

American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

JANUARY 1974/ONE DOLLAR



**THE FILMING OF
"JOURNEY TO
THE OUTER LIMITS"**

The ASACA ACC 5000 Color TV Camera*



LOCATION VIDEO SERVICES, INC. (415) 673-6008

Mr. Carl Porcello, President
F & B/Ceco
Video Products Division
7051 Santa Monica Blvd.
Hollywood, Ca. 90038

Dear Carl;

True "film-style" video tape production has finally come of age! Our new Asaca ACC-5000, which we recently purchased from you, has opened a whole new world of location video production, heretofore impossible with any traditional video systems which have to be connected to a remote truck through a cable.

We have been able to airship the camera as luggage, set up completely portable using battery power, and shoot video for the first time as completely mobile as documentary film, hour after hour.

When teamed with our VR-3000 high-band color video recorder, we can deliver instant rushes to clients in the most inaccessible locations and provide broadcast quality 2" video tape with a crew as small as two people.

On a recent shoot in the Astrodome in Houston, Texas, the Asaca performed under very adverse, crowded conditions and heavy use; it proved that a color video camera can stand shoulder to shoulder with any film set-up.

Keep up the good work Carl. The days of "compact remote truck" type video production are numbered.

Sincerely,

Ed Dudkowski, President
Location Video Services, Inc.
San Francisco

ED:bp

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* The ASACA Camera makes Color TV programming a reality for Broadcast, Cable, Educational, Medical and Industrial applications.

* Ultra-compact camera head weighs 11½ pounds.

* The ASACA ACC 5000 sells for \$32,000.00.

* Write or call for free brochure today!

There's only two ways to improve the SS III.

1. Cut the price 2. Add DC

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Now you can get a complete newsreel package for \$3295.

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SSIII AC

Even at our original price, the SSIII AC was one of the best values for the news/documentary/educational cameraman. But now we've actually improved the camera and lowered the price! There's a new main drive system, a non-ratcheting footage counter and, by popular request, a drop-down door. Plus improved manufacturing techniques that make this incredibly low price possible!

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It's new. It's three pounds lighter and noticeably quieter than any comparable camera in the field today. It will operate with greater torque efficiency and accuracy at temperatures from sub-zero to 150° F. And a 12V battery just slightly larger than a cigarette pack will run 2800 feet on a single charge.

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I—SSIIIAC Magnesium Camera, 400-ft. Magnesium Magazine, Deluxe Carrying Case and Angenieux 17-68mm f2.2 zoom with zoom finder—\$3295 complete.

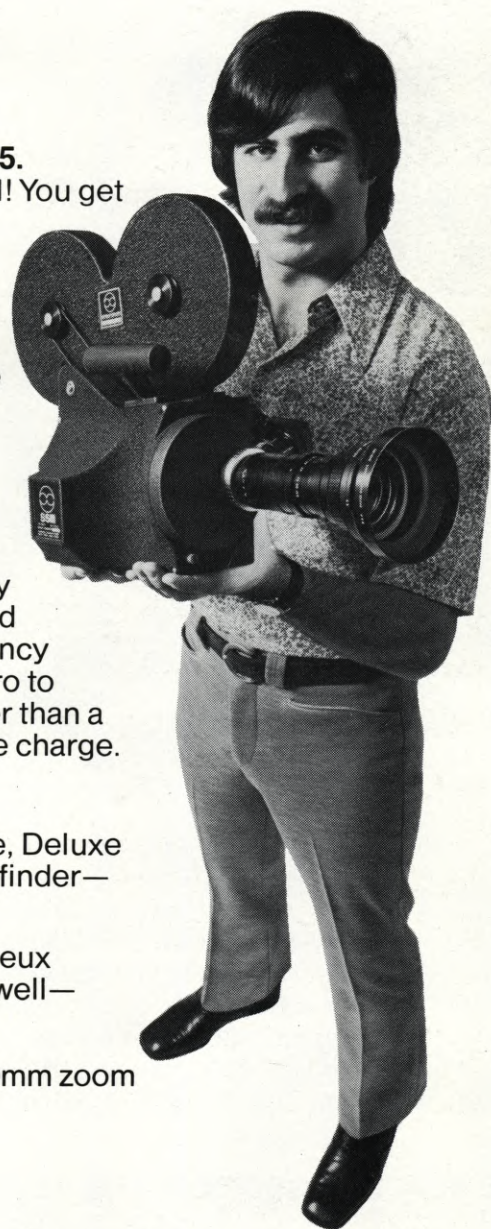
II—SSIIIAC as above, but also comes with detachable Angenieux Retro Zoom Adapter that converts lens to 12.5-50mm f2.2 as well—\$3395 complete.

III—SSIIIAC as in Package I, except lens is Angenieux 12-120mm zoom with zoom finder—\$3895 complete.

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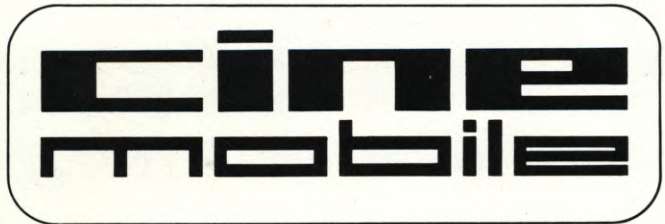



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• FEATURE ARTICLES

- 39 Through Hell and High Snow Drifts to Film "JOURNEY TO THE OUTER LIMITS"
~~42~~ Filming Under a Rain of Fire for "DAYS OF DESTRUCTION" page transposed to 75. Story continued on page 43.
45 SMPTE Announces Awards and Fellowships
48 The Ninth Annual Chicago International Film Festival
56 Kodak Introduces Super-8 Single-System Sound Camera and Other Professional Super-8 Products
60 A Sneak Preview of the New Elemack "Mantis" Telescopic Boom Crab Dolly
64 ASACA ACC-5000 Portable Color Television Camera System
68 The 14th Annual IFPA Conference and "Cindy" Awards Presentation
74 Filming the Work of Harry Partch or Get to Know Your Genius Color transposed to page 42.
78 Creating Superimposed Color Images for "THE BALANCE SHEET"
82 A Series of New Cold Lights Useful for Medical and Other Types of Photography

