing activities which involve more, rather than less, risk. And this is what I am doing, both personally and professionally, in THE EDGE. The "edge" I talk about is that edge that lies between joy and disaster when one pushes the adventure sports to their limits. Out there the mind and body are also pushed — toward a nice high level of activity.*

*It feels good.*

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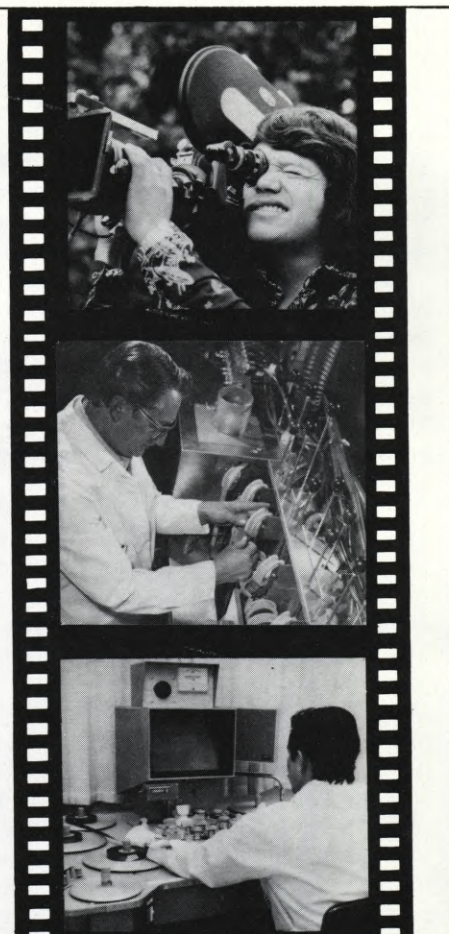
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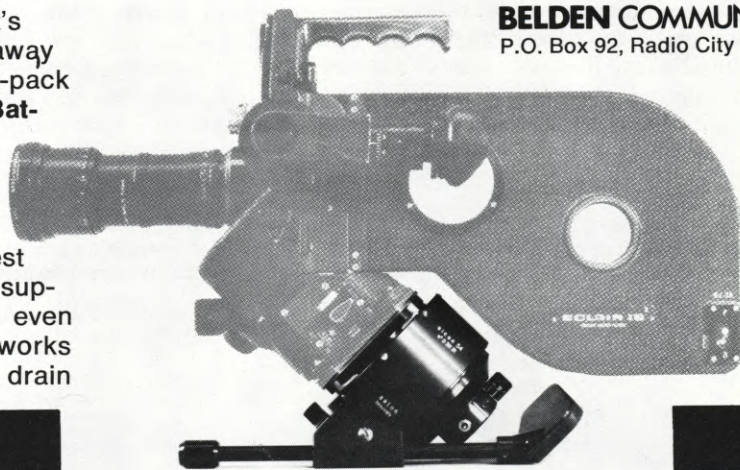
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**"THE EIGER SANCTION"**  
Continued from Page 893

The rescuers began a slow, dangerous traverse which brought them three hundred feet below the point where Kurz was hanging in a rope sling. They could go no farther on the slick ice, and night was coming on. They called to Kurz. What had happened? "Hinterstoisser came off and fell the whole way down," Kurz answered. "The rope pulled Rainer up against a snap link. He froze to death there. And Angerer's dead, too, hanging below me, strangled by the rope when he fell."

Now the guides had to tell Kurz that they could go no farther on the icy precipice. "You can't rescue me from below!" the anguished German shouted. But the Swiss guides knew that they would be hard pressed even to get back to the safety of the tunnel. They told Kurz he would have to stick it out, alone and exposed, for another night. "No!" he screamed. "No! No!" Making their retreat, the guides could hear Kurz's shouts all the way, alternately pleading and vilifying and arguing that he could not endure in the sub-zero temperatures.

But endure he did. His mittenless left hand froze into a useless blob. The water thawed by his body ran down to the tips of his crampons, where it formed long icicles on the spikes. But he was still alive when the guides, in the light of dawn, beat their way back across the mountain to a point 130 feet

below his perch. Now they reached a vertical pitch, bulging outward and covered with ice, which even unglazed would have taxed the skills of the best cliff climbers. There they halted and shouted to Kurz, out of sight behind the bulge above them. "Can you get a rope down?" they asked. "Then we could attach all the gear you need."

Kurz answered that he had no line. One of the guides hit on a macabre plan. He told Kurz to climb down to Angerer and cut the rope fixing Angerer's body to the wall. By untwisting the frozen strands, he might salvage enough line to lower to his rescuers. This simple maneuver took the half-dead Kurz, working with one good hand, his ice axe and his teeth, six hours. But from it he gained enough rope to lower to the rescue team. They fastened to it two lengths of rope, joined by a thick knot, and pitons, snap links and a hammer, everything Kurz would require to rope himself down the pitch. Up went the rescue gear, and for an hour Kurz busied himself with the tedious task of driving a piton one-handedly into the wall and fixing the new rope to it. Then he connected his sling to the rope with a snap link and began inching his way downward. Below, the guides shouted encouragement and waited, and after a long vigil they saw the soles of Kurz's boots scrape into sight above them, hang there, and stop. The snap link which fixed him to his lifeline had come up against the knot joining the two ropes and jammed tight. His feet dangling

just a few feet above the rescuers' reach, Toni Kurz fumbled with the ice-encrusted knot for a short time, then his eyes glazed and he muttered, "I'm finished." He slumped forward and died. He hung there all summer and tourists came to the Kleine Scheidegg to see Toni Kurz. Perfect, escape without envy.

Universal bought the rights to Trevanian's book, *The Eiger Sanction*, but couldn't get anyone to even consider the technical problems until Clint Eastwood came along. *Why not?* So Eastwood, Bob Daley (Producer and Eastwood's friend since before the beginning) and I went over to Switzerland to have a look. In Grendelwald we met Norman Dyhrenfurth (expedition leader of the 1963 Americans on Everest climb) and Dougal Haston (who has done two of the three routes on the North Face of the Eiger). After a brief look at the Face and a talk with Norm and Dougal, we went to Paris. *Why not?*

I was to be responsible for the climbing portions of the script. As well as actually filming, this included finding locations, technical climbing equipment, wardrobe, any special camera equipment and assembling a climbing film crew. From a photographic view the locations are the single most important task. With an area that has reasonable access and is spectacular, the cinematographer's job is almost done.

Access and safety would be the whole problem on the Eiger because its mile-high face was certainly spec-  
Continued on Page 935

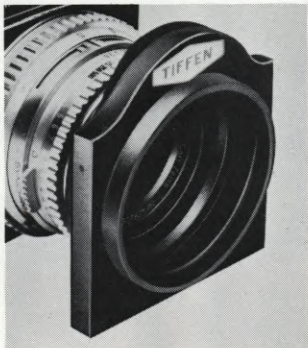
(LEFT) The highly miniaturized Minitek Mixer designed and built by soundman Peter Pilafian and used by him on "THE EIGER SANCTION" and other difficult assignments. The upper compartment contains a Nagra SN miniature recorder and spare tapes. The switch on the left is for LF equalization. (RIGHT) Waterproof carrying case is made from nylon backpack material. The two small switches on top control the SN recorder.





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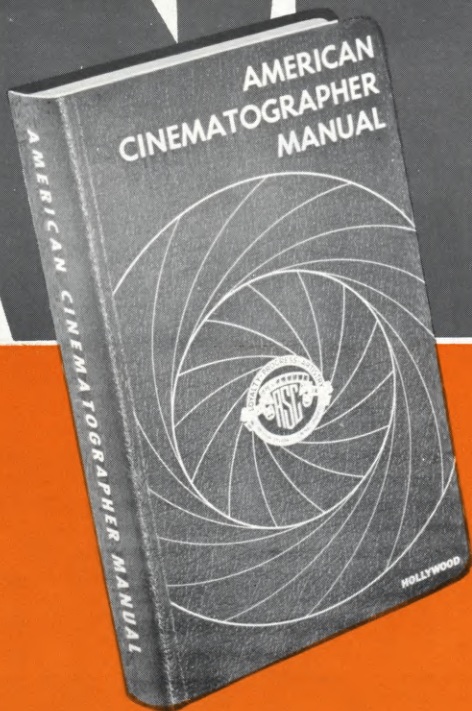
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**"THE EIGER SANCTION"**  
Continued from Page 932

tacular. Dougal and I agreed to meet at the Kleine Scheidegg two weeks before anyone else arrived to line up locations. For the desert locations I flew, drove and hiked through Canyon de Chelly, Monument Valley, Shiprock, Canyonlands National Park, Oak Creek Canyon, Zion, Bryce and Capitol Reef National Parks. I recommended Zion for the resort and Monument Valley for the desert training climbs with George Kennedy. Eastwood and Daley agreed, but rock climbing had been outlawed in Monument Valley by the Navajos. Early climbs on the Totem Pole — the spire I wanted to use — had left bolts and pitting scars on the rock. Since many of the more unusual monument rock forms have very direct religious ties to the Navajo Indians, climbing was immediately banned. So I got together with Virgil Wyaco from the Tribe and worked out a plan where we would remove all the shiny aluminum bolts and hangers and fill in the holes with a mortar made from similar rock. This kind of sculpture involves very technical climbing techniques and is a service not easily obtained. So we offered a location fee and our sculpture work and they accepted.

In climbing photography the whole trick is to try to capture a vertical feeling, and so I naturally favored a 1.85 format over the anamorphic 2.35. But the anamorphic won out and was probably the best choice overall. It certainly was better in John Ford's vast Monument Valley. But on the Eiger it was often difficult, or impossible, to step back from the subject and the widest lens Panavision had was a six-pound 30mm, which gives you only a 34.6 vertical degrees, or 14 feet back for full figure. With a spherical one-pound 14.5mm, only eight feet.

As far as special camera equipment was concerned, we had very little. Panavision designed a fancy tripod for us, but we never used it. Almost everything was hand-held — even one shot in Zion, where Kennedy and Eastwood start climbing, was a hand-held tilt, using a flat-base Arri with 400-foot magazine and 50mm-500mm zoom. Eastwood *always* comes in under budget and ahead of schedule, so there was no time to fool around. Panavision made up about eight ultralight lithium batteries which helped me more than any other single piece of equipment. About ten times the power per weight. No re-charge (throwaway) at \$100 per battery. Well worth it for this film. They also built us a shock case for a 100-

foot-load Eyemo. We used it for POV's of falling bodies. I threw it off the top of the Eiger six times before it finally died.

In Europe the climbing film crew consisted of myself, Peter Pilafian (sound, camera), John Cleare (cameraman from the BBC — "RETREAT FROM EVEREST" and "CLIFF-HANGERS", among others), Jeff Schoolfield (rigger and stuntman who worked with me on "SOLO" — See *American Cinematographer*, May 1973).

As on the National Geographic shoot we did together in Peru, Pilafian was everywhere. He has modified all his mixing equipment for climbing — rugged, low-temperature tolerance and very lightweight. He even designed his own four pot mixer for a SN with a total weight including mike of only four and a half pounds (details in "High-Altitude Sound Recording with Special Lightweight Equipment" by Pilafian — *Am. Cinematographer*, January 1974). When we lost John Cleare to a Himalayan expedition, Pilafian took over back-up shooting, also doing sound, and fixing anything. A surprise that no one expected was Jim Fargo (the AD) who had never climbed before but quickly learned the basics and ended up doing anything from make-up to

*Continued overleaf*



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assistant camera.

Dougal and Norm gathered together four English climbers to aid in the technical climbing logistics and, when need be, double the actors. Marten Boysen — 29, biology teacher and, some say, the best free-rock climber in England; Dave Knowles — 26, mountain guide, had climbed the Eiger in 1970; Chick Scott — 27, mountain guide and instructor just back from a Himalayan expedition; Guy Lamont — 20, instructor at Dougal's climbing school.

Eastwood wanted to start on the mountain — hardest stuff first sort of thing. So the first day, August 12, we decided to shoot the rock fall scene where Montaigne takes a big fall after being hit on the head. Chick is the double for Jean-Pierre who plays the doomed Montaigne. "Not on your bloody ass . . ." So Jeff said he'd do the fall. Quite simple, really. You stand on a two-foot ledge, try to act like a Frenchman jealous of his wife's lover while Martin throws foam rocks at you. When enough have hit you, lean over backwards and fall off a 3,000-foot cliff. Fifteen long feet later the rope jerks you to a stop under an overhang, none the worse for it and a few dollars richer.

Jeff was sick when we discovered that Pilafian was the identical twin of Jean-Pierre, beard and everything. Peter did the stunt twice and two smaller falls for closeups — one hell of a sound man. This was a safe location with a lot of height above the valley, but free from the normal rockfall so common on the Eiger. Dave and Martin worked up above, while Dougal, myself and Clint worked with several others down on the face below. By six p.m. we were all back at the hotel (via chopper), tired but happy that the filming had gone so well.

Tuesday, the thirteenth, was also cold, clear and beautiful. By 9:30 the chopper had moved all 14 of us up to the West Ridge of the Eiger. Today we would finish one of the most difficult set-ups in the picture. Not bad.

By three we had finished on the face and had begun to film up on the flat area above, ascending the ropes back to the top for a sync scene where we establish that the German is a careless fool and that the Frenchman is a *damaged* careless fool. Then I remembered that we didn't get the POV of the falling fake rocks that just miss Eastwood and hit Montaigne. So I had to go back down on the face and Dave volunteered to go onto the wall with me to help, while everyone else began to fly out in the chopper.

So the two of us rappelled down to our

position on the wall and clipped into a group of pitons. I think we both were glad to get out onto the peaceful wall and let the others hustle all the junk back down in the chopper.

The shot was rather simple, Martin drops the foam rocks down on us and Dave bats any away that might hit the lens. Perfect, but really scary-looking through the camera as the rocks bomb down, I just can't keep from flinching. Finished.

I suggest to Dave that he go on back up while I coil the ropes, put the camera away and take out the pitons but he says no and that he'll stay and help. So we joked and began to clean up. He told me about working with the BBC, I think on the "Old Man of Hoy". One day he was carrying a very expensive video camera that was turned on and he didn't know it. So the camera was transmitting back to the control truck while he was stopping on a tiny ledge to pick some exceptionally beautiful wildflowers. The guys back in the control truck were going crazy as he put the camera down on a ledge balanced some three hundred feet above the smashing surf. We were both laughing when we heard the sound of a big rock falling from above.

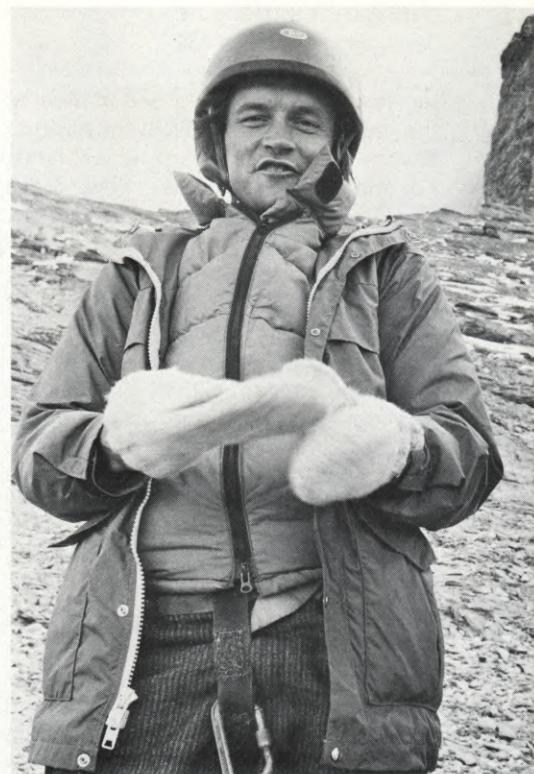
*It sounds real close and I instantly cover and crouch into the wall as close as possible, I hide my hands so as not to lose any fingers. Feel pretty good. It smashes into the small of my back and I almost black out as a smaller shower of rocks continues. I feel a weight on top of me. I can't move my legs, so pinch them and am so happy to feel the pain. Dave must be okay. But he's on top of me — hanging upside-down — dead.*

He must have looked up right into it. I'm sure he never felt anything and was happy when he passed away — and it was so quick that there was no fear at all.

Daley and Eastwood talked about stopping production, but what for? We all knew that serious accidents were a real possibility before we started. But on the second day?

My pelvis had a small crack and all the surrounding muscles were smashed so I was out of action for about ten days. Then Frank Stanley (Director of Photography) had a stroke and Ferris Webster (Editor) had to go down to the hospital for three days.

Things improved after we got through August but the weather turned bad. So Eastwood took the first unit to Zurich and I stayed on at the Kleine Scheidegg with the climbing crew. We shot pick-ups and climbing montage footage for about a week until it was



English mountain guide David Knowles, shown on his last day alive. Victim of a fatal rockslide, he had climbed the Eiger in 1970.

safe to go up onto the Rote Flue for the pendulum shot. Finally it broke and turned cold. Eastwood flew back from Zurich and we shot the helicopter zoom into him swinging on the Rote Flue in the center of the 6,000-foot North Face. We used a Westcam and it must have been the original prototype — nothing but trouble. Tyler mount with Rex Metz shooting and Jim Gavin flying like we had in Monument Valley for the pull-back from the Totem Pole would have been the perfect set-up for the Eiger zoom-in.

Onto Zion where myself, Jim Fargo and Orwin Harvey (Kennedy's double) handled all the chores. In Monument Valley we joined up with Pilafian and Pete White — Ph.D. in acoustical engineering turned mountain cameraman.

Compared to the Eiger it was a picnic. ■

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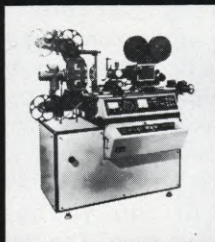
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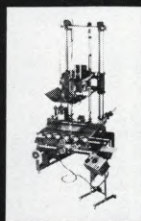
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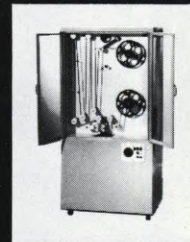
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The peculiar demands of a film story that takes place mostly at night in a future without artificial light leads Technicolor to develop a new process for increasing film speed one stop without loss of image quality.

By GERALD J. HIRSCHFELD, ASC

My introduction to working on "THE ULTIMATE WARRIOR" was the brief telling of the story by the producers, Fred Weintraub and Paul Heller. This, then, is the story that was to be filmed.

By the year 1978 the energy shortage had become super critical. In fact, the world had used up its supply of all fuels; there was no more energy! As a

result, the world had slowly disintegrated. First, all manufacturing had ceased. Hospitals could no longer function, due to a lack of power and the fact that drugs could not be manufactured. Epidemics ran rampant and gradually, over a twenty-five-year period, the world's population had become drastically reduced. The entire

**On a rooftop in downtown Los Angeles, Robert Clouse (in cap), director of "THE ULTIMATE WARRIOR", and Director of Photography Gerald Hirschfeld, ASC discuss a matte shot as a possible way of changing the Los Angeles background to a New York City locale. The story takes place at the start of the next century, when all natural energy fuels have been exhausted and disease has reduced the population of the United States to 100,000.**

population of the U.S.A. in the year 2003 is about 100,000 and about to be completely wiped out by the fact that crops are non-existent, due to insects taking over because the supply of pesticides had long since run out.