• DEPARTMENTS

- 8 What's New
12 Questions and Answers
16 Cinema Workshop
24 The Book Shelf

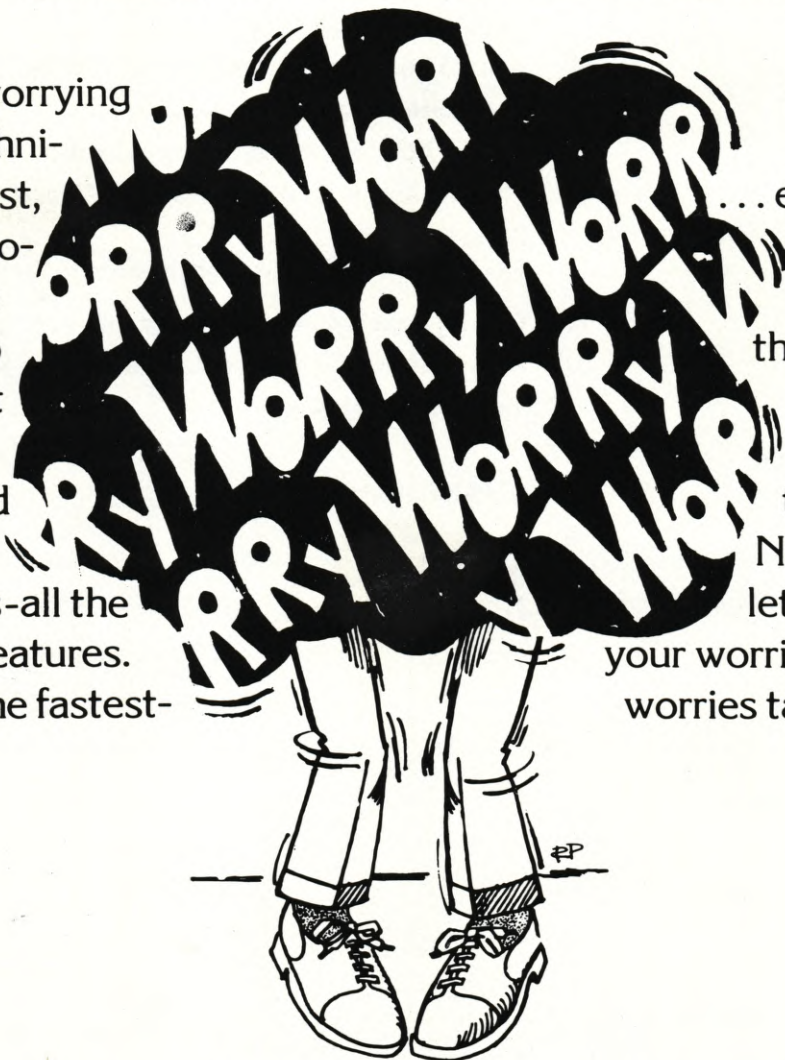
ON THE COVER: An instructor of the Colorado Outward Bound School straightens his lines while rappelling down the face of a cliff during a practice climb at Lake City, Colorado. This is part of a sequence from "JOURNEY TO THE OUTER LIMITS", a National Geographic Society TV Special which will be telecast over the ABC Television Network, 8:00-9:00 P.M. Eastern Standard Time on January 10, 1974.

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.

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THE PRIME INGREDIENT IN INNOVATIVE EQUIPMENT DESIGN— CREATIVE LISTENING...

TV-newsfilm and documentary cameramen had been clamoring for years for a truly lightweight and extremely compact 16mm single/double system sound camera. A camera well balanced for "on-the-shoulder" filming. A reliable, no nonsense kind of camera—quick and easy to operate. Our Cinema Products engineers listened well. And designed the CP-16 and CP-16/A camera system.

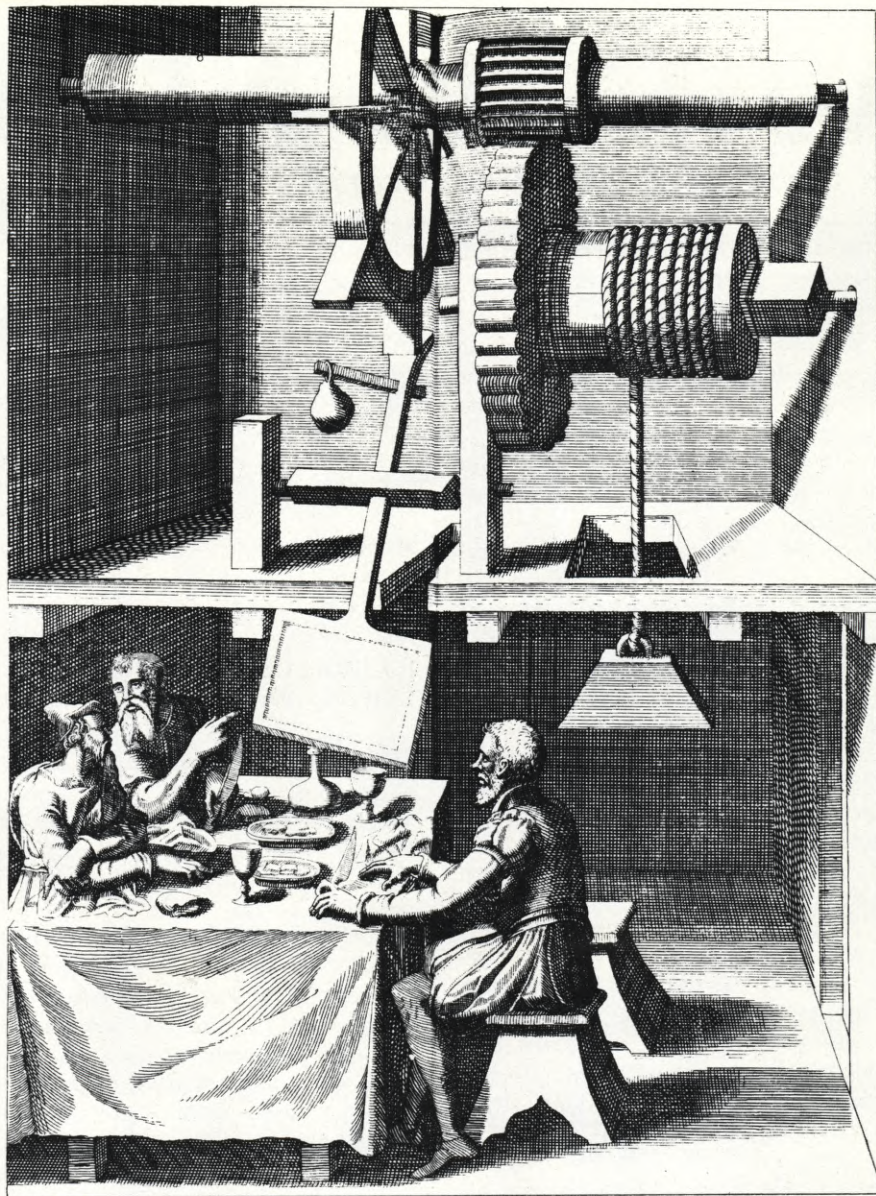
System CP-16 innovative engineering. Far beyond the reduction of overall camera weight, we have pioneered and introduced a host of innovative features that have been enthusiastically acclaimed the world over. Such as the compact, extremely efficient crystal-controlled DC servo-motor. The built-in Crys-tasound amplifier. The compact, lightweight plug-in battery which powers the entire camera system. The magazine snap latch, for instant removal or attaching of magazines. And many more!

And speaking of magazines, we have just introduced our PLC-4 ultra lightweight 400 ft. magazine—the newest thing in 16mm magazines in a generation! Made of glass-filled Lexan,[®] the PLC-4 eliminates film spotting caused by particles of magnesium. And the magazine doors are hinged to provide quick access for loading and unloading. The PLC-4 is, of course, interchangeable with all 16mm Mitchell-type magazines.



existing design, and build to improve on it. And we subject everything we design to an ongoing process of evaluation and validation based on inputs from the field. Meticulously paying attention to every detail.

Insurance against obsolescence. The excellence of our original System CP-16 design is such that it permits the integration of most of our latest innovative modifications (such as the magazine snap latch



Creative listening. At Cinema Products we are masters of the art. We never rest on our laurels. We still listen. And we innovate. We accept what is valid in

protective overhang) into all CP-16 and CP-16/A camera models—even the earliest ones. And at no additional charge.

Largest U.S. camera manufacturer. The resounding success of our CP-16 and CP-16/A cameras has well established us as the largest U.S. manufacturer of professional motion picture cameras. It also gave rise to a spate of imitations. Though imitation may be the sincerest flattery, we are not impressed. Imitation is not innovation.

Creative listening *and* innovative engineering. The secret of our success in designing and manufacturing the most sought-after, rugged and versatile TV-newsfilm/documentary cameras—the CP-16 and CP-16/A.

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WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE

CHICAGO PRODUCER INTRODUCES ADVANCED VIDEO-TO-FILM TRANSFER SERVICE

CHROMATRAN I, a new technique for quality videotape-to-film transfer has been introduced by Video Tran Incorporated, Chicago, Illinois.

CHROMATRAN I, a proprietary service technology of Video Tran Inc., produces a film product from videotape which the company regards as comparable to original film at a price described as only slightly higher than that of kinescope.

According to Video Tran engineers, 16mm film processed by CHROMATRAN I features uniform color resolution and excellent fidelity, register and contrast. CHROMATRAN I film has no electronic distortion typical of most tape-to-film transfers, nor any shutter-bar effect common to the kinescope process.

According to Video Tran president Jack Cook, the CHROMATRAN I process requires less processing time than other transfer methods, enabling the service to be available at a lower cost and faster turn-around time. Answer prints are available in three days; release prints in five.

CHROMATRAN I is the first advanced tape-to-film transfer service offered by a Midwest company. CHROMATRAN I, unlike other current transfer systems, requires no distortion of original tape quality to transfer video information to film. The better the tape, say Video Tran engineers, the better the finished film product.

The CHROMATRAN I process is expected to lessen reluctance of many film producers, advertising agencies, broadcast production staffs, industrial and educational institutions to use videotape as an original medium and then transfer the recorded information to film for distribution.

"In the last few years," Jack Cook said, "the popularity of videotape as an original recording medium in television and commercial production has skyrocketed. Videotape has its advantages in on-scene editing, special effects editing, production time and so on. Yet, while the medium is used more and more, mass distribution of videotape has always been a problem. Videotape players and broadcast systems are non-standard, while 16mm equipment is available worldwide. Hence, the need for

high-quality tape-to-film transfers."

Cook said that in the last few years several theatrical productions and full length motion pictures have been recorded on videotape and later transferred for film distribution at substantial savings in overall production costs.

Additional information, prices and demonstration reels are available from Video Tran Incorporated, 211 E. Grand Avenue, Chicago, Illinois 60611, phone number 312-329-9890.

HYDROFLUID "SUPER MINI" TRIPOD AVAILABLE FROM HERVIC

Hervic Corporation/Cinema Beaulieu, exclusive U.S. distributors of the Hervic Hydrofluid Jr. tripod... very proudly announces the availability of the new Hervic "Super Mini" Hydrofluid tripod.

Specifically designed for cameras weighing up to 20 lbs., the Hervic "Super Mini" is manufactured by National Cine Equipment exclusively for distribution by Hervic Corporation and features NCE's patented, jerk-free Hydrofluid movement. *Ultra compact* (only 66" when fully extended) and *ultra light* (only 4½ lbs. head only, 14½ lbs. complete unit), the "Super Mini" is a very portable "package" ideally suited for all types of location work.

Additional "Super Mini" features include:

- ★ Quick-adjust ball leveling
- ★ Pans 360°; Tilts ±90° from center
- ★ Positive Pan and Tilt locks
- ★ Operates from -60 to 350°F
- ★ Adjustable length, adjustable angle handle

Price of the Hervic "Super Mini" tripod is \$479.95. Price of the Hervic "Super Mini" head only is \$379.95.

For further information, write to Hervic Corporation/Cinema Beaulieu, 14225 Ventura Boulevard, Sherman Oaks, California 91403.