In some of the larger cities, small groups of survivors band together and create compounds by barricading streets, thereby protecting themselves against marauding scavengers. This story takes place in New York City in one of these compounds where the leader, known as The Baron, played by Max von Sydow, has helped this group survive by earlier having stock-piled as much canned and preprocessed food as he could, and by having a good supply of fresh water, pumped by wind-mill, to irrigate a rooftop farm. It's up on the roof that a new strain of seeds is developed that's resistant to all the plagues. Here, then, is a hope for survival. Survival also is apparent in the fact that his daughter is pregnant with a new life.

The Baron knows that his time and that of his group is limited; another gang of street-fighting people is about to raid his territory and wipe out its peace-loving inhabitants. As a last hope, The Baron makes a deal with a professional fighter, played by Yul Brynner, to help protect his compound until the time is ripe to smuggle the new seeds and his pregnant daughter to an off-shore island he's heard about, where peaceful, survival-conscious persons live. His purpose is purely altruistic, he wants civilization to survive and the seeds he's helped develop may be the only means of survival.

Life in the compound is not happy. People find little purpose to their lives; it's simply survival. With the time hanging heavily on their hands, jealousies grow and spasmodic attacks on The Baron's people take their toll on the lives of the younger, stronger protective men. The fighter gets extra food rations to maintain his strength. This is resented. The Baron retains his health. He's resented. But, in reality, it's the people who resent their situation and themselves.

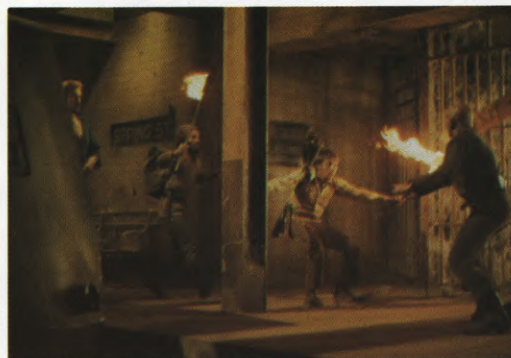
Finally, the climax of the story takes place in a long abandoned subway tunnel with the confrontation of the fighter and the leader of the scavengers.







**(LEFT)** In a future world without artificial light, torchlight and firelight are the only light sources remaining. Here is an excellent example of a torch used as a "key" light. **(CENTER)** The climactic fight of the film begins with a primitive bolo on a steel cable, swung by the street fighter who attempts to destroy the hero. **(RIGHT)** Yul Brynner, as the hired warrior, is backed by a deserted subway car seen in the diffused light coming from the street level above.



**(LEFT)** Inside an old subway car, daylight from the station softly lights one side of the windows, but the entire interior and the actors are basically lit by the torch. **(CENTER)** Confronting his attackers, the fighter can be seen here in the combination of light coming through the ventilators and stairwells and the torchlight, which lends a dramatic emphasis to the faces. **(RIGHT)** Director Clouse and Max von Sydow discuss upcoming scene in the rooftop garden that The Baron has created to cultivate a new strain of vegetable seeds.

That's basically the story; it's filled with savage fights for food, chases in deserted buildings and the final chase in the abandoned subway and its drastic conclusion.

Fred Weintraub next presented the photographic problems to me. Most of the story takes place at night, indoors and outdoors. However, the last third of the film is the chase in the abandoned subway, which has no light because there's no energy. Also, since the year is 2003 and strange things have been happening throughout the world, he'd like to see a subtle difference in the atmosphere that would give the exteriors a "special" look. And, most important, he wanted to be certain to see the sets. He ran off a list of films in which, although realistic looking, the sets could not be seen, along with the cast. Paul Heller included the observation that the sets and decoration of them were important for what they added to the story being told; they weren't only the background for the actors.

The director, Robert Clouse, who was also the writer, came to my rescue. He said we could have a limited quantity of oil lamps and candles, because The Baron would have stockpiled some barrels of lamp oil and that this would take care of the interiors. I added that exterior night scenes would be no problem, as there was still moonlight, and Bob Clouse said that the people would have large fire-pits going in the streets for warmth, cooking

and light. That left the subway chase and obviously the fighter couldn't be carrying an oil lamp. What could be the light source? I learned that that sequence would be a "day effect", so I suggested that we design into the set, large ventilation openings that would be realistic and permit soft filtered daylight to enter the tunnels. That suggestion received immediate approval. The station platforms always had entrances from the streets, so they, too, could be a source of daylight illumination. The director added that there would also be torches carried by the pursuers and one for the fighter, Yul Brynner. This was the logic; now to work it out.

The producers again reminded me that they wanted to be assured that the sets would be seen. I offered the following proposal: whenever we cut from an exterior to an interior, or from a room with light sources to one without, let's make the first cut quite dark and moody. Then, as the scene progresses I could subtly build the light level so that everything would be more visible. This is actually what happens in reality as our eyes become accustomed to the dark. I received some half-hearted O.K.'s and was again cautioned about going too dark. I agreed not to. Then, I requested two weeks to test shooting to show them some ideas for the basic look of the film — to give it that special "twenty-five-years-in-the-future-no-energy" look.

I've always felt that the part of a photographic assignment that's toughest is that time prior to the first filming. It's during this period that the cinematographer endeavors to create the right look for the story, and it's a commitment that often cannot be changed without incurring re-shooting. The cinematographer draws upon his years of experience, his knowledge of materials available and his artistic creativity. Without getting too technical, let me report the results of the test shooting that really pleased the producers, the director, and especially me.

I made tests on Eastman 5254, Eastman 5247 and Fuji color negative. All tests had some very positive aspects. However, for the "different look" to be created, I chose the Fuji negative stock. I still didn't have what I needed, which was an increased film speed to work at the low light levels dictated by the "no energy" situation. I didn't want to force-develop the film because of what happens to light sources, they become over-intensified, I didn't want even an oil lamp to look bright and I certainly couldn't put a torch on a dimmer!

Technicolor Lab came to my rescue. Skip Nicholson, of Technicolor's Photographic Services Division, suggested their process known as *Technic 400*. This would increase the film speed by two stops, changing the ASA 100 speed rating of Fuji color negative to ASA 400.





The Baron, played by famed Swedish actor Max von Sydow, leads his men through the deserted, bleak city streets in an effort to enlist the aid of a professional fighter. "THE ULTIMATE WARRIOR" thus borrows a basic element from the Kurosawa film, "THE SEVEN SAMURAI" and its American transliteration, "THE MAGNIFICENT SEVEN" — the theme of a hired fighter (or fighters) engaged to protect weaker folk.

I could see using this process where I had no control and the only way of getting a shot, even with high speed lenses, would be by this method, but I don't believe in doing an entire film this way. After all, I'd be underexposing an entire feature by two stops!

I suggested that Technicolor give me a sample of one-half of the process. Skip Nicholson said that they'd never done it, but would try. Success! With an ASA exposure index of 200 I had sufficient speed, the source lights didn't "bloom" and, most important, the shadows had detail. In order to keep the same quality look for exteriors as well as interiors, I requested that all the negative be processed the same. Technicolor now had a new developing procedure which they named *Technic 200*. In essence, it's a latensification process.

To enhance the feeling of another time in space and help the look of the world in evolution, I did a series of tests utilizing coral filters. The director and the producers agreed that the results of the special filters, the negative stock and the special processing all gave the film a look that removed it from the norm, which was exactly what they wanted. Various degrees of intensities of the coral filters were made to order so that there would be some control under varying light conditions.

One critical test still to be finalized was the torchlight fuel. On the first test I lit the set to a very low light level and had the special effects man prepare a torch with normal fuel. Although it

looked O.K. it didn't give off sufficient light. The effects man happily prepared another. This one was so bright it looked like the set was afire and the test actor had a peculiar frightened look on his face. Finally we hit upon a fuel combination that gave the right intensity on the torch and radiated sufficient light energy to illuminate nearby walls. I asked if it was possible to keep what we had and still get a yellower looking flame. "No sweat" was the effects man's answer, and now we were prepared.

Once the style of photography was set, the actual filming of the story was relatively easy. The first day's dailies were a shock! I had neglected to make specific reference on the camera report sheets that the negative color balance was purposely being altered by the use of the coral filters. Technicolor Lab, doing its normal job of satisfying the cameraman, fully corrected and timed the first day's work and put the print in perfect color balance, thereby completely eliminating the effect of the filters! A phone call set everything right and from then on we had our "look".

I had to constantly remind myself that the lighting of the set and action had to appear real, there was no excuse for a "kick light" unless there was a source from which it could come, and there were very few light sources in that world without energy. When we went underground in the subway and various connecting tunnels, I endeavored to create the feeling of daylight softly filtering in from the

ventilator shafts overhead. Since the light level of only 20 foot-candles was comparatively very low, I was able to actually use the light from the torches as "key lights", the result being an incredibly real look. As the people came down tunnels the glow of their torches illuminated the walls around them and that glow on the wall traveled with them.

This brought about a humorous incident. We had just completed a long dolly shot, following Yul Brynner carrying Joanna Miles, the pregnant girl, down a subway tunnel. It was fine for the director who said, "Print it!" But, I had to report that Mr. Brynner was out of his "key light". Yul Brynner was a bit incensed. He asked how he could be out of his key light if he was carrying it? I smiled at him and showed him that he was holding the torch behind his head which put them both in total darkness, since there wasn't any other light. He went off to do another take muttering something about not only having to act, carry the actress in his arms, but, to make matters worse, also do his own lighting!

I don't want to give the impression that shooting "THE ULTIMATE WARRIOR" was a cinch. Even the simplest of shots, a street exterior at night, had its problems; we had to be certain that we didn't show, in the distance, even one lighted street lamp, or sign, and certainly not a car! When filming at night in downtown Los Angeles on the rooftop of a building, which was a major set, we often hung huge black drops to block out the lighted buildings and advertising signs. During the daytime my shots were often limited, because the background just wasn't New York City, the actual locale of the film story. The realism of New York City was created by shooting certain key scenes with a tied-off camera; these scenes later had the skyscraper background of New York City matted in and, of course, the illusion was very real.

I think one of the things that makes cameramen a special breed of people is the constant challenge they face in their world of magic. After all, they are magicians in that they're always dealing in the realm of illusion. For myself, this challenge, this creativity, and the ever-changing demands of bringing a film story to life for others to see, never cease to interest and excite me. The demands of the profession are strenuous, but when the assignment is completed and the final work is viewed, there is nothing else in this world that can as well fulfill that sense of accomplishment and satisfaction. "THE ULTIMATE WARRIOR" did just that for me. ■



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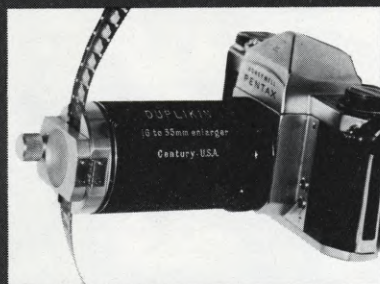
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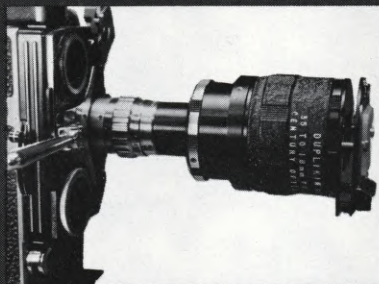
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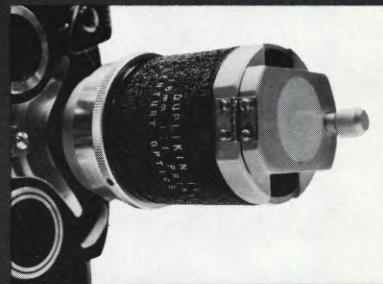
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# FILMING ALONG "THE EDGE" BETWEEN GREAT JOY AND POSSIBLE DEATH

By **ROGER C. BROWN**

I have realized the dream of almost all cine dreamers. I have written, produced, directed, photographed, (managed and even gripped) an adventure sports documentary theatrical feature film. (That's a mouthful — it was a year full).

## CONCEPTION AND FINANCING

How did it begin? We (Summit Films — Barry Corbet and I) made a hang-gliding film for Tom Hubbard — Crystal Productions — Aspen, Colorado. At the time we met Tom he had just sold a large scientific school supply company and was starting an educational film business. He liked the kite-flying film, talked about doing kayaking, climbing, skiing films, etc.

"If you want to do that," I suggested, "why not go for the big market, combine all the little films into a feature? Maybe make some real money on your money."

"OK," said Hubbard, "I'll put up half."

Step-by-step, the agonies and ecstasies of making a first feature about the sports in which high adventure and death go hand-in-hand

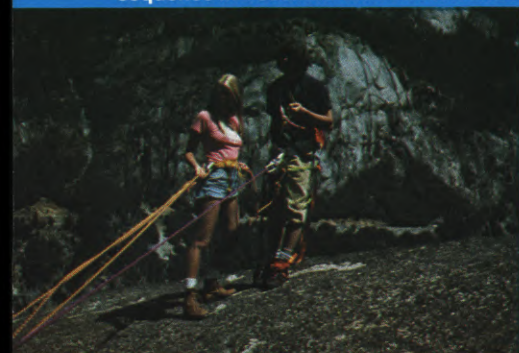
The other half of the money? Easy, I thought. Eight months later, after extensive traveling and talking we had it all together, largely from Hubbard's friends who knew him to be a shrewd investor. I brought in a few partners

without Hubbard's help, but it was difficult. My friends looked upon me as an artist — the stereotype — artists don't know anything about money.

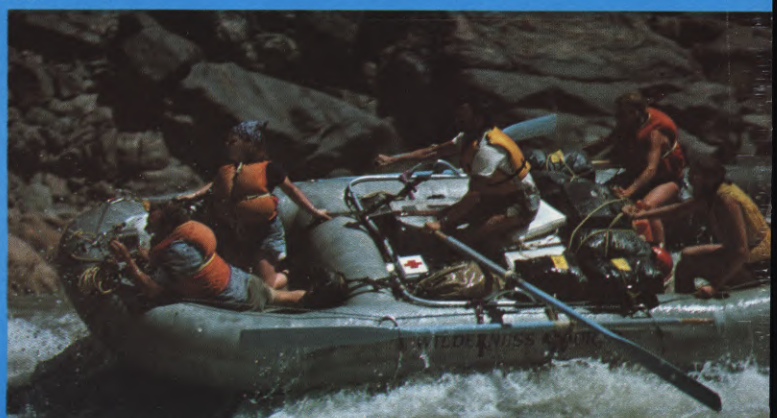
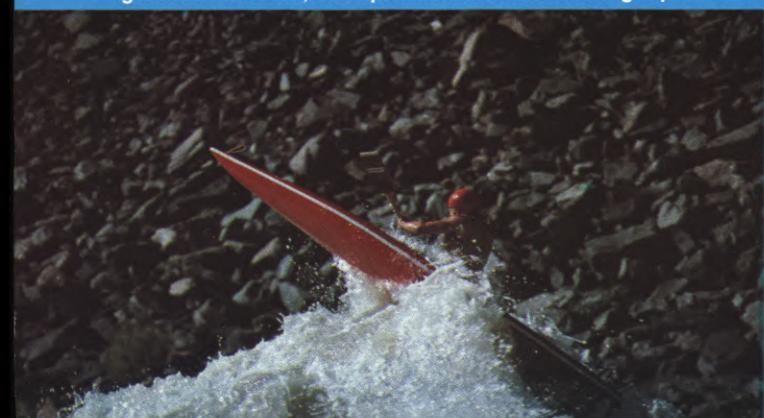
Investors were sold on the project with film showings. Fortunately, we had



(ABOVE RIGHT) Surfer skims down the 40-foot face of a giant wave rolling in toward Waimea Bay, Hawaii, for a scene in "THE EDGE", semi-documentary theatrical feature being made by Roger Brown and Barry Corbet (of Summit Films) for Biosphere Films, Ltd. (BELOW LEFT) The young stars of "THE EDGE", Greta Ronningen and Tom Babson, climbing on the Rostrum, Yosemite National Park. (CENTER) Tom Frost filming ace mountain climber Yvon Chouinard on Mount Kenya. (RIGHT) Brown and soundman Jim Emerson shooting a sync-sound sequence in Yosemite with Babson and Ronningen.



(LEFT) Fletcher Anderson, one of five top kayakers featured in the film, goes rocketing through the maelstrom of Lava Falls, the most fearsome stretch of rapids on the Grand Canyon section of the Colorado River. (RIGHT) Expedition leader Ron Hayes expertly pilots one of the rubber boats through Lava Falls. Hayes, for more than 25 years a top Hollywood actor, is also, as Vice President of Wilderness World, a genuine "river rat", who spend his summers running trips on the Colorado.

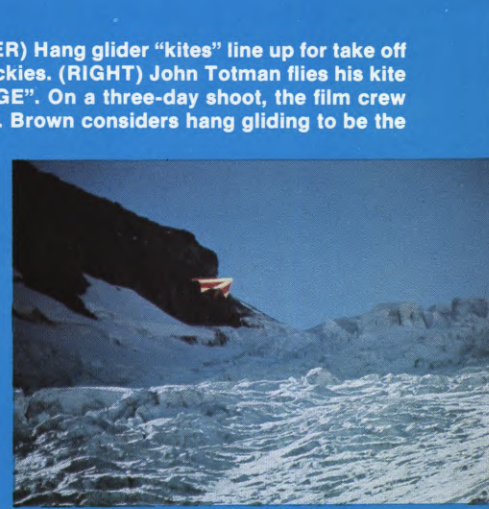
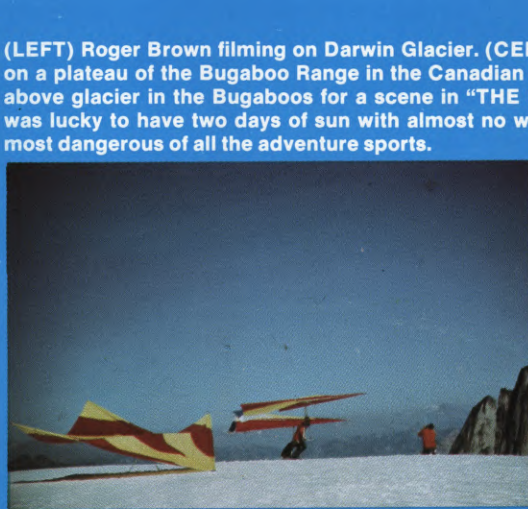






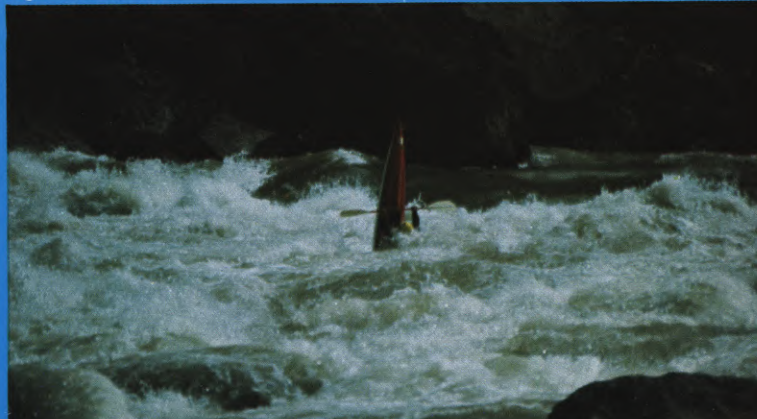
(LEFT) The right side of Lava Falls is an obstacle course of huge boulders and whirlpools. Running this gauntlet in a rubber boat is truly an emotional experience. (CENTER) Dr. Walt Blackadar, a physician from Salmon, Idaho, in his early fifties and generally acknowledged to be the top wild water kayaker in the United States, is one of the kayaking stars of "THE EDGE". (RIGHT) The Colorado River wends its way through the bottom of the Grand Canyon.