NEW PORTABLE HIGH INTENSITY INFRARED LIGHT SOURCE ENHANCES SILICON DIODE ARRAY VIDICON TV CAMERAS FOR USE IN LOW-LIGHT-LEVEL APPLICATIONS

A new High Intensity Infrared Light Source, featuring an infrared filter and 12-volt DC 85-watt tungsten-halogen light source, is now available from Mox-

on Inc./CTS Division for night-time use on silicon diode array vidicon TV cameras.

Designated the Model CTSB-100, the lightweight unit is designed for easy mounting on any portable TV camera.

The compact light source, designed for 12-volt DC operation from car battery or battery pack, provides 40,000 candlepower at 12.8 volts, DC, or 20,000 C.P. at 10.5 volts, DC. The optional battery pack may be recharged in one hour from 12-volt DC auto systems or from a 115- or 220-volt AC battery charger. It is capable of operating up to 100 hours between rechargings.

In operation the unit produces less than 0.001% visible light, so it offers almost complete security. The passband of operation is 800-950 nanometers with greater than 85% transmission.

Physically, the night-light source has a matte black finish with a weight of 2½ pounds, including power cord.

Direct inquiries to: Mr. Marshall Wise, Gen. Mgr.; Moxon Inc./CTS Division; 2222 Michelson Drive; Irvine, California 92664; Phone: (714) 833-2000.

NEW NIKON-TO-ECLAIR LENS ADAPTER BRINGS TWO PROFESSIONALS TOGETHER

According to a recent announcement from Eclair Corporation of America, it's easier than ever to use one of the world's best lens systems with one of the world's most popular professional 16mm cameras. It's all made possible by a precision-machined adapter that mates all bayonet-mount Nikon and Nikkor lenses to Eclair's rugged standard mount. Dubbed the TESNI, the Nikon-to-Eclair adapter assures a fast, positive, secure connection in less than a second, and can be used with heavy gloves.

The TESNI adapter, available for immediate delivery, is list-priced at \$235. For complete information, contact Eclair Corporation of America, 62 West 45th Street, New York, N.Y. 10036, Telephone (212) 869-0490, or 7262 Melrose Avenue, Los Angeles, California 90026, Telephone (213) 933-7182.

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AMERICAN CINEMATOGRAPHER

Try a CP-16 reflex for yourself and see what we mean. Available in both reflex and non-reflex versions, for single and double-system operation, it provides unparalleled speed and freedom of action for the television news and documentary filmmaker. From its lightweight, rugged design to its new Lexan* magazine, CP-16 is a camera designed by cameramen for cameramen. But we don't expect you to buy a camera on words. After your eyes take in CP-16's features, bring the rest of you to us, and try one for yourself. Or write for further information. Once you do, we think you'll join the many cameramen who film their "16" on CP-16.

1. Lightweight, self-contained design, for maximum freedom of movement with minimum effort.

2. Self-contained plug-in rechargeable battery shoots approximately 4000 ft. of film. Camera comes with "spare" that fits in shirt-pocket, plus 2 matching chargers.

3. Crystal-controlled low-drain motor with built-in integrated circuit accurate to 15 PPM over 0-140°F.

4. Sync speeds: 24 or 25 fps. crystal; 12-16-20-28-32 and 36 fps. variable.

5. Miniaturized BNCR-type professional lens mount, with positive locking—Arri adapter available.

6. Versatile viewfinder, with end-of-film warning indicator, battery condition indicator and out-of-sync "blink" light visible from eyepiece.

7. Fully automatic and semi-automatic ("matched needle") exposure systems.

8. Removable hand grip with built-in start switch. Also available with built-in J-5 speed control (thumb-activated direction and proportional speed control).

9. Accepts 400' or 1200' Mitchell-type magazines.

10. Quick-release magazine latch.

11. Newly-designed Cinema Products PLC-4 lightweight glass-filled Lexan* 400' magazine.

12. Prewired for Auricon-type recording unit.

13. Built-in filter slot.

14. Operates with speed and ease either hand-held on shoulder, or tripod-mounted.

15. Precision-built, integral crystasound amplifier works from same battery that drives camera.

16. Silent operation, for uninhibited filming.

17. All accessories interchangeable between reflex and non-reflex models.

18. All-American-made.

19. Unconditionally guaranteed to meet all specifications.

20. Available with Cinema Products' standard or "orientable" viewfinder option—choice of two "orientable" reflex finders with eyepiece located 1" or 4" behind film plane (both include dioptic adjustment).

21. Works with all popular lenses having compatible mounts, including Canon Macrozoom 12-120mm lens, shown.

22. Widest range of accessories.

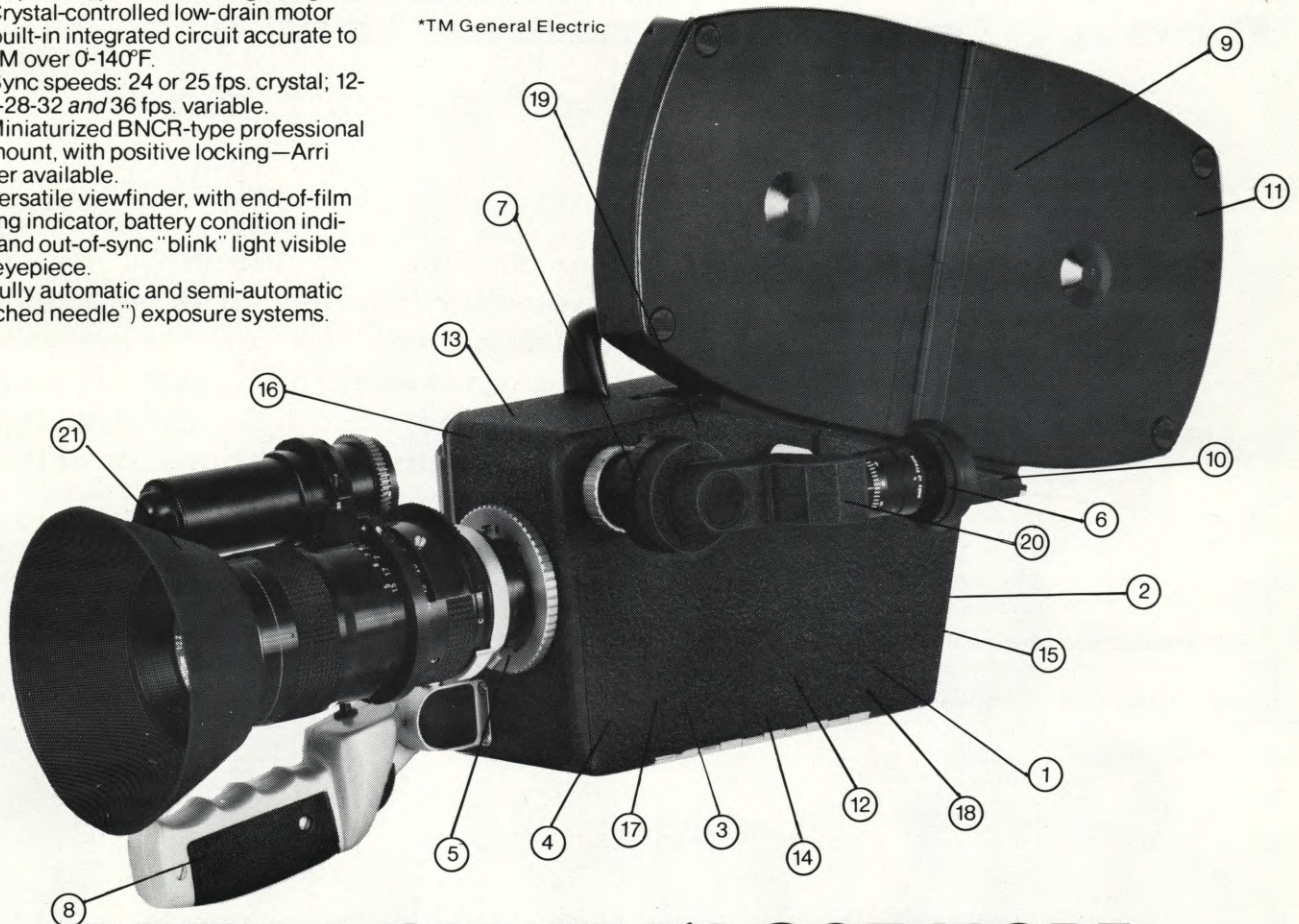
23. Non-reflex version also available.

*For information on availability of standard and optional features below, please contact us.

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Troubled by distracting camera

noise when shooting subjects who should not be distracted from what they are doing?

Troubled by cameras that are

always in need of repair and adjustment?

If so, switch to Auricon, the only 16mm Camera that guarantees you protection against all these troubles, because it is so well designed! The Auricon is a superb picture-taking Camera, yet silent in operation, so that at small extra cost for the Sound Equipment, it can even record Optical or Filmagnetic sound in addition to shooting your professional pictures.

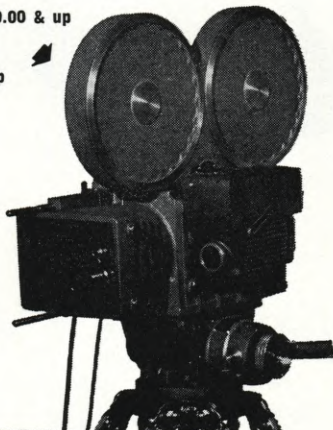


AURICON SUPER-1200, takes 1200 ft. Runs 33 min. \$6425.00 & up

AURICON "PRO-600 SPECIAL," takes 400 ft. Runs 11 min. \$1620.00 & up

AURICON PRO-600, takes 600 ft. Runs 16½ min. \$1820.00 & up

CINE-VOICE II, takes 100 ft. Runs 2¾ min. \$1180.00 & up



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GUARANTEE
All Auricon Equipment is sold with a 30-day money back Guarantee and a 1 year Service Warranty. You must be satisfied!

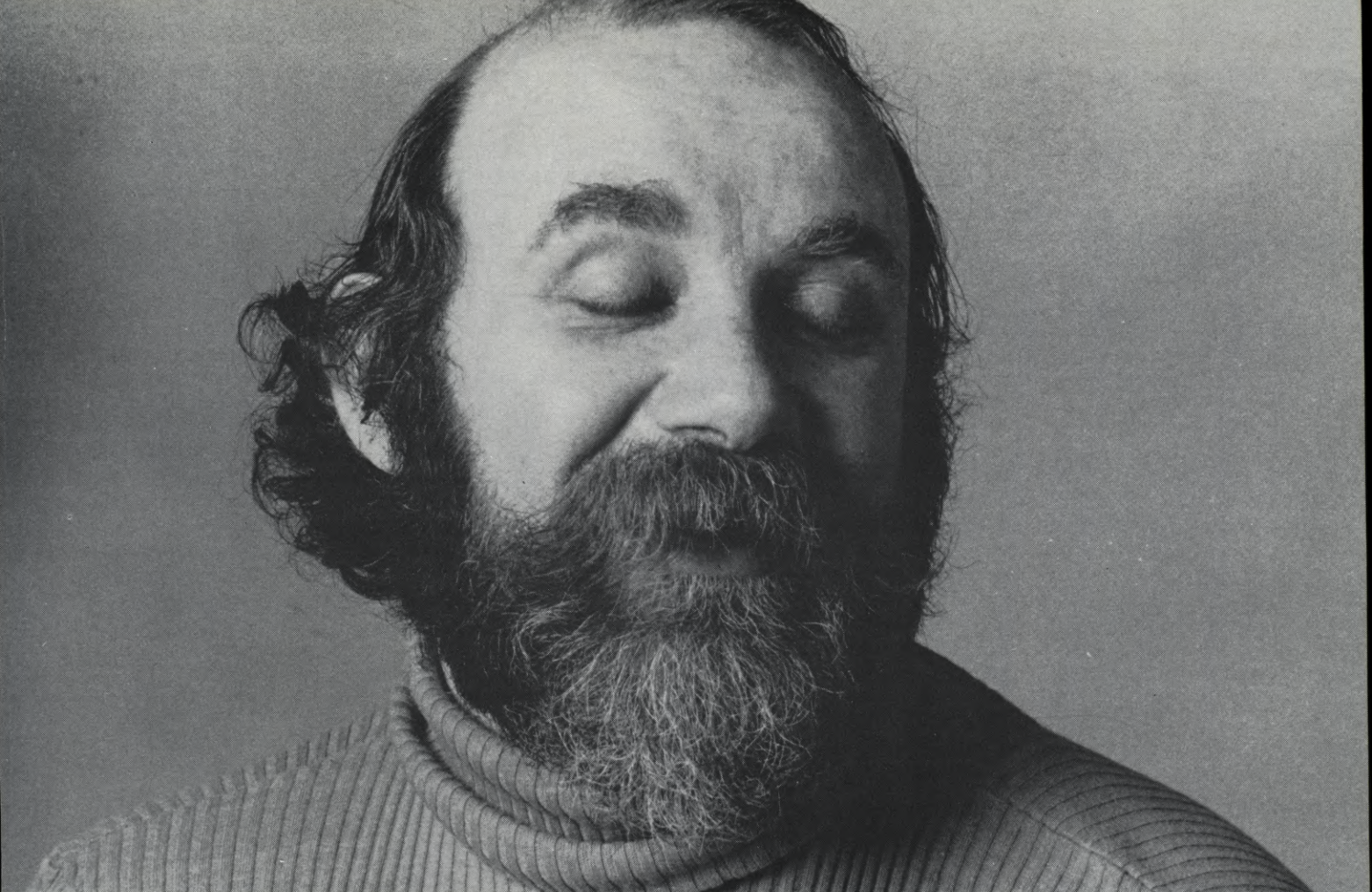
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MANUFACTURERS OF PROFESSIONAL
16MM CAMERAS SINCE 1931