(LEFT) Mount Kenya in Africa was the location for an exciting sequence on ice-climbing. The mountain is 17,040 feet high and its slopes range through the entire spectrum of biological and temperature zones, from sub-tropical rain forest to arctic. The dangers of climbing it included possible elephant attacks (at 10,000 feet) and slipping off the glass-hard ice. (CENTER) Sorting out equipment before departing for base camp on Mt. Kenya. (RIGHT) In the changing moods of nature, the mountain serves as a magnificent backdrop for a movie.



(LEFT) Roger Brown filming on Darwin Glacier. (CENTER) Hang glider "kites" line up for take off on a plateau of the Bugaboo Range in the Canadian Rockies. (RIGHT) John Totman flies his kite above glacier in the Bugaboos for a scene in "THE EDGE". On a three-day shoot, the film crew was lucky to have two days of sun with almost no wind. Brown considers hang gliding to be the most dangerous of all the adventure sports.

(LEFT) One of the boats of the filming expedition climbs vertically onto a wave before being flipped over, dumping all of the occupants into the drink. Luckily, no one was injured. (RIGHT) An incredible photograph by Bart Henderson, showing Dr. Will Evans doing an "endo", a straight-up vertical maneuver of the kayak, as it plunges into the most dangerous "hole" in Lava Falls. At this point, the level of the river drops 40 feet within a quarter of a mile, with the water boiling through a maze of huge lava rocks.





FARI, THE VANISHING WILDERNESS, etc. OK, we'll have six subjects, six times the action. How can it miss? If it does, we can make a television series and still get our investment out (we still plan to make an EDGE television series).

I made a mistake in not having a good partnership agreement written at the outset. Verbal commitments came and went. I copied an agreement out of a legal book and modified it to suit our picture. It was an education. Finally, I went to a lawyer and asked him to clean it up. Of course, he started from scratch. The lawyer, Hans von Mende, turned out to be a good guy: reasonable, sincere, prompt, interested. He restored my frequently shattered faith in the system.

### SCRIPT

It is generally agreed that a story is needed in a ninety-minute film in order to sustain interest. It is difficult to hold an audience for over fifty minutes with a documentary format.

So I told the investors I would write a script to tie all the sports together.

Investors: "Let's see the script."

OK, first write.

Investors: "Awful!"

Second rewrite.

Investors: "I don't understand it."

Third rewrite.

Investors: "It's no story."

Tenth rewrite.

Investors: "Well, maybe, considering the way you and Corbet make films."

Conclusion: show potential investors films, not scripts. But they were right, the less sketchy the script is going in, the better the film will be coming out.



While Brown takes it all in stride, soundman Jim "Laugh-a-minute" Emerson cools his tonsils with the airspray used to dust film equipment.

You have to preplan a project as big as a feature, and the more carefully the better. That doesn't mean you can't change the script as you go along, but it does mean that at least you know where you're going at the outset.

It sounds like a stew, doesn't it? Recipe: photograph six exciting sports.

Greta Ronningen and Tom Babson, the two young actors who play the leading roles in "THE EDGE", act a light-hearted scene on a mountaintop.

good stuff to show from seventeen years of making award-winning sports films.

Sales pitch: A lot of low-budget single sports or single subject adventure films have made it big: THE ENDLESS SUMMER, THE GREAT AMERICAN COWBOY, ALASKAN SA-

The actors in "THE EDGE" found themselves called upon to do considerably more than straight acting, including the performance of athletic feats that might give pause to more practiced souls. (LEFT) Babson goes over the edge, as Greta "belays" him. He had had almost no previous climbing experience, but was obviously not short on nerve. (RIGHT) Greta traverses out to the Rostrum location in Yosemite National Park. In this photograph there are 1,500 vertical feet of air below her — very spooky!





Add a central theme; that's easy — THE EDGE, that edge between great joy and possible death that occurs when an adventure sports person pursues the limits of the location and his or her ability. Hell, all of life has that theme; at least it does if you want a few kicks along the way. Write a transitional script that ties it all together. Mix, heat, and serve. Sounds simple? It's not.

First, I had to throw out conventional methods. Theatrical scripts and documentary action don't mix easily. Dozens of films have been made this way and, in my opinion, they all look like two films, the fake and the real.

I drew on personal experience, modified it, but tried to stay close to real situations. Then I picked the brains of friends who had had "edge" experiences. From this came the script.

At one point I let the actor vernacularize the script so that it would sound natural and be easy for him to say, but this resulted in a loss of clarity, so I had to rewrite it again, making sure that it said what I wanted it to; it was only confusing. Later, when we were shooting, we did rewrite many of the lines to suit the actors, but never at the sacrifice of clarity.

## CASTING

I bumped into the lead actor inadvertently at a hang-gliding school in Aspen (Hubbard put me on to him, actually). He grabbed onto the part and wouldn't let go. Later, to his chagrin, I interviewed other male leads. He stood up well against the more experienced competition, however, and I knew he wouldn't have trouble with the sports or the rough living we were going to be doing on location. So I stuck with him. In retrospect, however, I would not recommend committing to talent, even verbally, until you have a final script, money, and a definite starting date. Premature obligations are awkward.

Casting for the leading lady was a gas, but not for the reasons you might think. Maybe I'm a little straight; maybe I was afraid of more confusing obligations; maybe the ladies I liked didn't like me, I don't know, but everything stayed on a businesslike basis.

I started out by running an ad in *Backstage*. We got starry-eyed kids, over-the-hill alcoholics, prostitutes, and a few good actresses (including our lead, although I didn't know it until six months, several more casting sessions, and a casting director later). The casting director was well worth the investment, I think, although he didn't find me the people I wanted. He did send me a lot of good people and a very few bad ones.



The *Rostrum* cast and crew: Greta Ronnigen, Tom Babson, Roger Brown, Tom Frost, Jim Emerson. This filming day went very well, as can be deduced from the smiles. As Brown points out, the success of this kind of filming depends very much upon luck — especially in respect to those sequences which lean heavily upon favorable weather or the performance of other natural elements, such as waves suitable for surfing.

At first the actor, Tom Babson, read the lines when we were interviewing leading ladies, but I couldn't afford to bring him on all the casting trips, so I got into readings myself. What a turned-on trip that was. When you read with a really good actress, and she gives you back your ideas from your script, you start believing her. It's too much, but nice. I like to think I got good enough at reading for the ladies to believe me too, but they didn't. I was awful, a real challenge that separated the pros from the amateurs. Of course, all those readings brought more and more refinements into lines — which was a nice side-benefit.

We also met some just plain exciting ladies, like Margaux Hemingway, granddaughter of Ernest, and very much her own personality. Her agent didn't like our script, however. He felt she might damage her beautiful face — a good point, although our leading lady came away with only very minor scratches.

The girl we finally selected, Greta Ronnigen, is an anomaly. She is young, innocent-looking, and not at all athletic. Fortunately, she is gutsy and naturally coordinated. She did all of the sports with unbelievable ease. She gets turned on to situations easily, which makes her a perfect documentary character and, on top of this, she can act. We interviewed more than one hundred ladies before we settled on Greta, but ironically it was the characteristics that can't be discovered

in a casting session that made her such a good choice.

## SCRIPTED REALITIES

The realities of the script came back at me during the shooting. Our leading  
Continued on Page 928

Tom Frost ties a safety line onto the Eclair ACL, not only to safeguard the camera, but because a falling camera could knock a climber off a rope.





# PLUNGING OVER LAVA FALLS WITH KAYAK AND CAMERA

By HERB A. LIGHTMAN

## Colorado River Gorge of the Grand Canyon

An invitation from Roger Brown: Would I like to join his filming safari on a 20-day, 225-mile expedition down the Colorado River to shoot scenes of kayaking through the rapids for his new

feature, "THE EDGE", which is based upon the pursuit of daredevil sports?

Would I? "Hell, yes!"

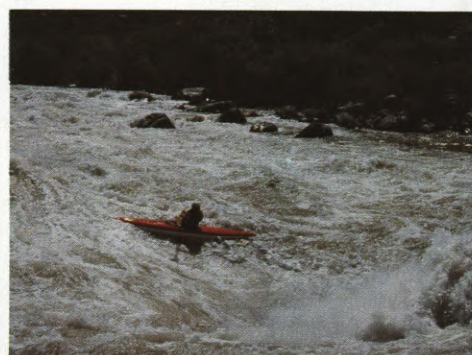
Problem Number One: *American Cinematographer* deadlines keep interfering with my fun. If I go for the whole 20-day enchilada there will be no

magazine the following month. Can't have that — not cricket!

I tell Roger I'll be able to make the scene if I can come aboard for the last seven or eight days — which brings us to Problem Number Two: Throughout its 225-mile course between Lee's

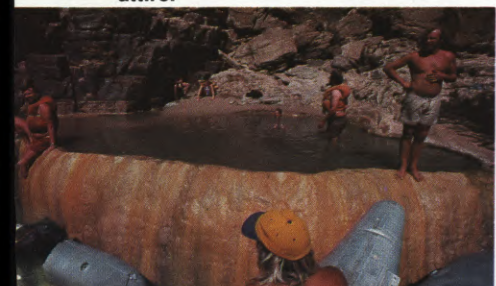


(LEFT) Not Halloween, but simply Roger Brown blocking off the direct rays of the sun as he reloads his Milliken high-speed camera at Lava Falls. (CENTER) The crew camped out on a sandbar along the Colorado River. This was a nightly practice after the day's shoot and traverse of the river. Tents were usually pitched only when there was a high wind or threat of rain. (RIGHT) Champion kayaker Dr. Walt Blackadar and Editor/cameraman Barry Corbet, on vantage point above Lava Falls, discuss the route through the rapids that should be the most spectacular for the cameras.



(LEFT) Brown (with Milliken high-speed camera) and Jim Emerson, with an Arriflex, set up on a promontory just above the most treacherous "hole" in Lava Falls. (CENTER) Brown checks set-up of the camera covering the master shot. (RIGHT) Dr. Blackadar starts his first trial run of the day through Lava Falls. Although he had run these same rapids seven or eight times before in previous sessions, he still had a very healthy respect for their awesome power.

(LEFT) The crew brings the boats up to take a refreshing dip in Pumpkin Pool, a natural rock formation at the edge of the river having the general shape and color of a pumpkin. The channel of the Colorado abounds with spectacular caves and other fascinating formations. (CENTER) After Lava Falls, the boats are tethered together and drift lazily toward the final landing at Diamond Creek. (RIGHT) Camped on a sandbar during the last night out, Jim Emerson and Dr. Walt celebrate a bit. Jim is wearing his "formal" outfit — tails and a sarong — the latest in river bottom attire.





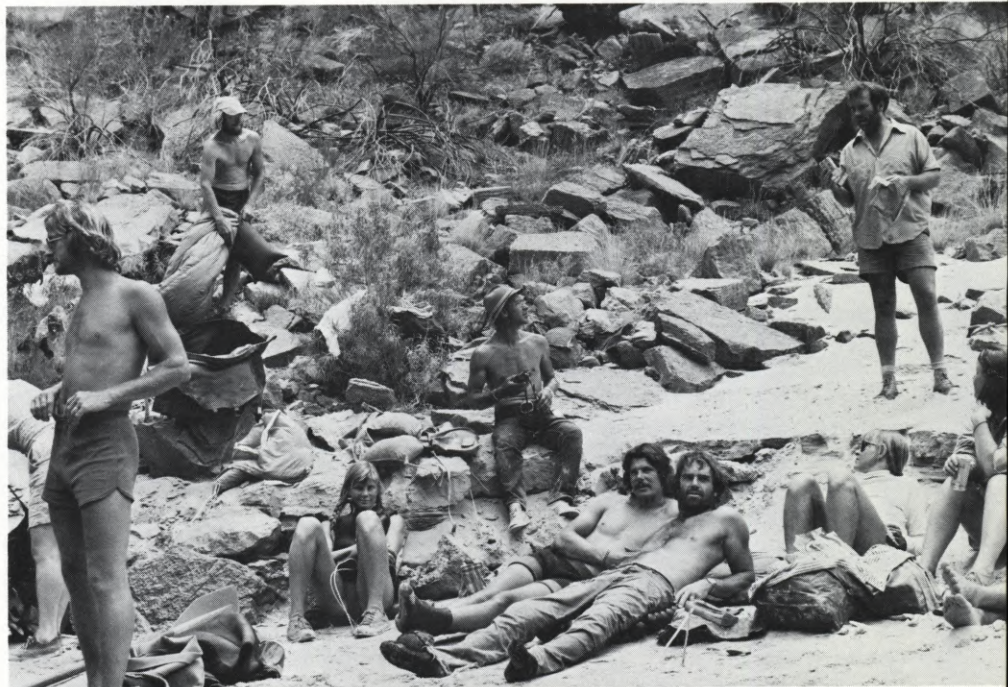


**(LEFT)** Production Assistant Ln Neale, who accompanied the author on the grueling 13-mile (with 75 lb. pack) haul down Havasu Canyon to the Colorado River, is seen scaling a 100-foot cliff rising above Havasu Creek, the only way to follow a "trail" that frequently dead-ended at deep water. Through it all, she maintained her good humor. **(RIGHT)** The kayakers rig a makeshift tent when rain threatens, by using kayak paddles for poles and tarpaulins for shelter. The crew camped out each night on sandbars along the way.

Ferry and Diamond Creek (Arizona) the Colorado River flows between mile-high cliffs, a mind-boggling gorge which it has carved out of the solid rock over untold millions of years. In other words, you don't just go romping down to a beach wherever you please and get onto the river. The reason? There *aren't* any beaches. In fact, over this whole stretch there are only three or four spots where other waterways or canyons open into the gorge of the river.

The only one of these that is anywhere near where the safari is scheduled to be at the time when I can join it is the outlet of Havasu Canyon. "Havasu" is an Indian word which, with linguistic economy, means "blue-green waters", and it is at the aforementioned point along the gorge that the turquoise-colored waters of magnificent Havasu Creek blend with the muddy torrent of the Colorado.

How to get there? It's almost easier to make it to the moon. You start out by driving almost 500 miles northwest from Los Angeles to Peach Springs, Arizona — a tiny hamlet on the Hualapai Indian Reservation which boasts



**Tired, but happy after a hard day over hot cameras, members of "THE EDGE" filming safari sprawl out on a rocky beach. Film-makers, boat crew, kayakers and one slightly bedraggled editor assembled from all points of the U.S.A. to film the thrilling sequences of kayaks running the most dangerous rapids on the Colorado River.**

**Everyone lends a hand to push the large rubber boat, transporting the food and filming equipment, into the river. All in all, over a 20-day period, the company traversed 250 miles of the Colorado River, from Lee's Ferry to Diamond Creek (Arizona). All along that route, the Colorado winds its way through the mile-deep gorge of the Grand Canyon. Except for side canyons, there are very few breaks in the towering cliff walls and only three or four places where access to the river is possible by land.**







**“ANDY HARDY GOES KAYAKING” (LEFT)** American Cinematographer Editor Herb Lightman is bundled into the kayak, as he has his first go at this thrilling sport. He was told to “wear the boat”, but it proved to be a little snug around the wrists. **(RIGHT)** All guts and no technique, he innocently makes his way out into the mainstream of the Colorado River. He was doing fine and beginning to feel like “King of the River” when a violent gust of wind blew him upside-down. No one had thought to tell him how to get right-side-up again — awkward!

neither peaches nor springs. Seven miles east of the “town” you turn off onto a 70-mile-long access road, the first half of which is paved. The second half is enough to jar your bridgework loose.

You arrive (if you’re lucky) at the dead end of Hualapai Hilltop, a precipice beyond which there is nothing but DOWN — miles and miles of it. How do you *get* down? Well, you can hike it — or, if you believe in conserving human energy like I do, you can *schlep* down on muleback. The latter course is a hair-raising vertical experience, as your long-eared mount teeters on the edge of doom going around endless hairpin curves, but it beats slogging ten miles on foot over punishing rock.

That ten miles takes you through a narrow winding canyon (where signs keep warning that a flash flood can wipe you out) and eventually into the stunningly beautiful valley surrounded by red cliffs where the Havasupai (“people of the blue-green waters”) Indian Reservation is located. For the

next two miles beyond the village, merry Havasu Creek gushes and gurgles its way over four superb waterfalls. At that point you arrive at a campground, which is the end of the line for mules (and, if you’re smart, *people*, as well).

A mile farther on from the campground is 200-foot-high Mooney Falls, the name of which is a hideous pun derived from the fact that, years ago, an unfortunate named Mooney fell off the top of it. I had been down as far as the foot of Mooney Falls once before (see “Filming in Shangri-La”, *American Cinematographer*, November 1971), but beyond that lay *Terra Incognita*, a stretch of canyon described in guide books as “an extremely rugged and primitive trail *eventually* leading down to the Colorado River”). I had never since been able to find anybody who had made it down that stretch of trail, nor did anybody from the film company know anything at all about the terrain.

I am cheered by one fact, however: I am to have a companion for the canyon

portion of the trip, a lady-type companion, to make it even more interesting. Her name is Ln (that’s right — “Ln”) Neale and she is serving as production assistant on “THE EDGE”. She calls me from Flagstaff, Arizona to arrange our *rendevous*. (I love that word. It sounds so deliciously illicit!)

On the appointed day, bleary-eyed from non-stop driving, I arrive by dawn’s early light at Peach Springs, where not a creature is stirring — not even a mouse. I spot Ln’s red van parked in front of the post office, just where she’d said it would be. She’s already up and about, whipping up breakfast in the back of the van, and she very kindly shares it with me.

Ln, as I am to discover, is a very special lady. Having been raised on a Nebraska ranch, she is of the same hardy stock as the pioneer women who slogged their way across the plains and mountains to extend the American frontier westward. Also, having for some years been married to a former

**Continued overleaf**

**(LEFT)** Rubber boats, belonging to Wilderness World, which chartered them to the company filming “THE EDGE” are tethered on a sandbar, as the company makes ready to camp for the night. There were four small boats, capable of holding four or five people and one large boat, about 30 feet long **(RIGHT)** called the “Baloney Boat,” because of its large sausage-like pontoons. The Baloney Boat, considered to be the safest vessel in rough water, contained all the filming gear in lashed-down cases.





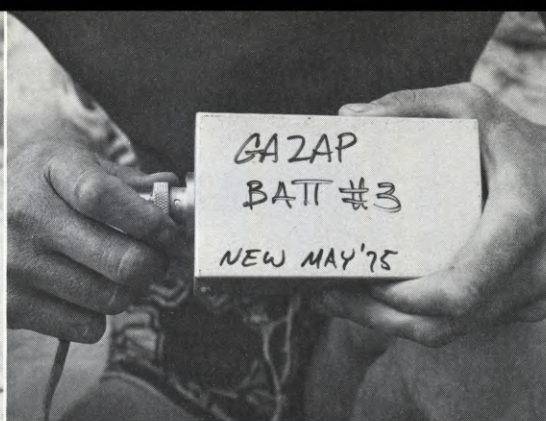


The "River Rats" of the expedition filming kayaking for "THE EDGE": (TOP ROW — Left to right) Barry Corbet (Editor/cameraman), Dr. Walt Blackadar (kayaker), Ron Hayes (river expert/expedition leader), Stan Boor (boat crewman), Roger Brown (Director/co-producer). (CENTER LINE) Dr. Will Evans (kayaker), Jan Embree (production assistant), Bart Henderson (boat crewman), Mark Jenses (boat crewman), Ln Neale (production assistant). (BOTTOM ROW) Curt "Whaler" Hansen (boat crewman), Jim Emerson (soundman/second camera), Will Perry (kayaker), Fletcher Anderson (kayaker), Ann Hopkinson (kayaker).

(LEFT) The boat crew sets up the kitchen and chow table at a new location. (RIGHT) Almost ready to eat. The food was remarkably good throughout the trip, considering that almost everything had to be hauled on board the boats from Lee's Ferry. A few perishables were brought down by muleback when the expedition reached Phantom Ranch. At the beginning of the trip fresh meats, vegetables and fruits were on the bill of fare, but toward the end of the 20-day jaunt everything was canned and preserved. Even so, Ron Hayes and his crew managed to concoct tasty repasts — even baking cakes in an iron kettle with hot coals on the top and bottom.







(LEFT) The tiny GZAP, magazine-loading 16mm camera, developed as an aircraft gun camera during World War II and refined for other remote uses since then, was used to get point-of-view shots from the kayaks. Although a 5.7mm lens was available, the 10mm was the lens almost always used on this camera. (CENTER) Suitably miniaturized battery for driving the GZAP camera. (RIGHT) The GZAP camera secured inside a waterproof housing with glass front and mounted on the front of the kayak.

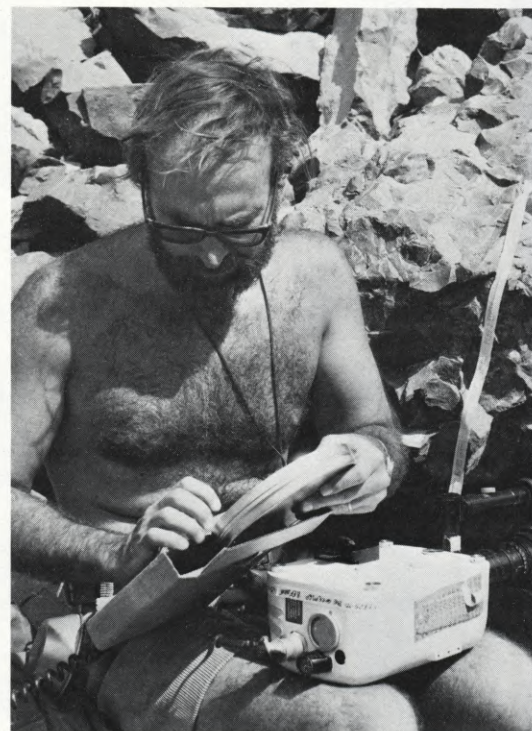
Forest Ranger, she is an old hand at hiking, climbing and backpacking — pursuits which I haven't embraced since my Boy Scout days, several millennia ago. To top it off, Ln is a consistently pleasant and congenial young woman, just the kind of companion one should have on what will turn out to be the most grueling journey of one's life.

The trip down through the Havasupai village on muleback is routine and uneventful, except that our Indian guide/packer manages to drop on the rocks the one really fragile piece of luggage, the bag containing all my cameras and recorder. We stay overnight at the campground, where we are besieged by a group of appealing teenagers who draw up their sleeping bags and proceed to spend the rest of the night telling us about their problems. It seems that both Ln and I possess an uncanny magnetism that unfailingly draws the young to us — whether we want them there or not.

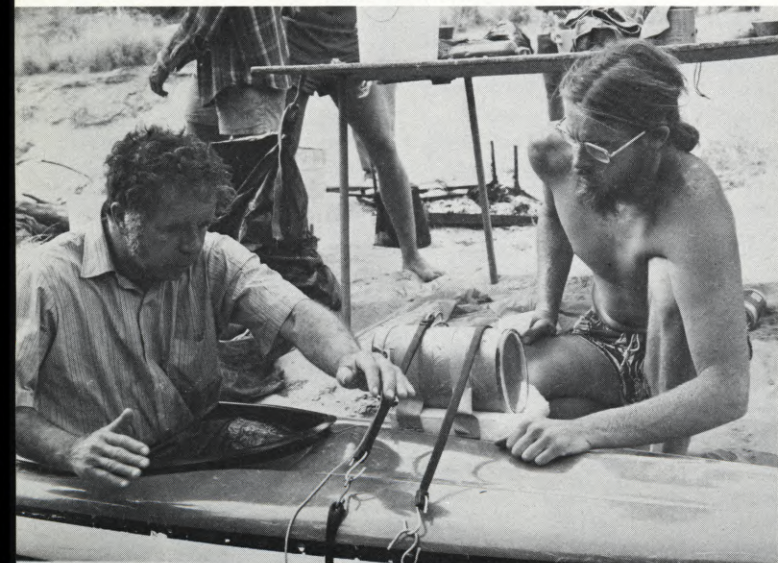
In the morning we set out on the leg

of the journey that might most accurately be described as "a nightmare in Paradise." For the first time we strap on our backpacks — which is almost enough to make me quit before I begin. At best, in the course of several circumnavigations of the globe, I have never learned to travel light. One reason is that I like the time-saving convenience of having with me *everything* I might possibly need. Secondly, my roving in the interest of *American Cinematographer* require that I take along five or six cameras, (plus accessories), a recorder and sufficient film and tape to feed both, far from a source of supply. The result, in this case, is a backpack weighing 70 to 75 pounds. Ln is similarly encumbered, carrying with her several extra 400-foot rolls of 16mm ECO film and a few jugs to reinforce the camera crew's dwindling liquor supply.

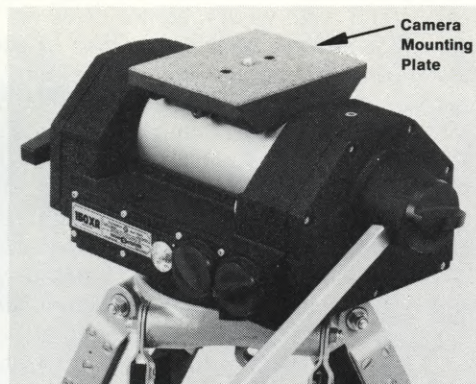
Our first obstacle is Mooney Falls. What is euphemistically called a "trail" is  
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(LEFT) Walt Blackadar and Fletcher Anderson discuss the "hydrodynamics" of the GZAP camera, as mounted on the front of the kayak. This camera proved ideal for filming kayaker's point-of-view shots, because it is so light in weight and does not make the boat harder to run when it is mounted. A 10mm lens on the camera, mounted as shown here, very closely duplicates what the kayaker sees when he is on the water. (RIGHT) The camera mount is attached to the kayak by means of a combination of shock cord and gaffer tape. (ABOVE RIGHT) Roger Brown readies the Milliken high-speed camera for shooting at Lava Falls.



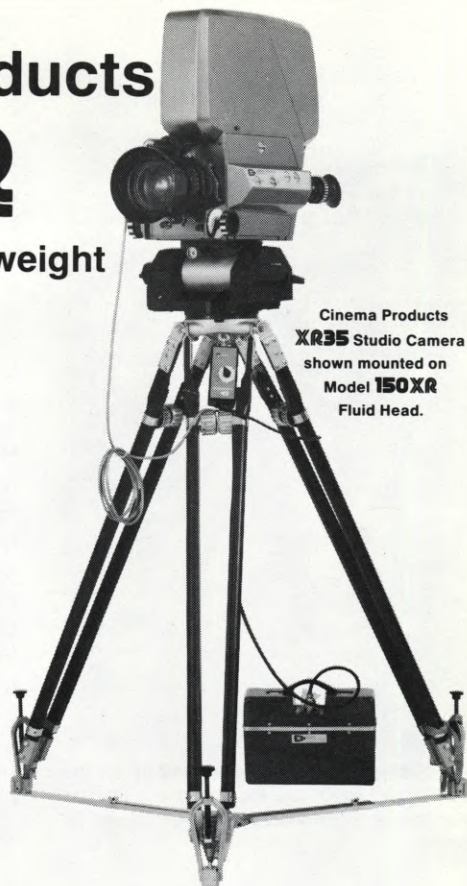




Camera Mounting Plate

# Cinema Products 150XR

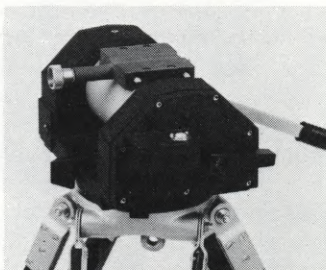
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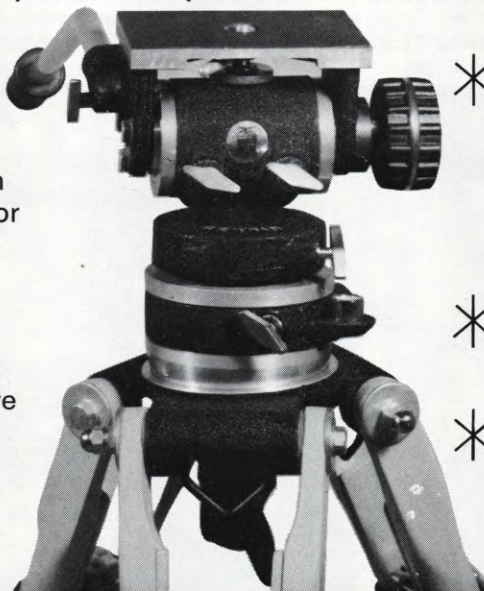
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**Dr. Walt Blackadar psyches himself up for the run through Lava Falls. He had made the run seven times previously and well knew its dangers.**

a hair-raising, slipping-and-sliding vertical descent down the 200-foot face of the cliff adjoining the awesome cataract. I had made this descent once before and I knew how horrifying it could be, even without a huge pack on your back. Now, skidding and bumping my way down the cliff, I have visions of joining the late Mr. Mooney in a

watery grave. At several points we have to slither through tunnels which are just barely wide enough to squeeze through *without* packs. We try roping our packs down, but the jagged terrain makes this impossible.

It takes us almost an hour to pick our way down the side of the falls. At the bottom we find a sign which again warns us that the trail beyond that point is "primitive and extremely rugged" — which turns out to be the understatement of the century. There is really no beaten trail at all. It's a matter of picking your way wherever you can set foot without falling into the roaring torrent of Havasu Creek. Much of the terrain is of the perpendicular variety. We are forced to cross the creek at eight different points, bracing ourselves to keep from being swept downstream by the rushing, armpit-high waters, slipping and sliding on the underwater boulders, endeavoring to hold our packs high enough to keep them from getting wet.

At one point we reach a dead end between towering walls of rock. We have our choice of wading into water 20 feet deep or scaling a sheer vertical cliff a couple of hundred feet high. We scale the cliff — but that's only the beginning of the climb. From there the so-called trail goes up and up and up, until we are clinging to the cliffside several hundred feet above the creek. By now the temperature has soared to almost 100 degrees Fahrenheit. When we finally make our way down this escarpment, we jettison the packs and fall face-downward into the creek.

Somewhat revived by the icy water and a nibble of food, we press on. The guidebook, obviously written by someone who had never made the jaunt, had said that the distance from Mooney Creek to the Colorado River is five miles. The Ranger had told us nine miles. Actually, it's closer to 12 miles, as the crow flies — but we aren't crows.

By the time we reach the eleventh mile we have turned into a pair of zombies, mechanically plopping one foot in front of the other, staggering along on sheer momentum. By now I am convinced that it is cardiac arrest time, for never in my fairly active life have I endured such tremendous and sustained exertion. I look around me. The turquoise waters of Havasu Creek roar over magnificently sculptured terraces and cataracts through the incredibly green lushness of the foliage, walled in by towering bright red cliffs — absolute Paradise. Quite seriously, I say to Ln: "I can't imagine a more beautiful place in which to draw my last breath." But the thought of the hassle it would be to get my corpse out of this wilderness makes me press onward.

Finally, incredibly, we reach the point where Havasu Canyon opens into the gorge of the Colorado River, and awaiting us there is the most welcome sight I've ever seen: two rugged dudes named Bart Henderson and Stan Boor, with their rubber boat. Moreover, they've got just what our sweaty, grimy, aching bods really need — a bar of soap and a jug of wine. The four of us strip off all our clothes and plunge into  
**Continued on Page 964**

**(LEFT)** His latest encounter with Lava Falls well behind him, Dr. Blackadar enjoys a light-hearted meal with his daughter, Sue. The genial doctor first took up kayaking at the age of forty-five and has since risen to the very top ranks of participants in the exciting sport. He is considered by many devotees to be "Numero Uno" among kayakers. **(RIGHT)** Mark Jensen, a member of the merry boat crew, expressed his youthful blithe spirits by using the "Baloney Boat" as a trampoline — and the others soon joined in.





FILMING INGMAR BERGMAN'S  
"THE MAGIC FLUTE"  
Continued from Page 899

it out to the audience, because there are so many people who say: "We would never watch opera — even if it were on film."

But "THE MAGIC FLUTE", also, was to be made for Swedish television and, since we had made "SCENES FROM A MARRIAGE" in 16mm, we decided to shoot this one in 16mm, too. By then the new negative, 7247, had become available. We made tests with it and found that it was extremely good. I remember that when we saw the first test we jumped up and said: "This is fantastic!" Then we made a test to blow it up to 35mm — which was also very good.

When we actually started to shoot, however, we ran into a lot of trouble. We were the first to use the new emulsion in Sweden and the lab wasn't ready for it. As a result, we got a lot of white spots on the prints and it was impossible to continue that way. We asked the lab chief to take a plane to Rochester and discuss it with the Eastman technicians. After he came back from those discussions, he told me that people all over the world had been having the same difficulty and that the new negative was so sensitive to dirt that it was just necessary to be extra clean and careful with it.

However, we were still very afraid of it because we had so many difficult shots to do — so we ended up shooting the picture in a very funny way. We would shoot a scene using a red clapper board and work until we had a good take. Then we would send that film off to the lab and shoot the scene again with a black clapper board. We would wait until the next day before developing the black clapper board scene, just to see whether they had any trouble with the red clapper board scene. It might be that they would have difficulty with dirt one day, but not the next.

This was a very good procedure for me, because on the next day I could see the rushes of the red clapper board take with the man from the lab and say: "That's too red," or "That's too blue," or "Change that." Then, when I saw the same scene with the black clapper board on the following day, it would be almost a finished print, with the colors just about correct. The result was that by the time the picture was cut together the grading was almost complete.

**QUESTION: In other words, if I follow you accurately, the cut work-**

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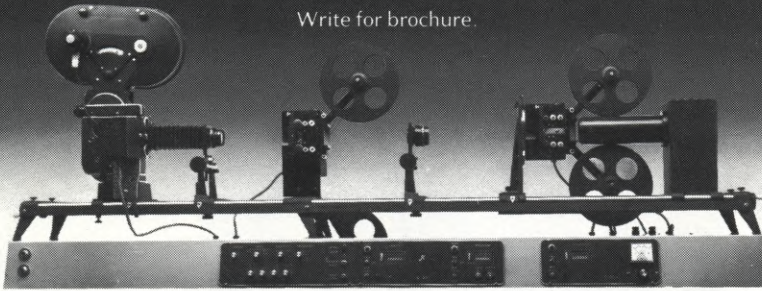
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print (made up of black clapper board takes, timed and color corrected from reference to the red clapper board takes) functioned almost as a first answer print. Is that the way it was?

*NYKVIST: Yes, that's exactly right. This method of working was a great help to me because, whereas on a theatrical feature I usually make as many as five answer prints before I'm satisfied, nowadays in television there is not enough money to make more than one.*

**QUESTION: In shooting an opera like "THE MAGIC FLUTE", which must be filmed almost entirely to playback, were you able to make super-long takes the way you did in "SCENES FROM A MARRIAGE" or did you have to break up the shooting more?**

*NYKVIST: By its very nature, we had to break it up much more. Besides, we weren't faced with the same kind of time problem and, therefore, didn't have to work as hard. "THE MAGIC FLUTE" runs a little longer than two hours and could be filmed like a conventional feature.*

*It was far from conventional for me as the cinematographer, however, because whereas for many years I had been trying to make my photography look as realistic as possible, I now had to forget everything about realism in order to shoot a 17th Century opera in a fantasy style, using a lot of colored light and backlighting — which I ordinarily never use.*

*We had a special theatre which King Gustav III had built (because he wanted to be an actor instead of a king) and we placed that theatre inside the studio and tried to get a correct feeling of candlelight. I worked almost the whole time with 85 filters on the lamps and then used a blue light sometimes. I really had the possibility of doing whatever I liked with the lighting. For example, you usually hesitate a little in color filming before using a dimmer, but this time I had five dimmers everywhere and we would change from day to night in the middle of a shot. We also made set changes in the same way. Since we always had to think of the music, these changes had to be made precisely on the beat. So a change from day to night or winter to spring had to be made in 30 seconds. For example, a scene might begin with it snowing very hard. Then 30 seconds later, with the camera still rolling on the same scene, it would be springtime, with a wonderful bright lighting.*

*We did a lot of experimenting and*

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Ingmar was so interested in the lighting. He had so many fantastic ideas. I really liked shooting "THE MAGIC FLUTE" very much. Of course, after that very different experience, I found it a little difficult to go back to my usual realistic lighting, which I had to do for the next picture, which I shot for Louis Malle in the south of France. But I had learned some new things from photographing "THE MAGIC FLUTE" and I found that I no longer had to be so strict with my realistic lighting.

**QUESTION: Then, you feel that somewhere in between there is a middle ground where you can be realistic, while injecting the imagination of the cinematographer to heighten the dramatic effect? In other words — realism with an extra "plus" factor?**

**NYKVIST:** Yes, I think so. I remember when we first started using color film. We had so many rules. We couldn't use dimmers. We had to keep the lighting to a very low contrast range, and so on. But now we know so much about color that we can do almost everything we want. We especially don't have to be afraid to use much more dramatic lighting. That in itself is so very interesting.

**QUESTION: What are your impressions relative to the technical characteristics of the new Eastman 5247/7247 color negative?**

**NYKVIST:** When I first tested the new 35mm negative I found it to be almost too good. It had everything — rich colors and fascinating nuances of a type we had never found earlier. But one thing about color film which I have always been fighting is that it's too pretty. Now I found that it was even more difficult not to get it too pretty. In the beginning I made a lot of tests, using different filters and so on, in an effort to tone down the prettiness, but then I just gave up and decided that it is best to get the art director to make the sets not so pretty, to not use so much color. I haven't been able to find another way to do it. Of course, I've not yet tried flashing and so on.