"Sometimes I wish I wasn't Sy Cane, 'cause I'd love to have me as a friend."

Especially now. I've just become the exclusive East Coast Distributor for the most innovative 16mm single/double system sound camera on the market. The Wilcam W-2+4 Reflex

And that makes me a good guy to know.

The Wilcam W-2+4 is the only pure reflex camera in its class. It has a light meter, VU meter and footage counter all built right into the viewfinder.

Since gears are noisy, the Wilcam has a belt drive instead. A rotating mirror that always stops closed. A fingertip controlled 4-position internal filter wheel. And a detachable 2-channel AGC amplifier that becomes an integral part of the camera, making cables obsolete. The only thing lighter than the magnesium body is the price; just about what you'd pay for a lot less camera.

If you'd like some literature on the new Wilcam just call and ask for Sy Cane, your friendly East Coast monopoly.

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osays

A new method
for controlling
daylight on
location
interiors

Daylight is an excellent light source. But if you happen to be shooting inside a room and the daylight is belting at your camera, it is likely to bring with it shadows, glare, excess illumination and the wrong color temperature. In addition, it forces shadow locations and light directions that may not be desirable.

Many cameramen now overcome these liabilities by using a technique that is rapidly becoming the standard among that hardy band who shoot commercials. They cover all the windows in a room, from the outside, with Rolux. Then, they pour all the light they need through the Rolux into the room.

Rolux is the densest diffuser Rosco makes. Because it's so dense it effectively diffuses **anything**, including 62 zillion quartz lights. So you can get all the light you need from outside the room.

And the light is always soft, shadow-free and the right color temperature. In addition, you don't need light stands inside, so your camera can roam much more freely.

This method allows you to treat a location interior with strong, incident daylight as though it were a studio interior.

The same technique works just as well for in-studio shooting. Rolux on the windows, light sources outside the set. Extra benefit: no need to worry about what the camera may accidentally see outside the window. Rolux blocks all that from view.

ROSCO

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Cal.: 11420 Ventura Blvd.
Studio City, Cal. 91604 ♦ Tel. (213) 980-0622
London: A.O. 3 Du Cane Court
Balham, London S.W. 17., ♦ Tel. 01-673-0368

QUESTIONS & ANSWERS

Conducted by CHARLES G. CLARKE, ASC.
and WALTER STRENGE, ASC.



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

Q I want to film an image, in slow motion, of fragments of glass coming together to form a light bulb. The bulb is lit against a black setting. How can this be done?

A We suggest you compose a lighted bulb in the upper part of your frame and photograph it at least 64 fps slow motion. As the camera is running, burst the bulb by firing an air gun pellet at it. The film can then be inverted end-for-end in your projector, thus producing reverse action, creating the effect of glass fragments coming together to form a whole, lighted bulb.

It will be necessary to use a camera having a *full* aperture. Not one with an aperture which allows space on one side for a sound track, for in the last case, the sound track area would appear on your screen when the film is reversed. You should use back lights to illuminate the area where the glass is flying about in order to see it against a black background.

Q I exposed 16mm Ektachrome film outdoors in below-freezing temperatures and it resulted in under-exposure. Would the underexposure be due to the effect of low temperatures on the film, rather than a wrong meter reading? If low temperature was the cause, is there a formula to be followed in making allowances for this when computing exposure?

A Data available from a single test made on the effect of low temperatures on emulsion speed, revealed a speed loss of approximately 1/3 lens stop at 0°F temperature and about 1/2 stop at minus 30°F. The data resulting from this test should be used only as a guide for a specific test whenever low temperature exposure conditions are anticipated. Since the slight loss of speed resulting from low temperature is of a smaller order of magnitude than the exposure latitude safety margin for this film, one would hardly suspect low temperature as the only reason for the severe underexposure results mentioned above. It would be advisable to have your exposure meter calibrated and to give careful consideration to the method of using the meter to insure that the

scenes photographed were measured correctly for scene brightness.

Q To complete a film on a major construction project, I plan to utilize some color slides for scenes where no motion picture footage is available. I plan to photograph the slides by means of back-projection, using a fine grain translucent screen about 2 x 3" in size. 1) Is this size screen large enough? And may I pan or zoom? 2) The slides are Kodachrome. I will re-photograph them with either Kodachrome A or Ektachrome Commercial. How do I figure exposure? 3) What about color temperature?

A 1) Any size screen may be photographed, depending on the amount of light put out by your background projector. It is best not to pan on this screen, but you may zoom in directly on your center line. 2) Again the exposure will depend on the amount of light put out by your projector. A yellow flame carbon is recommended. Your exposure will also be governed by the screen size. The larger the screen, the greater amount of light will be required by the BG projector to balance with the amount of light on the foreground object. 3) The color temperature of your projector lamp should be 3200°

Q What should be the ratios of the fill, kicker and back-lights to the key light, and how are the ratios determined?