**QUESTION: Do you use fog filters or low contrast filters or nets or anything like that to try to tone it down?**

**NYKVIST:** I did that on one picture a long time ago, "FIRST LOVE" — but I think that the use of things like that depends upon what kind of picture you are shooting. I still think — and it is my rule — that the most important thing for a cinematographer is to be true to the

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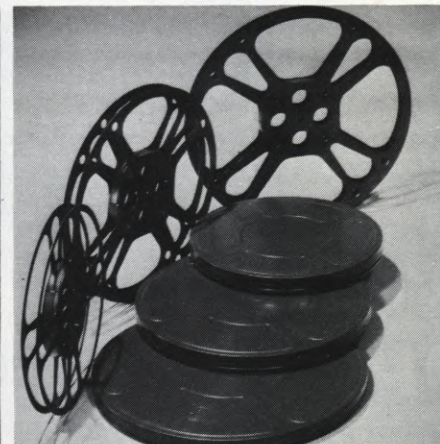
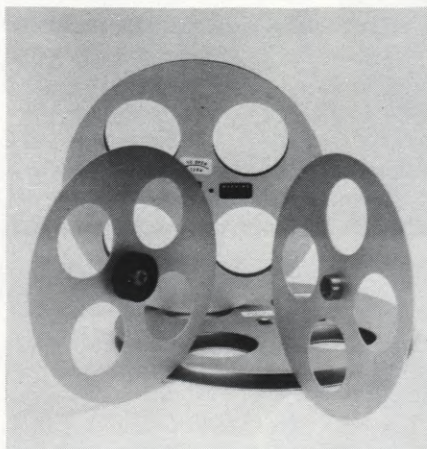
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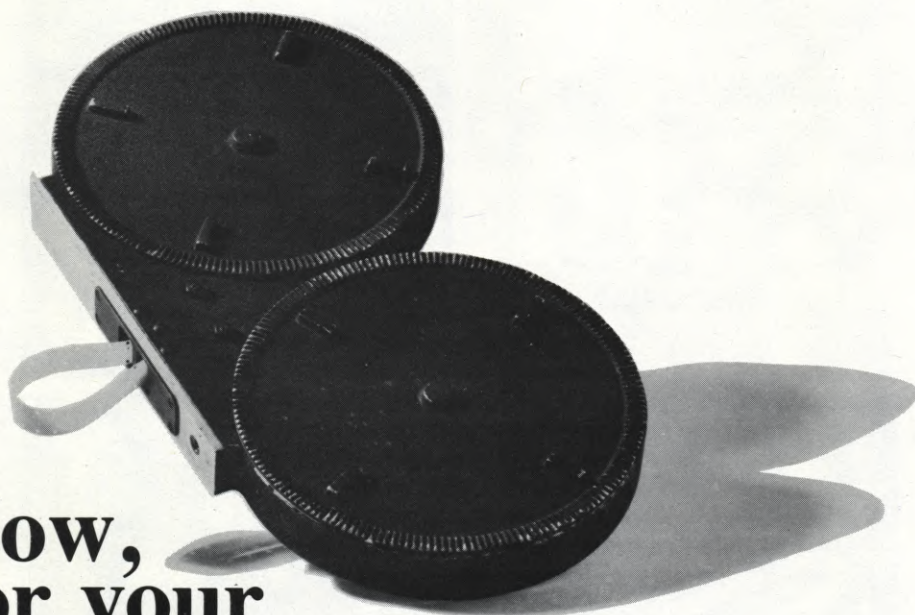
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*script and to work very intimately together with the director. That's the only chance to get a good result. It makes me very happy to work intimately with a director and see his face when such a result appears on the screen. I can't imagine any greater happiness than to get such a result — and it doesn't matter how many difficulties we've had to go through in order to get it.*

**QUESTION: In using the new 16mm negative on "THE MAGIC FLUTE" did you find that you had to do very much that was different, as compared with using the old 16mm negative on "SCENES FROM A MARRIAGE", for example?**

*NYKVIST: Well, we had some difficulties in the beginning. We felt that it was a little too red. I discussed this with other cinematographers in England and found that they all had the same opinion. For me, in photographing "THE MAGIC FLUTE", it was not that dangerous, because I was using a lot of yellow-red light, but I did have that difficulty on the film I did with Louis Malle — and we didn't find a way out of it. All we could do, again, was discuss the problem with the art director to make sure he didn't use too many blue and green things in the set, so that, in the grading, we could take out some of the red without destroying anything else. But otherwise I think it's a fantastic material and it will be interesting to see how it changes things in the future. By that I mean that the quality of the 16mm material is so good that it's very easy to blow up to 35mm and it will be very interesting to see if many pictures will switch from 35mm to 16mm.*

*In Sweden, at least, we are now shooting everything for television in 16mm. Another interesting thing — and this has nothing to do with the film stock — is that in Sweden, up until now, there has been more or less of a fight going on between the television industry and the film industry. But I think that now we have arrived at a very, very good relationship and have found that we can help each other. This is something that I find very positive, because now we are making pictures that will be shown both on television and in the cinemas, and we can help each other in financing them. This is very important in a small country like Sweden, because our features can't cost more than about \$300,000, on an average, and we have to make them so good that they can be shown in other countries. Or we have to work together with the television industry so that we can get them made.*



**QUESTION: What do you think this new emulsion will do for Super-16?**

*NYKVIST: Well, that's very interesting. I once thought that Super-16 wouldn't have that big of a future, but now, with this new and superior 16mm film stock available, I really think that it will have. In Scandinavia we have been doing a lot of shooting in Super-16 and, since we use a 1.66 aspect ratio, so little is lost when it is shown on television that no one thinks anything about it. When a Super-16 picture is sold for television no one cares that it is not 1.33 because almost the entire image ends up on the tube.*

*On the subject of aspect ratio, I think it's a pity that we can't find a way to standardize the frame throughout the world. For example, in Europe we shoot to a 1.66 ratio, but when our pictures are shown in America they are cropped to 1.85. We've had so many discussions on that subject, but it seems impossible to make a change.*

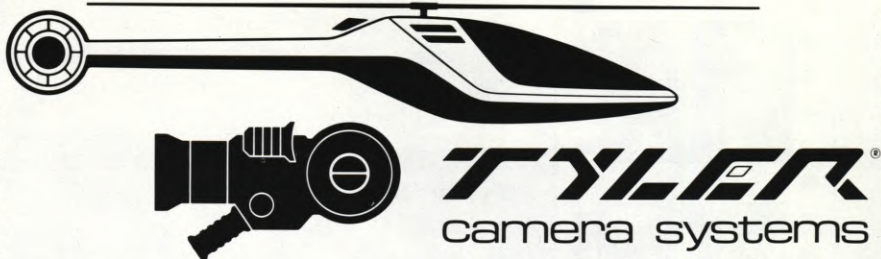
*Also, I think it's a terrible strain on a cinematographer to have to frame a picture while trying to get a good composition for two or three different formats at the same time. I think that's awful. So I try never to shoot a feature full aperture. I put a hard matte in the camera and then when they tell me that they wanted it full aperture, I say: "Well, it's already done." But then, again, when you shoot 1.66 no one really complains, because so little is lost on television. It seems strange now to sit here and talk so much about television. Two years ago I would not have mentioned television, but suddenly we have got on so well working together — and we find that we have to help each other.*

**QUESTION: Getting back to "THE MAGIC FLUTE" — can you tell me a little bit more about the lighting you used?**

*NYKVIST: Well, for many years I have been so used to using bounce light that when it came to making this picture for television I thought it would be important to do the same thing — the reason being that when you see your shots on a television receiver they often look terrible because they have picked up too much contrast.*

*I tried to do that on "THE MAGIC FLUTE", but some of the sets were so large that it was hard to get enough bounce light. So then I tried using direct lighting, but it really hurt me so much inside to see the result that I said: "Take it away. I can't use it!"*

**QUESTION: Bounce light is certainly effective in reducing con-**



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**trast, but since it's so hard to control, there's always the danger that it will end up flat? How do you manage to avoid that?**

*NYKVIST: Well, that is just the difficulty. At the same time that I like soft lighting, I hate flat lighting, so I really do try to model it as much as possible. In photographing "THE MAGIC FLUTE" it was not all that difficult, because there I could use backlighting and colored light. Sometimes I used yellow-red for the key light, with blue lighting for the shadows. I had a lot of filters and made many experiments, but I ended up using a lot of colored light. So it was not just a matter of using a certain amount of fill light; it was a matter of using fill light in another color, which was very interesting to work with.*

**QUESTION: It's interesting that "THE MAGIC FLUTE", a production for television, was shot on film instead of on video tape. What are your feelings about video tape, by the way?**

*NYKVIST: When I was here in Hollywood last year we had a discussion on that subject at A.S.C. and Lee Garmes said that he'd gotten fantastic results with tape. I tried to put that idea out of my head, but when I went home to Sweden I found that it wouldn't go out of my head. So I talked to the Swedish television people and asked if I could shoot a short subject on tape and transfer it to 35mm film, and they were very interested.*

*I found out that tape worked very well for closeups and medium shots to the waist, but that it was very difficult to use for wide shots. In the meantime, a producer in Sweden had written a script which he thought might be possible to shoot on tape. It's a story something like "TWELVE ANGRY MEN", with a lot of closeups and all shot in one room. The producer said that he wanted me to make tests and try to find out if we could shoot it on tape.*

*During my whole life I have always been very, very curious — and I've always said that I don't want to die curious. So I decided to take a chance and come here to Hollywood to find out how far you have come with video tape. I find it very, very interesting. Perhaps I was negative when I first arrived, but after being here a week I am very excited by the possibilities. I remember how, in the beginning, we were very skeptical about television and a little bit afraid of it, and now we have arrived at a point of cooperation. It's also possible that, for certain pictures, we can*

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shoot on both film and tape — especially when there are special effects and trick scenes, which are so much easier to do on tape. Anyway, that's why I'm here.

**QUESTION: We have a saying in this country: "If you can't fight 'em, join 'em."**

**NYKVIST:** Ah, yes — so it is. That is what I feel now. Everyone here in Hollywood has been so helpful. I'm always so happy coming here and meeting with various cinematographers. They are never jealous; they are always open and ready to tell you everything. Then there are always so many interesting discussions that come up. I always get very, very happy when I come here. I feel like I'm starting to live again, and that's very important.

I always meet very exciting people in Hollywood. A person like Milton Forman, for example, is very exciting because he's always thinking about new things and he always gets excited when he talks about new lenses and new equipment for the film industry. He's really like a child who gets a Christmas present.

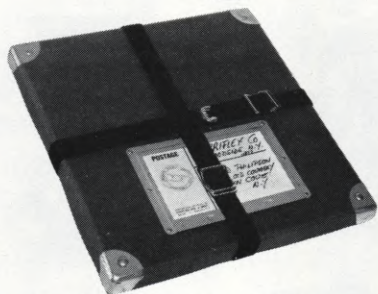
When I was getting ready to shoot "SCENES FROM A MARRIAGE" I felt that it was very important to find a 16mm zoom lens that was faster than *f*/4.5. I talked to Milt Forman about the problem and ended up buying a 16mm Canon Macrozoom lens. It turned out to be so fantastic in sharpness that it made it much easier for us to shoot "THE MAGIC FLUTE" later on. I've had many people come to me and ask: "What kind of lens did you use? It's so fantastically sharp." On "THE MAGIC FLUTE" we had such big sets that I wasn't able to use very much light and I found that I really could use the Canon lens wide open and still get a very sharp image — which was most important for that picture. That was the only lens we used during the entire shooting — and it's the first time I've used the same lens throughout a whole picture. ■

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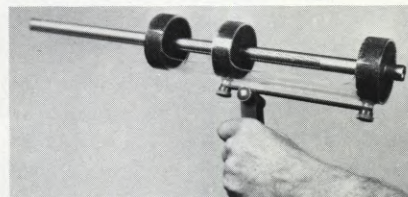
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## CINEMA WORKSHOP Continued from Page 872

buying a new camera, check into the type and placement of the alarm circuit. Most important, whenever using crystal gear, make sure you know exactly what the alarm is telling you. Is it latching? In other words, does it remain on if the motor has deviated or will it just activate when the motor is deviating and extinguish if the motor locks back onto speed? Does each flash of the alarm indicate a phase shift? If so, how big is a phase shift? A half frame, a tenth of a frame, a hundredth of a frame?

Now that I have stressed the importance of the alarm circuit, I must hit you with a last sobering revelation. The alarm circuit itself is a complex electronic device and it, too, has been known to malfunction on very rare occasions. Moreover, the alarm circuit just ascertains that the motor is following the crystal. The alarm will *not* indicate a crystal oscillator that has deviated from the correct frequency. Crystals will deviate with age, as well as through other factors. As a matter of fact, the alarm circuit will only tell you if the motor is correctly following the incorrect crystal signal.

So now where do you turn? Before you go into a deep depression, there is an ultimate and simple way to cross-reference and verify crystal speed. Several manufacturers make crystal speed-checking devices. One such device is the Communication Arts, Inc. P.O.M. crystal speed meter. (FIGURE 1). The P.O.M. stands for Peace Of Mind (appropriately). The unit is placed in front of a mirror reflex camera and viewed through the viewfinder. With camera running, the circle of 8 light-emitting diodes will appear stationary if the camera is at correct speed. Otherwise the pattern will slowly rotate. The speed of rotation will indicate the extent of speed error. This pattern can be photographed for future reference. A special accessory gate 1 prism must be used on non-mirror-reflex camera.

Image Devices "Crystacheck" works on a 24 fps (or 25 fps) strobe principle and can be used on any camera, whether reflex or not. The device is directed at the pulldown claw of the running camera. If speed is right on, the claw will appear frozen stopped. If it slowly creeps up or down, the camera speed is off. The amount of deviation is simple to determine; just clock the time it takes the claw to make one complete stroke. That is one frame deviation. The most interesting feature of the



*Crystacheck* is the external reference. This is the ultimate nitty-gritty crystal test. By running a sync cable from the Nagra crystal plug to the *Crystacheck* (FIGURE 2), the strobe is now being triggered by the Nagra internal crystal. By directing the strobe at the claw of the running camera, you get a direct, absolute and foolproof indication of *relative* speed accuracy for that specific Nagra and that specific camera. Thus, each camera used on the scene can be cross-referenced to the Nagra. Also, two cameras can be cross-referenced by running both, and feeding the pilotone from one into the *Crystacheck* while the strobe is pointed at the other. This external reference feature is the absolute check.

The modern cameraman must move with technology. So, in addition to a light meter, contrast screens and portable collimator, he may now be carrying a crystal speed checker. It certainly wouldn't be a bad idea. ■

**THE NEW TGX-16 CAMERA**  
Continued from Page 924

The TGX-16mm Reflex is a self-contained, self-blimped internal 400-foot coaxial cassette-load camera constructed of "Hi Rez", a virtually indestructible plastic. Another feature of the camera is that it will accept a 1200-foot standard Mitchell-type magazine, top-mounted. The TGX-16mm reflex camera body is 5" wide, 8" high, and 15" long, and weighs 7 pounds, 10 ounces. The camera, complete with Nicad battery, 400-foot loaded film cassette, and 12/120mm Angenieux zoom lens, weighs less than 13 pounds, making it by far the lightest camera in its field.

The configuration of the camera affords ease of handling and balance in handheld operation. The front hand grip of the camera is removable — adjustable through arc of axis of mount — and azimuth of hand position. A power switch and pushbutton which displays a digital footage counter and VU meter sound level is built into the hand grip. In addition, the digital footage counter has a solid state memory that retains its information, although the power switch is off and the battery source is removed.

The camera lens mount is a heavy-duty flange-type bayonet that will accept all 16mm format lenses, whether they be super-fast or super-wide. A "C" mount adaptor is also available that will accept all "C" mounted lenses. A filter slot is located behind the lens to accept a gelatin filter that can be interchanged without opening the



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camera door. The viewfinder eyepiece is at the film plane, for camera balance when operating the camera hand-held. Besides rendering a bright and sharp image, the viewfinder is multi-informational. There is a digital footage counter that is displayed in the viewfinder and is activated by the pushbutton in the hand grip and/or the pushbutton on the rear of the camera. This same pushbutton also displays the sound level of the VU meter in the viewfinder. The LED digital footage counter and VU meter is also matched by additional external displays. The viewfinder also features a red warning light that flashes to warn the operator when the camera is out of sync.

Our system is made up of the latest CMOS integrated circuits which achieve a wide power operating range with low power consumption. The integrated circuits include a crystal control frequency synthesizer to establish a precise frame rate and opto-coupler control logic shutter stop, that insures the camera always stopping in viewing position. The speed of the camera can be varied from 18 frames per second up to 48 frames per second. This camera can be ordered for 50/60 cycle operation, 24/25 frames per second. The shutter speed is 1/50 second (173 degrees) but can be ordered with 180 degree or 144 degree shutter for kinescope recording.

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tically switch from live microphone to playback when camera is running.

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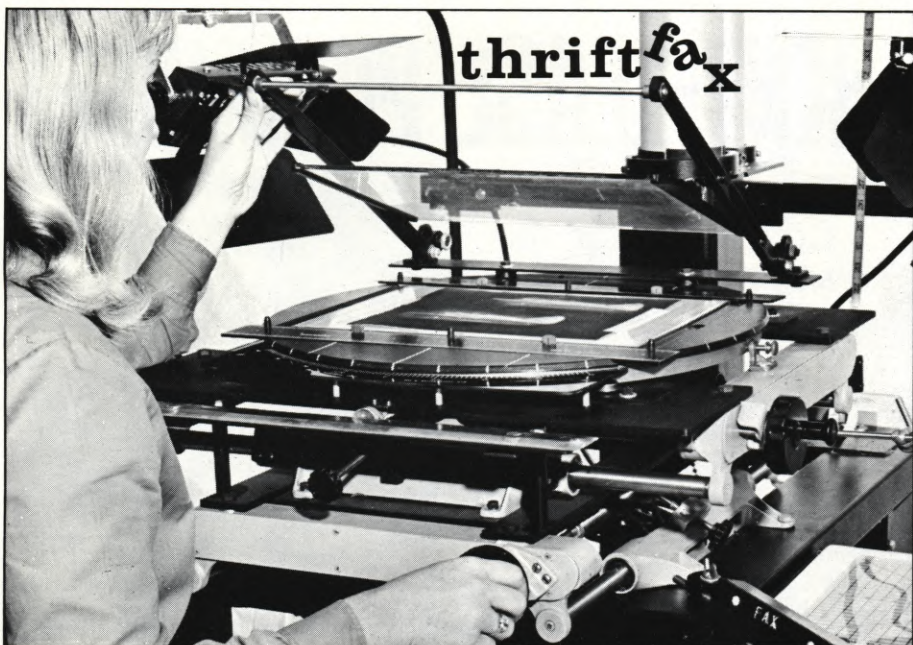
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**KAYAK AND CAMERA**  
 Continued from Page 952

the last blue-green waters of Havasu Creek for a soap and wine orgy. Nothing has ever felt so good!

As we drift lazily down the river to join the others, squeaky clean and happily full of wine, I reflect that it has taken us eleven hours, with only a short rest period, to trudge the 13 miles from the Havasu campground to the Colorado River — but it seems more like 113 miles.

I can hardly give too much credit to Ln for being so totally great during our "death march" down the canyon. It was she who bandaged my hand when I cut it, hauled me out of the drink when I fell into the creek, sewed up the seat of my pants when I ripped it out sliding down a rock, repaired my backpack when it parted company with the frame and kept my spirits up when they were dragging, along with my butt — a great lady to have along in the wilderness.

Up ahead we spot a group of rubber boats drawn up on a sandbar and we arrive just in time for dinner. Most of these troops have been on the Colorado for the past two weeks and a scruffier collection I've rarely seen. They look like genuine River Rats.

A warm welcome from Roger Brown and Barry Corbet, the two sparkplugs that make Summit Films go. Long before I had ever met them they had become heroes of mine and it took only the viewing of one of their films, "SKI THE OUTER LIMITS", to do it. It wasn't simply that this vehicle blended my two grand passions, film and skiing. I see just about every ski film that is made and enjoy most of them, but "LIMITS" was like nothing I had ever seen before. Not only was it technically superb and aesthetically exciting, but it was the first film to really capture the *mystique* of skiing — that other-worldliness that we ski freaks experience when we shift into automatic and glide down the mountain in a sort of euphoric limbo.

I remember, too, when on a ski trip to Vail, Colorado, being in a *boite* called "The Slope" (where you lie on carpeted terraces to swill your beer) and getting high on a whole program of Summit ski flicks. These Summit dudes are very special — not only skilled and innovative technicians, but exciting filmmakers. The key word is *exciting*. So it's great to be with them, making a movie in the Colorado River Gorge of the Grand Canyon.

Besides Roger and Barry, the other crew member is Jim Emerson, who records sound, runs second camera and whatever. Leading the expedition, from the logistics standpoint, is Ron Hayes,



Vice President of Wilderness World. A Hollywood actor for the past 27 years, he spends all of his summers running boat trips on the Colorado — a super-nice, really salty character. His boat crew, in addition to the aforementioned Bart Henderson and Stan Boor, includes Mark Jensen and Curt "Whaler" Hansen. They are a rollicking group, to say the least, but they certainly know their boats.

Then there are the kayakers — the stars of this particular shoot. Dr. Walt Blackadar, considered unofficially to be the best wild water kayaker in the United States, is a physician and surgeon from Salmon, Idaho (where he settled years ago, after a 30,000-mile search of the U.S.A. for the ideal spot). In his early fifties, stocky and jolly, he is one slick mother in a kayak.

The other kayakers are: Dr. Will Evans (also a physician), Will Perry and Fletcher Anderson. Included in the *coterie* is a young lovely named Ann Hopkinson. She is Fletcher's lady and a skilled kayaker in her own right.

Roger briefs me on the expedition to date. Leaving Lee's Ferry two weeks earlier, they have traversed a distance of 150 miles on the river, stopping along the way to film action and sync-sound sequences with the two lead actors, Tom Babson and Greta Ronningen. Greta has completed her scenes and left the safari at Phantom Ranch. Tom is still hanging in.

There is a total of 75 miles still left to go before winding it up at Diamond Creek. What everyone is looking forward to — and at the same time dreading — is the encounter with Lava Falls, 50 miles ahead. This, I'm told, is the most treacherous stretch of rapids on the river. At this point the water falls 40 feet inside of a quarter of a mile, roaring through an obstacle course of giant lava boulders. It is a rapids that very few (with good horse sense) would dare to tackle in a kayak — but getting just that onto film is the name of the game for this expedition.

We spend the next few days making our way leisurely downriver, while the kayakers practice in the rapids along the way. It looks like fun, I tell myself, and Dr. Walt, reading my mind, asks if I want to try it. Sure, I'm game.

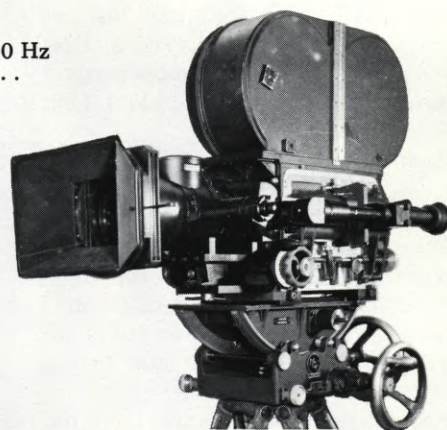
He gives me some minimal instruction. "You've got to wear the boat," he tells me — and I try one on for size. It doesn't exactly fit like a leotard, but I guess it's okay.

Feeling a bit like a mummy in its case, I paddle out into the swirling eddies of the Colorado — all guts and no technique. Doc Blackadar is nearby in his kayak shouting instructions and

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encouragement. Awkward at first, I soon gain confidence and can't resist showing off with some fancy flourishes of the paddle. It all goes swimmingly, as they say. I'm conducting my own little water ballet and having a ball. But just as I'm beginning to feel like "King of the River", a fierce wind comes surging down the canyon. A tremendous gust blows my boat over.

Standing up in a hammock was great fun, as I recall, but upside-down in a kayak is something else again. As passing fish eye me coldly, I realize that I forgot to ask Doc how you roll yourself up out of this kind of situation. I manage to shoo horn my way out of the kayak I'm "wearing" and bob to the surface.

Kayaking is kicks. It doesn't turn me on quite as much as fighting a bull, but it's been a blast!

The next morning we arrive at the relatively calm waters just above Lava Falls and tether the boats safely out of reach of the rapids. Clambering over the rocks I pick my way to a perch overlooking the whole expanse of the Falls. "In person" it's even more horrendous than I'd heard — a roaring, foaming, gushing maelstrom of white water that crashes angrily through a maze of massive black lava boulders. All that's lacking are the Sirens singing on the rocks.

Cameras are deployed and the crew makes ready to shoot. Barry is positioned at the head of the rapids, high up with the Eclair ACL. Roger is on a big rock almost at water level with the Milliken and Jim is next to him with the Arriflex.

The kayakers are ready, and what follows is the most spectacular action one could ever hope to capture on film. Doc Blackadar leads off, gets right into the thick of the watery Hell and rolls over. It looks to me like he rolled on purpose — but maybe not. He reconnoiters and makes a perfect run. Will Evans, Fletcher Anderson and Will Perry, in turn, all come roaring through the rapids, making multiple runs for the cameras and displaying incredible virtuosity in their kayaks. By far the most spectacular performance takes place when Dr. Will Evans performs an "endo", literally standing his kayak on end in a "hole" of the rapids. The slender boat hangs there absolutely vertical for what seems like minutes, whirling around like a matchstick in a Mixmaster. WOW!

The next morning the crew sets up to shoot again and a few runs are made through the rapids. Then the first of our rubber boats, with five people in it, makes its move to run the gauntlet of the Falls. I decide to immortalize the

event on Super-8 film. I have a perfect shot framed and zoom in to show our buddies in the boat laughing and waving as they start down the rapids. Then, to my horror, I watch through the viewfinder as their boat climbs a huge wave and stands straight up before tossing everybody into the drink and flipping over. They bob to the surface one-by-one and the boat downstream sets out to scoop them up.

Visibly shaken and much more concerned about the safety of the people than about further filming, Roger calls off the remainder of the shoot. As it turns out, all of the "displaced persons" are safe and sound. In fact, they're merry as clams. Now they've really got something to tell the folks back home about.

When my own boat makes it through the Falls, the sensation I experience, while hanging on for dear life and getting slapped all over the deck, is akin to that of riding a water-borne bucking bronco. It certainly gets the circulation going!

Around the bend, we find that the Baloney Boat of a party just ahead of us has turned over, dumping all 16 occupants into the drink and losing most of their gear in the bottom of the river. It takes their entire crew and ours, pulling on ropes, to turn their boat right-side-up again.

Our last night on the river.

Everyone is in an odd mood — ready to celebrate the end of a mission completed, but reluctant to let go of what has been a tremendous experience. Before they get involved in bull sessions or sing-songs, I ask a few of those more involved in the filming if they'll talk about that for my tape recorder. We gather around Barry Corbet's tent and I lead off with Roger Brown.

**QUESTION: Roger, could you give me a kind of general rundown on the problems of filming on the river, since that's the phase that I've been personally involved with and you'll be covering the other phases of filming in your own article? Can you go back to the beginning of the kayaking and bring me up to date?**

*BROWN: The beginning of the kayaking took place a year ago when I came down here and filmed Fletcher and three other kayakers. We were on a twelve-day schedule at that point and that was not enough time; we had to row so much we never had a chance to film. It was a very on-the-run sort of thing. To film this canyon properly from Lee's Ferry to Diamond Creek you need*

*at least 20 days — which we've had now. Other problems: the sand gets into the equipment and that's a disaster and it happens frequently. Last year I dropped a very good lens in the drink. It got sifted out, but that didn't do it any good and, in fact, it's still somewhere in Switzerland being cleaned out. A lot of filmmakers not us, fortunately, at least not to this point, have dropped their cameras overboard, lock, stock and barrel. Rafts have tipped with cameras on them, like the raft that Barry was on tipped, but fortunately it didn't have any gear on it. Even when you right the raft and save the gear it's full of water and if the Baloney Boat had tipped we'd have lost all our film. Of course, we did ship half of our film out at Phantom Ranch, everything we shot before Phantom. Other problems: lighting is a tremendous problem in the rapids — back light, front light, making the rapid look dramatic, getting low angles on it so that the waves look big, and it's very hard to find the kayakers, because the kayakers are in the water and they disappear frequently and if you are doing a tight pan with a telephoto you often lose them. This is a real problem. That's why it is nice to cover your shooting with one high camera, so that you know you've got the whole run, because with a high camera you can see down into the troughs and the waves and pick up the kayakers. But you can't pan with them like you might pan with a glider or something, because they will lose and gain speed in the rapids. Sometimes the rapids will stop them, even push them back, so if a pan is going along and they disappear and you think you are going to pick them up at the other side, they don't necessarily come out at that certain place, or they come out much more slowly than you anticipated. In the Grand Canyon there is a lot of good weather, so that weather is not a severe problem.*

**QUESTION: What kind of equipment have you been using and how is it employed?**

*BROWN: We brought with us two Bolex cameras, one Eclair ACL, one Milliken and one Arriflex, plus lenses that range from 5.7mm on up to 400mm. We also have two GZAP cameras in mounts. There was an exchange of information with Fletcher Anderson and he built housings and tested them in various positions at our request. He then incorporated his own ideas and finally came back with what we felt were the right kayak mount positions.*

**QUESTION: What about the lenses**

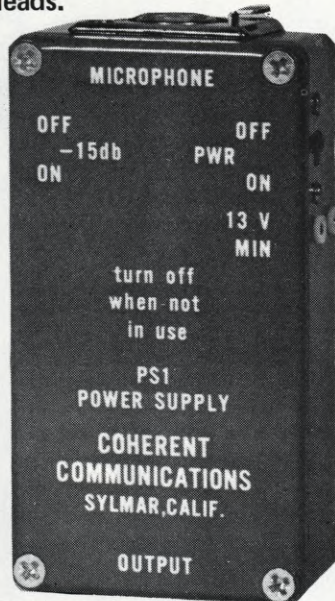


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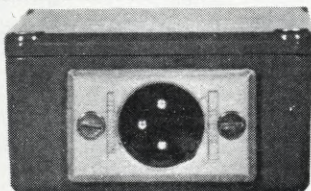


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that you used mainly?

*I've tried to use the 25-250 zoom, but most of the action is close and zoom lenses, when you are going from a 16mm to 35mm blow-up, are less desirable than hard lenses, although we have used zoom lenses a lot. Particularly when shooting sync, we find it very necessary to shoot with a zoom, because it's all documentary style sync and you've got to make the best of your situation. You can't be setting everything up, so you just use the zoom to jump spaces or to go over shoulders or to do all kinds of things that you can't do with hard lenses. So, we have that struggle between the convenience of the zoom and the sharpness of the hard lens.*

**QUESTION: What about the multiple camera use?**

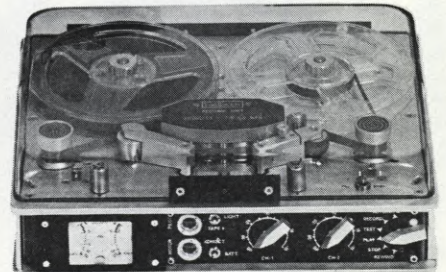
*BROWN: The multiple cameras are used primarily when we're shooting slow motion. I've not seen any kayaking films — and I don't think there are any — where a frame rate of more than 100 fps has been employed. But we shot some scenes last year at 350 fps and they were really sensational. The water was like molasses; it was kind of flowing very slowly, and we went through the old experience that we had when we first started using the Milliken camera on skiing subjects. It put a whole new dimension into the visuals — and the same thing has happened here. Barry was a bit skeptical at first, but it's captured the visual excitement of kayaking. When we saw the stuff it became apparent that kayaking was very extraordinary and the motion over the water made it that, plus the beautiful design of the boats. It's a very poetic, pretty sport.*

**QUESTION: Now, while you don't have a hell of a lot of control over the lighting, you did mention to me that you prefer backlight. Why is that?**

*BROWN: Well, the Milliken, because of the high rate of frames per second, requires a faster film and because the action is slowed down, in many ways it is less dramatic. The key to the Milliken is its uniqueness. The unique way of looking at a thing rather than it's actual excitement. You are suddenly seeing things you've never seen before; that is, the water moving very slowly, the athlete moving slowly. These things seem to work best when the shots are tight and contrasty. That gives you very sharp definition and real crisp contrast. The water is very white, yet the back-*

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ground is very black and the kayak is very red, if it's red, so everything is very contrasty and that seems to help overcome the slow motion aspect of it. It could actually be boring, because of the slow motion being so slow, if it weren't unique.

**QUESTION: You've been using 7252 for the body of the film. Did you switch to EF for the slow motion filming?**

*BROWN: Yes, we used EF Daylight for the Milliken. We could have gotten away with using ECO, but not at 350 fps. We'd have had to shoot at f/2.8, which would have given us a really lousy depth of field. When you're shooting on the river the action usually comes in and goes away from you, and following focus is tricky at best. So we prefer to have a greater depth of field, if we can get it, and the EF gives us a couple more stops.*

**QUESTION: I'd like to ask Barry Corbet a few questions. Barry, you're mainly responsible for editing and mixing the film, but I noticed that you were also running a camera at Lava Falls. Let's talk first about the editing aspects.**

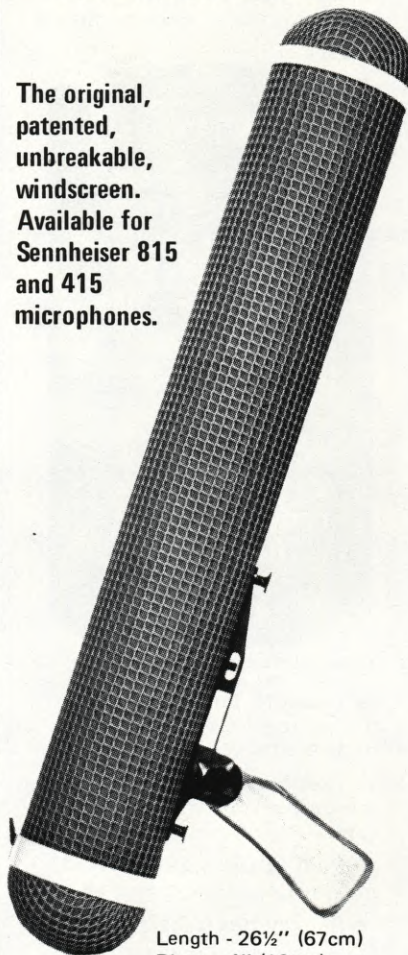
*CORBET: It seems to me there are about three ways you can approach a sports subject. One is documentary and one is interpretive and the other is as a vehicle for a dramatic line that you have already established. What we are trying to do is do all three of those things at once and I think that that, perhaps, represents the uniqueness of this project — to make it dramatically credible, to show all the real aspects of the sport, and yet to show its lyrical, esoteric and even, perhaps, ethereal aspects. The key to doing that is to get into the heads of the people who are doing it — to be willing to get away from real time and place and perhaps let music carry things out of time and space continuity — and mainly a willingness to forget about how they usually go together.*

**QUESTION: I judge from reading the script that there are certain sequences that call for a more or less impressionistic editing approach. You have to break some of the rules of continuity and conventional editing; isn't that right?**

*CORBET: I think so. We've done that in the past and I think now we are faced with breaking our own rules. For example, in the past we've gone slamming into a scene at a conventional 24*

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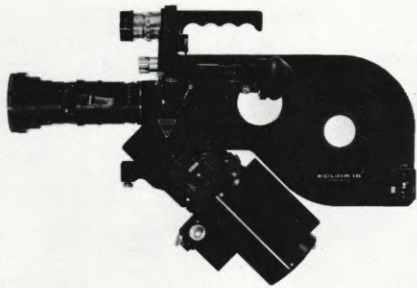
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*fps — a very high action scene — and then we will do a very abrupt sound and visual cut to the same thing over again at 400 fps, or in reverse direction maybe. That's become a format for us, and I'm trying to think of what we do next. I think we will come up with something which utilizes different threads. I mean, you have so many different threads you can use in editing — such as, the frames-per-second rate, the lighting conditions, textures, screen directions or similarities of action patterns.*

**QUESTION:** Now, this film is calculated as a theatrical feature, right? Therefore, it presupposes a 1.85 blow-up, correct? And that being the case, what about the framing of your 16mm as you go along.

*BROWN:* We frame loose. Barry put a 1.85 frame into his Showchron so he could point out to me when stuff was too tight. We did not scribe all of the viewfinders, because we had too many cameras and the expense and complexity of scribing each viewfinder was too much. So we just played it by ear to a degree. On theatrical scenes it was easy because I was shooting it myself and I knew what the frame was and I don't think we've done much missing there.

**QUESTION:** On those where you have missed, will you resort to pan and scan to save them?

*BROWN:* We'll have to. I know it'll be necessary to lift some frames and we're planning right now to work with Cinema Research on that. We won't be enlarging frames. We'll just be picking the sections of scenes we want by moving them up or down in the frame.

**QUESTION:** I'd like to ask Fletcher Anderson about his experiences in rigging and shooting with the GZAP cameras. Fletcher, do you want to tell me a bit about that?

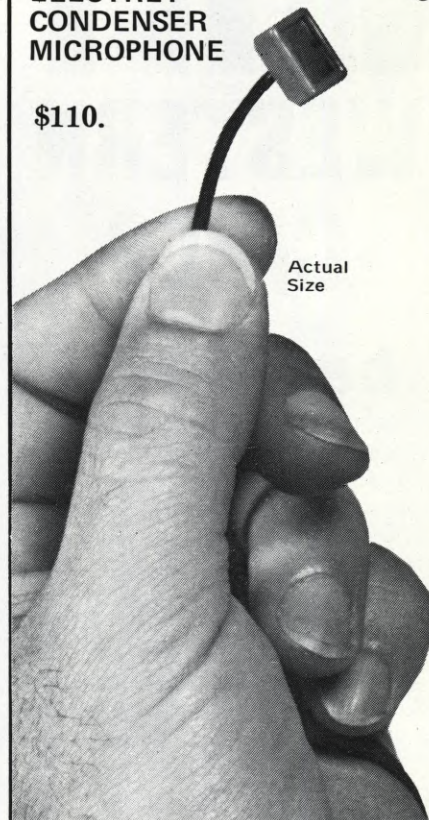
*ANDERSON:* The GZAP camera offers a number of unique possibilities in kayaking because it's so light and it doesn't particularly make a boat harder to run when it's mounted. Starting a year ago in June, we made a first kayak mount for the GZAP and tested it in Aspen. We also rigged a GZAP in conjunction with a Nagra SN recorder onto a kayak, but had little success with that. At first we used such an extreme wide angle lens that the kayak appeared to be 40 or 50 feet long. Also, in our initial tests, the camera was centerline

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mounted, so that the frame showed mainly the back of the kayaker and very little else. Obviously, the main action was going to be that of the water, so I made a second set of mounts. One of these allows the camera to be mounted well off centerline, so that it picks up a lot of water, as well as the kayaker and the boat. The other mount moves the GZAP slightly forward of the boater, shooting approximately the same view of the end of the kayak that the kayaker would have. Of course, the GZAP uses a very short focal length lens, so that a kayak that appears five feet long to a kayaker also appears five feet long to the lens, even though the camera is mounted only two or three feet from the bow. We have six camera positions we can use and we were also going to mount the camera underneath the kayak, but didn't get to it. We ran the GZAP at 24 frames most of the time, but also did a bit of shooting at 48 frames. I tried to run the camera at 96 frames, but the motor wouldn't pull the film through the magazine at that speed. To me, one of the most beautiful things about kayaking has nothing to do with the boat; it's just the water. I hope the GZAP can show what a kayaker sees in the water.

**QUESTION: Roger, do you want to do the summing up on this discussion?**

*BROWN: Covering all six of the sports that "THE EDGE" includes really adds up to a great deal more than just making a film. These have been individual, exciting experiences — expeditions that have involved close contact with people under really difficult circumstances and, overall, the experience has been fantastically rewarding. I believe we'll end up with a really exciting picture, but even if it falls on its tail I still will have had the greatest year of my life, and I think that a lot of the people who have been involved in this project feel the same way.*

I'll drink to that.