A Much depends upon the recording medium—film or TV, color or black-and-white, etc. Within the limits established by the recording medium, the ratio may be modified at the will of the director of photography to establish the desired mood. For example, a fast-moving comedy would most likely be shot with relatively high fill light—say, a ratio of 2-to-1 or 3-to-1. A tragic dramatic action, on the other hand, which might be enhanced by black shadows, etc., might call for a ratio of possibly 8-to-1. Invariably the intensities of the kicker and back lights relative to the key light are visually established by the director of photography to suit the mood or pictorial effect aimed for.

16mm cost too much!

**HOW
ABOUT
the
ECONOMY
of
SUPER 8
SOUND?**



BUDGET-ORIENTED FILM MAKERS MIGHT PROFITABLY CONSIDER THE MERITS OF KODAK'S NEW EKTASOUND 130 & 140 SUPER 8 SOUND MOVIE SYSTEMS: FAST F1.2 EKTAR LENS, DOUBLE-VANE CDS EXPOSURE CONTROL, 230° SHUTTER OPENING, AND EXTERNAL VIEWFINDER AND EXPOSURE SYSTEM WHICH DO NOT TAKE LIGHT FROM THE LENS.

A highly sophisticated sound recording system including amplifier with automatic gain control allows the cameras to adjust automatically for existing sound in much the same manner as they adjust for existing light.

Magnetic pre-stripped cartridges • omni direction mike • 12' cord • mike stand • wrist strap

EKTASOUND 235 & 245 SUPER 8 PROJECTORS. Fine wood cabinets • easy channel threading • H-pattern control for: off/thread, project, fast forward, still or rewind; shows sound or silent Super 8, 400' reel.

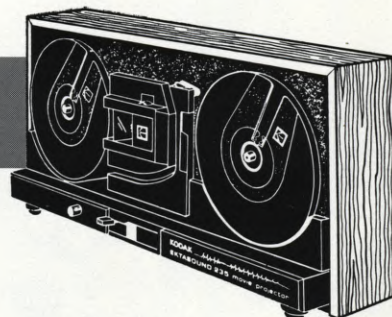
The EKTASOUND 130 Super 8 Movie Camera with f/1.2 Ektar lens

THE EKTASOUND 140 Super 8 Movie Camera with 9-21 mm manual zoom lens & high aperture coupled sportsfinder

The EKTASOUND 235 Super 8 Movie Projector with 22 mm f/1.5 lens

The EKTASOUND 245 Super 8 Movie Projector Same lens as above plus: sound recording feature can add sound on sound, erase pre-recorded material

Both models available with 15-30 mm f/1.3 zoom lens



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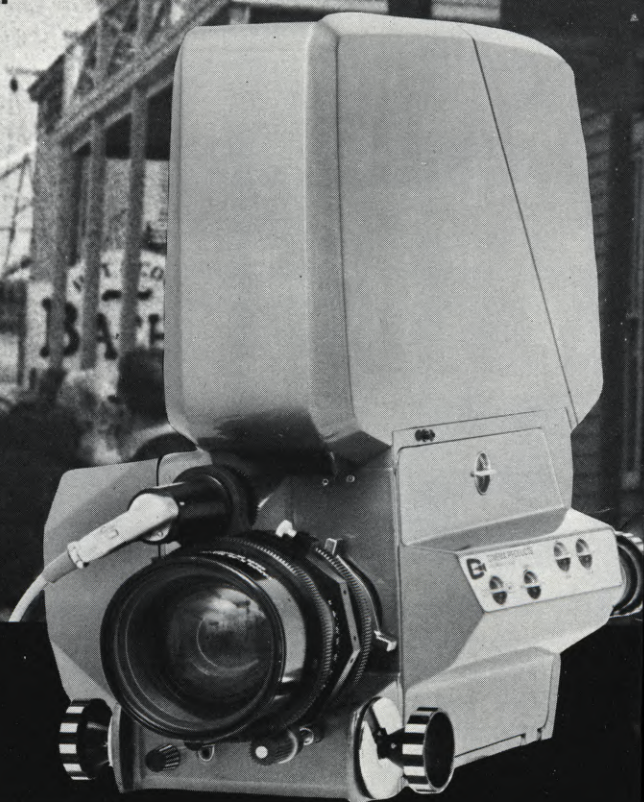
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The movie camera to end all movie cameras.



Anything you ever needed a movie camera to do, this Braun Nizo Super 8 does. And a lot of things you never thought you could do without a special-effects lab, this one does. It probably won't be the first Super 8 camera you'll buy. But it probably will be the last.

It's what's up front that counts.

No matter what visual effects a camera builds in, it's only as good as its lens.

And that means there's no camera better than this one. Because no camera near the price has a Schneider Variogon out front, bringing in clear, crisp, incredibly true images. It's the lens other Super 8s wish they had, but don't.

Something else other Super 8s wish they had: the Braun Nizo metering system. You can override it whenever you want, but most of the time you'll use it to get clear, beautifully accurate footage.

Braun builds Nizo Super 8s in Munich, Germany. And they build them right.

Wide today, long in a second.

It zooms like whipped cream from 7mm to 80. That makes it one of the longest zooms you can buy in Super 8. As a matter of fact, it's probably more zoom than you'll use, most of the time. But once in a while, you won't want to settle for anything less.

"Dissolve from the flower to Mary."

If you work in Hollywood, you get your lap dissolves from a lab. But if you work with a Nizo, you get perfect lap dissolves from a button marked "R", automatically. (There's even a little window that shows you you're in the middle of a dissolve.)

So you can go smoothly from flower in your garden to flower in your life; from monkey at the zoo to happy little boy's face; from mint 1934 Rolls to dragster. Maybe nothing's more professional than a clean, sure lap dissolve. And for certain no lap dissolve is cleaner and surer than a Nizo lap dissolve.

Go to black.

Another effect pros go to the lab for is a fade, whether it's out or in.

And that's another effect you simply go to your Nizo Super 8 for. One button does it, beautifully.