As we drift lazily toward Diamond Creek and the point from which we will all go our separate ways, I reflect that I have known this really super group of people — these magnificent "River Rats" — for only a week. Yet, the camaraderie that has developed with them in that short space of time is a warm and wonderful thing.

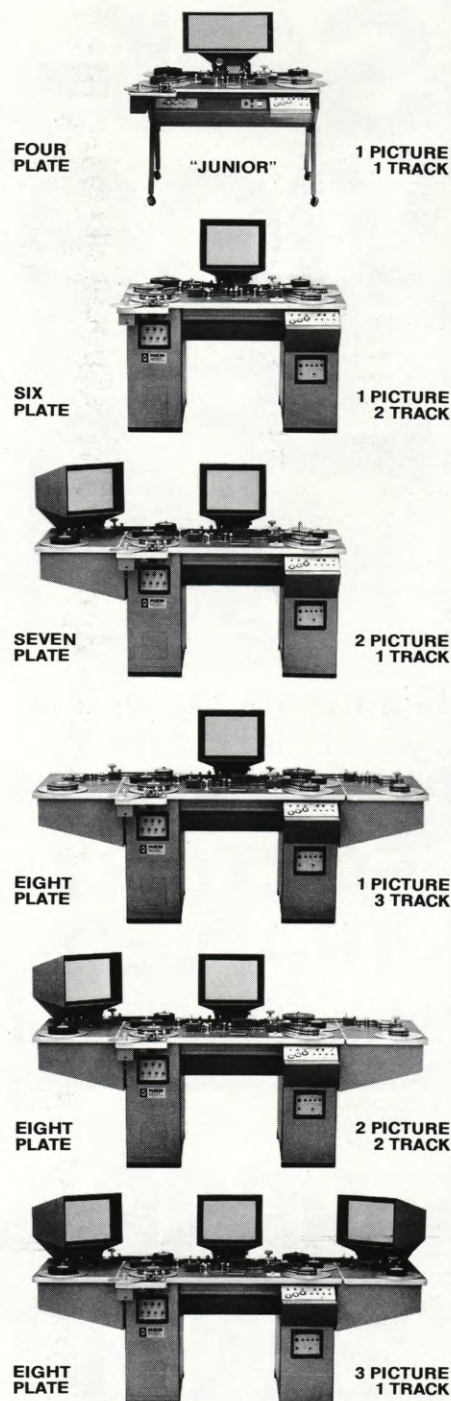
Loner that I am, I'm forced to admit that it's people like this and the adventures you share with them that really count.

And, at the bottom line, that's what film-making is all about. ■

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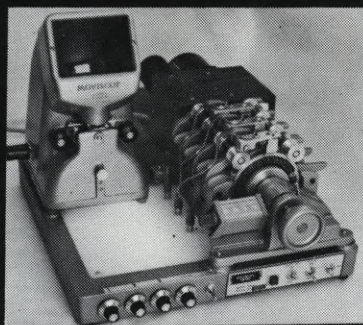
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## FILMING ON "THE EDGE" Continued from Page 930

Bugaboo Range in the Canadian Rockies we had two days of sun with almost no wind.

The Bugaboos are pointed mountains, the kind that children draw when they have never seen real mountains. Rivers of ice flow down between the peaks. The kites look like butterflies in a giant labyrinth. At times the flyers were 2,500 feet off the ground; at other times their bellies nearly rubbed on the surface of the ice.

I filmed from a helicopter, while Bill Trautvetter did some very able filming from the ground. We attached GZAP cameras at various positions on the kites. We were lucky, no accidents; the helicopter prop wash didn't catch the flyers, nor did any wind. We got breathtaking film.

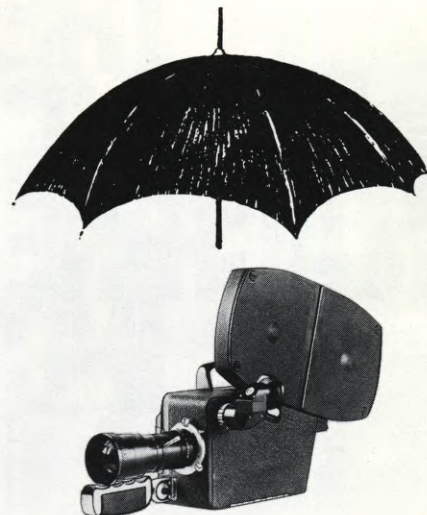
Hang gliding, in my opinion, is the most dangerous of all the adventure sports. Statistics confirm this and it's obvious why — almost all mistakes are fatal. Falling on a climbing rope, or in a wave, or a river, or snow is not like falling out of the sky.

We had flyers — John Totman from Aspen, John Deahl and Tom Hamilton from Seattle.

The helicopter viewpoint gave the entire sequence a spectacular perspective. In addition to shots of the kites, I shot several sequences of flying over sharp rock ridges and glaciers, keeping the kites out of the picture. These shots, more than any of the others, give the audience a feeling of being there and doing it.

The zoom control on the Tyler mount turned out to be broken, so there was only one zoom speed — fast, and each zoom started and stopped with a jerk. But I zoomed anyway. It was very effective to start tight on the hang gliders and then, at the right moment, pull back to reveal the awesome space around them.

We landed the chopper on tiny little patches of snow or rock, with thousand-foot drops on all sides. It was about as acrophobic as anything I've



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gone through. There is something really scary about seeing a man with a kite stepping off into space, then hanging there, floating thousands of feet up, totally at the mercy of invisible breezes. I guess it's as close to being a bird as man will ever get.

### SKIING

We were plagued with bad weather. I squeezed out skiing shots all winter long, a day at a time, here and there when the sun was out. It's a good idea to have at least two cameramen when filming aerial acrobatics — one shooting at 24 fps, the other shooting slow motion. (350 fps is ideal; I used a Milliken camera with a 12-120 zoom.) Acrobatic skiers can only do a limited number of jumps, so you want all the coverage you can get of each jump.

Corbet and I have developed our own style in sports photography over the years which is exemplified in shows like *SKI THE OUTER LIMITS*. We have concerned ourselves more with the beauty of the motions than "who is doing what, and how," a *la* ABC Wide World of Sports. Ours is a music trip, although we are also interested in the performers' philosophy, the "why" behind the actions.

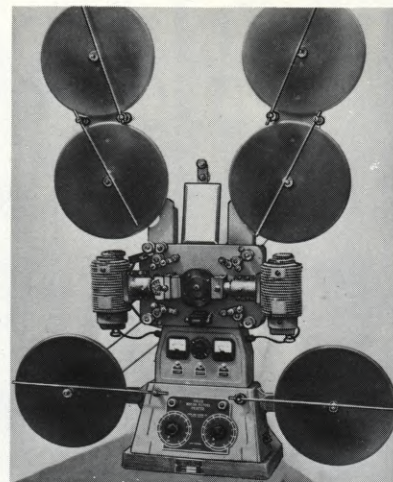
THE EDGE is not about people competing against one another, or even very much about competing with oneself. Our stars are guests on currents of water and air, slippery snow, and hard rock. The famous French climber Lionel Terray aptly called it "the conquest of the useless." And sometimes a conquest isn't even involved, just some "messing around" in a big undefined playground, be it mountains, rivers, or the ocean.

Our skiers were Judy Heim, Ed Lincoln, Mark and Dean Jones, Roger Evans and John Clendenin. I selected John for his natural acting ability. Ed gave us the wildest aerals.

### SCUBA DIVING

I have to admit to failure here, our luck ran out. Ramon Bravo took us to Socorro Island in the Revilla Gegegedos chain, a place noted for an abundance of sharks. I have seen his films, which confirm their conspicuous presence. But we found only a few, and they were very shy. We slaughtered other fish in an attempt to attract them. Ramon, Owen Lee, and Roberto Marciel were fearless in this regard, but still the sharks stayed away.

We filmed morays, octopus, beautiful reef fish, even an adventure-some little turtle. The sea was dark, rough, and often dirty, but we kept going out, trying to get the sharks. No



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luck. No underwater EDGE. Perhaps I will try to repair this deficiency, perhaps not, since we have five very real other "edges" in the film.

We used MS film in depths over 20 feet. It's a grainy film, to be avoided whenever possible. We got a bad performance out of a Canon Scoopic, a mixed performance out of an old Bell & Howell and good results out of a Bolex and a Beaulieu. None of our housings leaked.

I allocated 15 days to this shoot; I should have planned 30.

**KAYAKING**

This sport is covered in another article. I will say only that this is the one sport I have not been able to resist taking up. I am hopelessly hooked. I have my own kayak now and I use it every chance I get. My inspiration is Walt Blackadar, who started kayaking when he was forty and now, at fifty-two, is one of the best "big water" kayakers in the world — and one of the stars in the film.

Fletcher Anderson displayed an electrifying kayaking skill, and fabricated kayak mounts for the GZAP camera. His photographic results are sensational.

**DIRECTION**

I used an "off balance" method of directing, which means I was simply spread too thin. I didn't always control my temper; sometimes I was downright unreasonable, even cruel (some people said), but I feel that I got maximum performances out of everyone. Do the ends justify the means? Who knows? No one was physically hurt, and that's very important.

Being spread too thin. I can do without a lot of what is considered necessary crew, but I never want to go through another big job like THE EDGE without some kind of combination assistant director-production manager. Can you imagine trying to get some tender line out of the leading lady one minute and going over her expense accounts with her the next?

Never again. But it's got to be the right person; experience counts in production management. The good ones are few and rare. I guess that's because most of them die young from worn-out brains and ulcers.

It became evident in the Yosemite Valley, that our actors needed some definition of the difference between the theatrical and documentary aspects of THE EDGE. This is what I told them at that time:

*The basic difference between theatrical and documentary films, in my opinion, is in aim.*

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*The theatrical film-maker works with preconceived characters that are seldom of his own making — or even if he has created characters, or does so in the course of a project, he still uses the actor to express something beyond the actor's nature.*

*The actor's job, it seems to me, then is to become someone else, to suppress his (her) real self in order to make room for a different personality.*

*Both the theatrical film-maker and the actor, in this sense, work at creating illusions.*

*The documentary film-maker, on the other hand, is an observer. He wants to capture reality and so he tries to cut through the theatrics of his subjects in order to find out who they really are. A documentary film-maker creates reality, then drops his characters in. But he tries to accept what happens; manipulation is undesirable.*

*THE EDGE, in this sense, is a connected series of situations. My hope as a director is that the real nature of my cast has more to offer than any artificial personality that I might be able to create.*

*On the other hand, I need actors — if for no other reason than their ability to accurately repeat themselves. This is a practical necessity, however, a conscious re-creation of a not very far removed reality.*

*If the resulting documentary story lacks sufficient structure I can still use the actors to broaden it out and give it balance.*

*The love story within THE EDGE, in this regard, is more structural than theatrical. It carries the force of documentary action, but doesn't overwhelm it.*

One thing I constantly found myself having to tell non-actors was, "You don't have to tell people what's on the screen, the audience will see it. Try to say as little as possible." At first these remarks stiffened them up, but after a few takes they would relax and become natural. But they wouldn't overtalk, and overexplain, which is a tendency with non-actors. In other words, the trick is to get a non-actor to shut up, not talk, in sync shooting.

The reverse is true in wild track recording sessions where we want the non-actor to say what's really on his mind. This is where we develop his real character, get at his philosophy. The demanding camera isn't present, although an 815 or a 415 mike is not entirely inconspicuous, and our soundman, Jim Emerson, is not shy about where he puts it. We recorded in groups which gave us clashing viewpoints and a dialogue. And more often

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than not we recorded at night, which seemed to relax inhibitions. Invariably, everyone loosened up and gave us excellent material.

In the editing we will run the best of the wild track under action shots. It's relatively easy to boil down wild track in contrast to sync sound, which has to be one of the toughest tasks in documentary film-making. So there are also very real budgetary reasons for going with wild track.

Selecting athletes who can act. I was overconcerned about this in the beginning. I avoided some great sports people because they were foreign and didn't have a good handle on English, or because they seemed self-conscious, or because of what I thought were silly mannerisms. I think, in retrospect, that almost any top sports person can be directed into a reasonable acting performance. They invariably have a self-confidence that can be transferred into what they say. You have to take time with non-actors, get them to relax, or to get so caught up in what they are doing, or talking about, that they lose their self-consciousness.

You can't ask non-actors to repeat lines, because all of their good comments are spontaneous, not memorized. As a result, the editor has to go for the line rather than the picture, and this presents real problems unless the cameraman has shot the scene knowing he will not be able to protect it with another angle. This is one reason why I shot, as well as directed, almost all of the sync-sound sequences. My partner, Barry Corbet, asked me for a lot of cutaway possibilities and I tried to oblige.

Being the writer, as well as the director-cameraman, had obvious advantages. I was able to eliminate several costly functions. First, I didn't have to pre-scout locations. I planned all of the theatrical moves on the spot, rehearsing them once or twice, then shooting. I didn't have to tell a cameraman about screen direction, where the stage line was (although occasionally, Emerson, the soundman, reminded me), the sequence of establishing, medium, closeup, and cutaway shots. I just did them.

Did I miss things because I was looking through the camera, instead of concentrating on direction? Perhaps. I'm really not sure. On the other hand, I saved hours, days of time by eliminating the need to communicate with the cameraman. I saved his salary and his expenses, which is a big chunk of money in a low-budget production. And I really think I ended up with something closer to what I was after. Of

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course, I have extensive experience as a cameraman, so the photography is largely second nature to me.

I used an Eclair ACL for almost all of the sync shooting. I had a Dove eye-piece, which gave me a dozen new angles including some very low ones that were incredibly valuable. The ACL is light, I could hold it during rehearsals without getting a tired, shaky arm. It kept running; sand, salt water, altitude, cold, and a general banging around didn't seem to bother it. It was quiet enough for our outdoor locations, and the 75 fps function came in very handy on several occasions.

Of course, we used Arris, Millikens, GZAPs, and Bolexes on the action shooting. Each camera was better for some specific purpose. The old spring-wind is pretty nice when all your batteries run down.

**EDITING**

My partner, Barry Corbet, is now seriously involved in the editing, but he has only just started, so comments would be premature at this point.

**THE CO-PRODUCER**

I should mention that, although Tom Hubbard is not an experienced filmmaker, he has been a sort of father-confessor throughout this project. He has looked over my shoulder on many of the shoots, offering occasional detached viewpoints that have put me back on the track.

I spent hundreds of hours with Tom, discussing every detail of the script before we ever turned a camera. Without his objectivity, and insistence on a good story, the full potential of the project could not have been realized.

Tom is a co-producer with me on THE EDGE. He, better than almost anyone I know, understands the real nature of the concept. He was hang-gliding in Aspen in April and got caught by a gust of wind. He broke his back when he hit the ground, and is presently paralyzed from the waist down.

**CONCLUSION**

What was I really after? Well, I think there are a lot of great films to be made if one can successfully inject a theatrical thread into a documentary (not vice versa). I feel like a pioneer in the field. A lot of original thinking is needed, a breakdown in the classic methods from both schools, an open-mindedness. THE EDGE will only scratch the surface, but it will be a start.

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HOUSTON- FEARLESS Hydraulic Cinemobile, \$1950. Akeley gyro tripod, \$275. Holmes portable 35mm projector, \$375. Arri 2A, 2 mags, 3 lenses, var. motor, matte box, \$950. MEISTER, 321 River Rd., Nutley, NJ (201) 667-2323.

RICHARDSON Film Viewer model R100, Serial 169, 16, 35, 70mm, lacks 4 perf. pulldown movement, otherwise good condition, 3 excellent front surface mirrors, \$500 or best offer. M. CHURCH, 3838 Lively Lane, Dallas, Texas 75220.

10-100 ZEISS zoom blimped Arri-BL w/zoom motor \$1,800. SCARPA (201) 865-6963 after 7PM.

9.5 to 95mm ANGENIEUX "C" with 10" viewfinder, \$1100. Pan Cinor 17-85 with viewfinder like new, \$350. 100-D Frezzo pack used 1 hour, \$380. Auricon 1200 with Magazine, \$970. Mitchell tripod with head, \$250. MR. EINODER, (203) 327-1735.

ANGENIEUX 12-120mm zoom lens, Arri mount, excellent condition, \$750. J. DAVIDSON, P.O. Box 52, Avon Lake, OH 44012 (216) 933-6181 Ext. 232.

FOR SALE: Professional and specialized/custom audio visual equipment. Surplus from Broadway production. Including B&W video projector and cameras, 16mm projectors, slide projectors, programmers, etc. Detailed list available. Contact: Bob Skerry, AMERICAN FAMOUS COMPANY, 1650 Broadway, Suite 501, NYC 10019. (212) 765-5910.

NAGRA 4.2 with two QPSE-200's, ALC, QSLI, ATN, shipping case, leather case, cables and straps; Beyer DT480 headphones; Sennheiser MKH 815 with power supply, pistol grip, shock mount and windscreen; Sony ECM-50; and ElectroVoice RE-50; Shure M67 mixer; mike stands, cases and cables. This gear is one year old, in perfect condition and lists for \$6,100. new. Make offer (512) 472-4165 or (512) 442-7168.

MORSE A8-16mm processor. Will run B&W reversal 100 fpm. As is \$500. HAVARD'S, 301 St. Louis St. Mobile, AL (205) 432-1645.

ECLAIR ACL 400' magazines with digital counters. New, \$1500 each. (213) 889-2510. P.O. Box 4812, Thousand Oaks, CA 91359.

ECLAIR NPR Beala 1-400' mag., 12-120 Angenieux, 2 battery belts, tripod, body brace, like new, plus many extras. Hardly used, \$8,500. RON TURNOW (201) 334-2600.

BNCR, pelical, D.C. crystal sync, 110 AC motor, 4 mags, 25-250, 20, 25, 35, 50, 75, 100, plus all accessories, \$21,000. (404) 876-4471.

ECLAIR NPR 16mm with 12-120 Angenieux lens, crystal motor, 4-400' mags, 2 batteries, 1 eye-piece, and 3 cases, \$7,500 (202) 462-6078, Washington DC.

25-250 Angenieux zoom, Arriflex 35mm mount, cradle, case, purchased 1974, \$3,000 (212) 953-2128.

MAIER HANCOCK 816 hot splicer. 8 months new. Recently adjusted, \$175 or best offer. MY SISTER'S CUTTING ROOM, 746 W. Belden Ave., Chicago, Ill. 60614 (312) 871-2090.

## STUDIO PRODUCTION EQUIP.

ARRIFLEX 16 BL with Angenieux 9.5 to 95, two 400' magazines, matte box, universal synchronous motor, power cable, filters, shoulder mount, carrying handle, mirror compartment case and Anton Bauer power supply (3 batteries, belt, control module, charger and unipack). This outfit is in mint condition, one year old, and has had only 12,000 feet of film run through it. It would cost \$17,400 new. Please make an offer (512) 472-4165 or (512) 442-7168.

NIKON R-10 Super-8, used only once, mint condition, \$400. or will trade toward Bolex 16 Rex II, III or IV with 3 Switars, pistol grip, Rexofader. EUGENE JAKSZTA, 6 Oak St., Lowell, MA.

BOLEX EBM, Vario Switar, 16-100mm POE lens. 2-400' magazines, extra battery, cases, \$1995. TRUMAN BRYCE (817) 460-9219.

AMPEX 1/2", 4-track console, 300-3 MOD, with new 4-track head assembly; also 3-track 35 mag, Magna-Tech recorder, type MR 135-3 with new IEM rec. and PB heads, rack mounted. Both items \$5,000. Photos on request. VALENTINO, 151 W. 46th St., NY, NY 10036 (212) 246-4675.

MITCHELL GC high speed camera 35mm, 2 400' mags, motor, \$995. Auricon Super 1200 outfit, \$1395. Angenieux 12-120 7" finder, \$995. 17-85 C mt. Pan Cinor, \$395. Amega A-1 16mm recorder, \$1395. B&H J printer, 16mm, \$2950. Nagra 4L loaded, \$2450. Eclair 16-35 camera bodies, \$1100. Eclair CM3 outfit, \$2975. Arri IIC outfit, \$3450. Maurer 150 outfit, \$2500. Mitchell reflexed GC high speed 35mm, BNCR lens mt. \$2950. Body Only, DeVry XD 35mm portable sound projector, complete, like new, \$1195. Thousands of other items, Free List. ICECO, 2991 N. Fulton Drive, NE, Atlanta, GA 30305. (404) 262-3020.

**SURPLUS STUDIO EQUIPMENT SALE**  
A complete re-recording and editing facility, consisting of 35mm and 16mm interlock equipment. Complete to the last detail. All RCA and Westrex components. Inventory far too much to list here. Send for our complete inventory list. WARREN SOUND STUDIOS, 35 NE 62nd St., Miami, FL 33138. (305) 754-9539.

Depue 16mm Contact printer with sound head. 2000 ft. flanges. Very little wear. Complete and in like new condition. Government surplus. \$2500. BRUCE WEBSTER, 426 NW 20th, Oklahoma City, 73103. (405) 524-6251.

ACME Optical Printers; several used models available such as Model 102 three head with auto follow focus on aerial and camera excellent condition \$60,000 complete. New Model 103 aerial \$60,000 complete. Call or write D.E. Stults, PSC Technology Inc., 1200 Grand Central Avenue, Glendale, CA (213) 245-8424, Telex 69-8231.

FILM PROCESSOR 16-35mm Houston-Fearless Model A-11 \$500. TORBET, 179 Christopher St., New York (212) 243-5569.

ECLAIR NPR, 2 mags, 9.5-95 zoom, also 9.5-95 for Auricon type camera; all perfect condition. A. MAYSLES (212) 852-6050.

SELF-Clutched synchronizer drive, \$170. Brochure. Write CINE PACER, P.O. Box 234, College Park, Md. 20740. (301) 345-8141. Also avail. BRENNER CINE-SOUND, Wash., D.C. 20015.

\$2 MILLION in used film-recording-broadcast equipment. Send \$1, refundable, to EQUIPMENT LOCATOR, P. O. Box 99569, San Francisco, CA 94109.

TWO used 1200' Auricons and 12-120 Angenieux and mags. Will trade for NPR with Beala motor and four mags. Wendell (612) 373-4217, Athletic Department 208 BFAB, UNIV. OF MINNESOTA, Mpls., MN 55455.

16mm ARRI BL w/12-120 zoom, 2 mags, CP crystal, Barney, case plus extras, \$7900. Spare BL motor \$300. BL mag., \$600. New Ceco shoulder pod, \$90. (213) 465-3139 or 454-6255.

ARRI 16S, excellent condition, 12.5-75 Zeiss zoom, wild motor, matte box, filter kit, battery, "A" case; \$2500. Firm (414) 962-4037.

## STUDIO PRODUCTION EQUIP.

ARRI-S complete zoom package with extras, \$4,350. Arri-S basic zoom package, \$2,195. Canon sound Scoopic-200 outfit, \$2,500 DeBrie Super Parvo 35mm reflex, self-blimped studio outfit, loaded, \$6,900. Hulcher 70mm sequence camera, 2-lenses, accessories \$1,900. Eclair Camerette 16/35mm, motor, 3-lenses, 16mm and 35mm mags, \$1,900. Bolex Rex-5 Reflex, 16-100 auto zoom, \$1,500. NAC 40mm Anamorphic taking lens, Mitchell mount, \$1,900. Phillips Anamorphot 35mm projection lens, \$1,900. Monital 8-26mm f/1.8 C-mount zoom, \$500. Angenieux 12-120, Arri mount, \$875. Tandberg sync recorder, needs \$100 repair, as is \$300. Magnasync 16mm transfer recorder, \$1,495. Stencil Hofmann 35mm transfer recorder, \$1,195. Prestoseal 35mm hot splicer, rebuilt, \$695. B&H 16mm "J" color printer, \$2,900. Sonorex 16mm interlock projector, \$2,900. Siemens 16mm interlock projector, \$1,900. Ceco, Worrall type, 2-speed geared panhead, \$500. COMQUIP INC., 366 So. Maple Ave., Glen Rock, NJ 07452. (201) 444-3800.

LOCATION TRUCK. Darkroom; toilet; air conditioning; 110V powerplant; Mahogany plywood interior; workbench; camera, grip and electrical storage; complete kitchen. RON WALLER, 1212 N. Genesee, Hollywood, 90046 (213) 874-1718.

OXBERRY Model 1500 Optical Printer with 16/35 components, aerial image, automatic focus, automatic dissolve. For details telephone: (914) 235-2720. PHOTOGRAPHIC EQUIPMENT SERVICE, INC., 695 Main Street, New Rochelle, NY 10801.

20-120 ANGENIEUX 200m w/Arri & BNC mount, new, \$7,850. 25-250 Angenieux mind cond., \$3350. (213) 454-9903.

RICHMARK heavy-duty twin column 35mm fixed pin-registered Filmstrip-Slide stand with rackover, projected reticle and 13" x 13" cutout for back-lighting. Uses 55mm Micro-Nikkor or other Nikkor lenses \$4,900. 16mm pin-registered reflex cameras from \$1,500. Pin-registered filmstrip-Slide copy cameras for \$2,500. 35mm National Cine Equipment animation stand, \$5,500. Arriflex 16mm model "S" with 12-120mm zoom, \$2,650. UNIVERSITY SUPPLIERS, 225 West Ohio St., Chicago, Ill. 60610 (312) 467-6457.

AMEGA two A-1 dubbbers one A-2 recorder, control panel, selsyn interlocked, \$3,500. WANTED 70mm projector. WOOSTER PRODUCTIONS, 445 Bishop St., Atlanta, GA (404) 874-2252.

ARRIFLEX 16S/B Ser. #18708 w/12-120 Angenieux zoom w/bayonet mount, sunshade, Cine 60 battery belt, variable speed motor, 2 power cords, leather neck strap, Arri large case w/red velvet interior — ALL NEW CONDITION — Bought completely new Feb. '75 — Approx. 2,500 ft. run through camera. Lists \$8,093. Selling \$5,700. Call: AVANT (513) 837-5452.

OXBERRY Model 1000 optical printer with new style camera. Automatic dissolve and fade, edge numbering, 35mm excellent condition, \$14,000. PHOTOGRAPHIC EQUIPMENT SERVICE, INC., 695 Main Street, New Rochelle, NY 10801 (914) 235-2720.

ECLAIR ACL 400' magazines brand new 30% off list. FRED SHELBY, Box 94-165, Richmond, BC Canada (604) 278-0787.

NAGRA III & Cine Specials, lens, magazines, sync motors, \$1850. (213) 892-6737.

16mm PRODUCTION EQUIPMENT FOR SALE! Used but excellent condition. Cameras, lenses, accessories. Tripods, editing, lighting, sound gear. Projectors, animation stand, etc. Call (612) 854-8036 for complete list.

PALMER PIA magnetic film transport and interlock recorder with B and H adapter kit. MCC, 21 South 12th St., Akron, PA 17501. Att: Cal Britsch (717) 859-1151 (ext. 214).

MITCHELL NC blimp 35mm, camera, lens magazines, dolly, gearhead, sync motors, etc., \$4900. (213) 892-6737.

RATES: Ads set in lightface type 40¢ per word. Minimum ad, \$4.00. Text set in lightface capital letters (except 1st word and advertiser's name) 50¢ per word. Modified display format (text set in boldface type, capitals or upper-and-lower

case) \$4.00 per line. Send copy with remittance to cover payment to Editorial Office, American Cinematographer, P.O. Box 2230, Hollywood, 28, Calif. Forms close 1st of month preceding date of issue.



## STUDIO PRODUCTION EQUIP.

NEW CP-16R Reflex, with or without Crystalsound amplifier, 3XL-AZ record head, lens. Call Ray Knight for special low price ATLANTA FILM EQUIPMENT RENTALS. (404) 325-3676.

MITCHELL high speed with motor, 1000' magazine, controls, \$785. Cinerama high speed 300 fps, pin registered; Automax pin registered 35mm for animation, \$285. 70mm high speed Mitchell, Warwick, Milliken cameras; Akeley 35mm with motor, \$185. Mitchell high speed motors, Kodak Cine Special II outfit with magazines, lenses, accessories; Beaulieu 408ZM II with sound sync generator, accessories, \$685. Projectors: Bell & Howell #302, \$545. RCA, Graflex, \$175 up. Printers: Bell & Howell Model D&J, \$2500. Bell & Howell 2709 pin registered, with Acme reflex focusing, printing Ektar interlocked with Acme projector with 2 pin registered movements, Acme lamp house and variable power supply, complete with lathe bed and motors. 35mm Bell & Howell foot splicers, \$385. 16mm/8mm slitter, \$985. Kodak 1635 Video Analyzer, 16/35 Moviolas, \$1800. Colortran quartz lites, like new, save 50%, scoops, broads, set lites; Arri 35mm 480 ft. magazines, \$148. 35mm 400 ft. magazines, B&H \$10. Gun cameras, \$9.95. Camera mounts, \$35. New cine shoulder pods, \$30. Processors: EK positive negative 16/35 with sound applicators, 16mm ECO ME44, 16/35 B&W pos/neg/rev, mint, \$1800. Speedmaster super color densitometer, \$785. Ampex color VTR 1 inch, \$3685. Panasonic color camera, \$2750. Sony color VTR, 1 inch, \$1450. INDUSTRIAL PHOTOGRAPHIC EQUIPMENT COMPANY, 1032 North Orange Dr. Hollywood, CA 90038 (213) 462-1297.

MITCHELL 16mm camera with blimp, sync motors, etc. \$2750. (213) 892-6737.

16 ARRI S high speed (80 fps), 12-120 Angenieux zoom, 3-400' magazines, 2 torque motors, cases, etc. \$3850. (213) 454-9903.

CINE Special owners, "C" mount lens plates installed on either model Cine Special camera for zoom lens operation, \$150. Camera main spring wind motors, \$50. SPORTSREEL, 1201 Washington, Albany, CA 94706 (415) 526-9292.

ARRIFLEX 16SB. 12-120 Angenieux, 400' magazine, Torque motor, wild motor. Mint condition. \$4950. (206) 523-4646.

## SITUATIONS WANTED

EUROPEAN/AMERICAN educated black female with extensive management/organizational skills. Presently administering federal program over \$6,000,000 seeking position with legitimate producer or production company. Wide travel experience with business and secretarial skills. References and resume available upon request. Serious inquiries only. Call B. NORD (916) 422-3820 (Office) or (916) 421-8519.

## SITUATIONS AVAILABLE

MINNEAPOLIS based film company needs experienced people in all areas to work on production of major motion picture. Also need good post-production people; organization, editing, conforming, send resumes, reels, etc. to: THE FILM FACTORY, 318 West Franklin Avenue, Minneapolis, Minn. 55404, or call (612) 871-2811

DIRECTOR of Film Services at large northeastern public television station. Must have at least five years experience as a filmmaker. Prior administrative experience is also required. Must be knowledgeable in all areas of television film production. Will be responsible for creative aspects of photographic and film making activities. Minimum starting salary \$16,500. We are an equal opportunity employer.

VICTOR DUNCAN, INC. has opening for camera repair technician. Must have practical background in mechanics; electronics; optics. Call ROBERT BURRELL. (313) 371-4920.

## FILM SOUND MIXER/ENGINEER

Complete Boston commercial film sound studio seeks experienced career person to take over while staff mixer goes on holiday. Operations include recording, transfer, screening, and 4 track 16/35 mixing with rollback. Please submit resume to: THE CODY CO., 24 Dane St., Somerville, MA 02143.

COMQUIP INC. has opening for inside sales-person with full knowledge of 16mm, 35mm and video production equipment. Handle telephone sales, mailorder, order flow, typing, office routine, the works. Earnings commensurate. COMQUIP INC., 366 S. Maple Ave., Glen Rock, NJ 07452. (201) 444-3800.

## WANTED

WANTED motion picture producer, director, agent, actor, etc. Must be able to speak Russian or Ukrainian. I want to enlist your expertise in producing motion pictures from my ideas. Write #1792, AMERICAN CINEMATOGRAPHER.

MAURER optical sound equipment: Model 10 transport, schematics for amps and GNR units (latest) 1200 foot magazine, rebuilt type G Galvo. KENNETH deGRUCHY, 281 Eastbrook Rd., Ridgewood, NJ 07450.

16mm COLOR FILMS wanted for national educational distribution. For further information contact: Vaughn Obern, RAMSGATE FILMS, 704 Santa Monica Blvd., Santa Monica, CA 90401.

WANTED: Reduction printer DePue 35/16mm. Will consider machines in any condition. Supply photo, complete technical description and price for immediate reply. ALAN GORDON ENTERPRISES INC., Attn: Bert Carlson, 1430 N. Cahuenga Blvd., Hollywood, CA 90028 (213) 466-3561.

WANTED Nagra or other sync recorders plus accessories, immediate cash, no hassle. RICHIE (212) RA 6-6832.

WANTED Bell & Howell 35mm motion picture camera with I-shuttle (moving pin) or I-shuttle alone. BROWN WHOLESALE COMPANY, Box 12597, Philadelphia, PA 19151.

WANTED: Professional motion picture equipment, 16mm and 35mm cameras, lenses, lights, sound, editing, projection, lab. For outright purchase or consignment. Supply complete technical description and price for immediate reply. Ted Lane, ALAN GORDON ENTERPRISES INC., 1430 Cahuenga, Hollywood, CA 90028. (213) 466-3561.

WANTED: EVERYTHING to completely equip production unit. Sync and wild 16mm cameras, tripods, lights, recorder, dubber or sync Siemens, editing, etc. Whatever you have for sale we probably need. (206) 523-4646.

FILM STOCK, 16/35mm will consider all types. Sealed, opened and short ends. RAFIQUE, 814 Broadway, NY 10003. (212) 228-2757.

EDGE CODING machine, Hollywood Film Company Model 16-16; 16mm, 16 frame spacing. Describe and price for our immediate reply. (617) 776-2667. Write: Box 49, Cambridge, MA 02138.

## SERVICES AVAILABLE

ENERGY PRODUCTIONS, Mendocino coast, offers complete production services in 16mm and 35mm, Kem horizontal editing, crystal sync shooting, special effects, animation and location services. Library of nature and wildlife. P.O. Box 152 Elk, CA 95432. (707) 877-3327 or 877-3244.

16mm projection service: your film shown anywhere in the Los Angeles area. All equipment and operator furnished. Call: (213) 732-1636.

MEYER-FILMS 16mm in the Great Northwest. 2050 NW 59th #2, Seattle, WA 98107. (206) 782-5326.

ATTENTION film producers, ad agencies & PR directors. When you need film shot on the west coast, why pay the high cost of air travel for your film crew. We are equipped to go on location on short notice, on a daily or longer basis. CALIF. NEWS FILM SERVICE, 608 E. Violeta Dr., Alhambra, CA 91801 (213) 282-4442.

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## RENTALS

KEM rentals in Hollywood. HORIZONTAL EDITING STUDIOS (213) 461-4643.

STEENBECK RENTALS delivered to your premises KLM West coast (213) 931-6151, East coast (301) 299-7259.

20-120 Angenieux Zoom w/T Arri and BNC mounts, J-4 motor. All supports for BNC, Arri BL, 2C and hard front, 85, 85N3, and 85N6 filters for rent \$150 a week or \$500 a month. Everything is new. Call: (201) 261-2234 or write S. MAVRIDES, 785 Seventh Avenue, River Edge, NJ 07661.

NAGRAS for rent, Nagra IV-L, QSLI, crystal \$85 a week, \$225 a month. Nagra III, with crystal, \$50 a week, \$150 a month — call (212) 548-1439.

PRODUCTION Equipment at sensible prices... for example \$15.00 per day for Nagra III recorder or 12-120 Angenieux zoom lens. The rest of our prices are just as low. For more information on rentals, sales or service write: CINELEASE, INC. 209B Old Durham Road, Killingworth, Conn. 06417 or call (203) 663-2222.

## SUPPLIES

IN STOCK, 200 foot rolls 16mm K450 Kodachrome II daylight. Expires 7/75. Refrigerated. \$12.50 each plus tax & shipping. BankAmericard-Master Charge. PAN PACIFIC CAMERA, 646 N. La Brea, Los Angeles, CA 90036.

RAW STOCK new 7254 400'. At only \$27.00 per roll. Send for price list on all our 16 and 35mm bargains. CINE FILM EXCHANGE, 855 6th Ave., New York, NY 10001. (212) 695-6644.

BLACK LEADER, 16mm, fresh stock processed to 4.0+, guaranteed, \$.024/ft. min. order 2000 ft. Complete lab services and supplies, 16mm & Super 8, LEO DINER FILMS, INC. 350 Golden Gate Ave., San Francisco, CA 94102 (415) 775-3664.

## MISCELLANEOUS

STOLEN: Nagra III, serial 657230; Vega Wireless transmitter 550389, receiver 560389B. Reward. CINEMATRONICS (305) 565-2252.

## FILM FINANCING

The Art of Raising Money for Motion Picture Production. 12 Chapters detailing the dozen ways of securing production monies. "The book the film community has been waiting for." LIMITED EDITION Send \$20.00 to: FILM FINANCING, Suite 101, 1450 NE 123rd St., North Miami, FL 33161.

EASY, fast way to estimate cost of producing 16mm films. New pre-calculated cost system saves hours of time, provides complete, accurate estimates. For details, send \$1.00 to FILM-ARTS, 4704 Normandy, Memphis, TN. 38117.

## A FILM STUDENT LEARNS

Continued from Page 921

*constantly changing words, even bits of action.*

QUESTION: WHAT ADVICE WOULD YOU GIVE A CINEMA STUDENT WHO WANTS TO BE IN THE HOLLYWOOD INDUSTRY?

LANG: *Competition is so keen now, because of all the schools across the country that are graduating Cinema students. I don't know where they're all going to find work. The Industry just can't support that many new people each year. Of course, all the kids want to be directors!*

QUESTION: NOT ME. I WANT TO BE A CAMERAMAN.

LANG: *Well, in getting into this business you better cultivate the right people to get an opening. Then prove you can do the job. You have to have the ability to get the job. Being in the right place at the right time and a little luck, which will help you in anything. But you can help your luck by cultivating the right people. Be interesting; be a salesman on the fact that you can do something worthwhile. Once you're in be sure you can perform because if you can't you're dead and that will throw you back for years.*

*A lot of these Cinema students are going to have to switch to another field. There just aren't that many jobs. Don't forget there is a lot more room for dentists, for instance, than photographers. But the film business is a lot more fun than drilling away at teeth.*



Before you buy a professional 16mm sound-on-film ciné camera check out the Frezzolini LW-16 with an Angénieux 9.5-57mm f/1.6 zoom lens. Film at ambient light levels. At 18 inches from the front glass zoom from a full "head-and-shoulder" shot right to an "eye".

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