The button you think you'll never use, until you use it once.

Maybe you don't think you'll ever do any time-lapse photography: showing flowers blooming, or cities getting ready for night.

Maybe you think you'll never try animation.

The switch that activates our Intervalometer is a switch a lot of people don't make, for a while.

But once they try it, they hate to let go.

You can shoot up a lot of film, one frame at a time. And you'll find it's some of the greatest you ever shot.

Slow motion, fast.

Your little boy is scampering next to his big ole dawg. Dawg herds boy; boy flops over dawg.

You don't want the whole thing in slow-mo, just the flop. So with this one, you push a little button, and presto, you're in 54 frames per.

Or you can shoot in 24 frames a second, or 54, just by twisting a little knob.

It's another feature you won't use a lot of. But what you do use will help make great movies for you.

The invisible man, unveiled.

Fifty years from now, will they see your skill, your taste — but not your face?

You can set up your Nizo Super 8 so that any idiot can get perfectly exposed film out of it. Which means you can get in front of the camera, once in a while.

We think every great cameraman deserves a chance to be a star once in a while.

There's more?

A lot more. Like lipsynch sound capability and time exposures. And a tough two-year guarantee.*

And the whole point of all this is simply to make sure you look at one of the Nizo line of Super 8s, if you're looking at any Super 8 beyond your first one.

Ask your dealer. He won't have to sell you.

Just show you.

*If within two years from date of purchase a Nizo S-480, S-560 or S-800 movie camera fails to function because of defects in materials or workmanship and the unit is returned to an authorized service center, Braun North America will, at its option, repair or replace the unit without additional charge. Batteries, misuse or tampering excluded.



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Nizo
SUPER 8

Braun North America, A Division of The Gillette Company, Cambridge Parkway, Cambridge, Mass. 02142.
In Canada: Braun Electric Canada, Ltd., Mississauga, Ontario.

CINEMA WORKSHOP



By ANTON WILSON

COLD WEATHER FILMING

Cold weather is here and that usually means problems for cameramen filming outdoors. Subfreezing temperatures can cause failure of the power source, breaking of the power cable, binding of the camera movement, icing of both the camera and lens mechanisms and rusting of metal parts. This may seem cause enough to stay in bed on very cold days. However, with proper understanding and precautions these problems can be minimized.

Most professional cameras (e.g., Arriflex, Eclair, etc.) are designed to function at temperatures down to approximately -4°F (-20°C). Operation of the camera above this temperature does not require any "modifications" or "winterizing". Certain precautions should be taken, however, when filming outdoors in the range between 0°F and $+32^{\circ}\text{F}$. The biggest problem is usually the battery and power cable. Do not use a plastic (PVC) type of cable. These become very brittle at low temperatures and will crack. The best choice is a pure neoprene cable. The capacity of the NiCad battery is seriously reduced at low temperatures. This is caused by two factors. As temperatures drop, the camera mechanism becomes "tighter" due to different coefficients of expansion of mating parts, such as bearings and bushings. In addition, the viscosity of the lubricants increases. Thus, at low temperatures, the motor must supply greater torque to run the camera and will draw greater current from the battery. At reduced temperatures the battery itself loses effective capacity due to an increase in internal resistance. This reduction in capacity is compounded by the fact that the camera is drawing additional current. These three factors combine to cause a very significant loss in effective capacity at reduced temperatures (See FIGURE 1).

Keep batteries warm until the last minute. When taking them outdoors, wear them under clothing as close to the body as possible. (Brave cameramen have been known to place batteries beneath their underwear.) Always take extra batteries. Make sure all batteries are fully charged.

No particular preparation need be done to the camera as long as temperatures do not drop much below zero F. It might be a good idea to punch several holes around the rubber eyecup to prevent moisture or ice forming on the eyepiece lens. A camera at room temperature may be taken directly into subfreezing temperatures without creating any problems. It should *not*, however, be taken from room temperature into a snow storm. The snow and ice particles hitting the warm camera will melt and moisture will collect *inside* the camera. As the camera temperature rapidly drops, this moisture will quickly solidify, possibly causing a complete freeze-up of the camera mechanism.

When it is snowing, it is good practice to pre-freeze the camera to a temperature of approximately 30°F . Avoid keeping the camera out in extremely cold temperatures for long periods of time. A plain black barney will help somewhat in keeping the camera warm. It will absorb heat from the sun and also keep in what little heat is generated by the camera motor.

Care should be taken when bringing a camera out of subfreezing temperatures. If a camera that has been used in subfreezing conditions is to be used again in subfreezing temperatures after a short interim, the camera should remain in a subfreezing environment for that interim. If the camera is to be brought into a warm room, it must first be sealed in an airtight plastic bag until it has reached equilibrium temperature. Even if the camera is in the storage case, it must first be wrapped in the airtight plastic bag. This way, moisture will condense on the outside of the plastic bag and not on the camera. If, for some outlandish reason, a camera has been brought inside from the cold without the protective plastic bag, make sure it has plenty of time to dry out (at least several hours or overnight). If this precaution is not observed, and filming is continued in subfreezing conditions, any remaining moisture will quickly freeze, causing interference, a complete freeze-up and possibly rusting of metal parts.

When filming in temperatures much below zero $^{\circ}\text{F}$. for extended periods, a specially modified camera is called for. An Arriflex M camera is usually chosen for this purpose. Wolfgang Roessel, who is the head of the Arriflex service department, has a winterizing package they install that allows the camera to be used in the -4°F to -49°F range. Once the camera has been modified for this temperature range, it is *not* suitable for use at normal temperatures. The modification includes larger bearing clearances, special viscosity lubricants, special tantalum capacitors and selected transistors for the motor.

If you plan to encounter sustained temperatures below zero, it is best to contact the camera manufacturer for specific instructions. ■

FIGURE 1

EFFECTIVE CAPACITY OF BATTERIES
As a FUNCTION OF TEMPERATURE

CAPACITY	TEMPERATURE
100%	70°F
85%	55°F
65%	40°F
50%	32°F
25%	20°F

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Eclair. When you're filming at the outer limits.

Colorado Outward Bound offers one of the world's most rugged courses in wilderness experience and mountain climbing. Its basic philosophy: to take a person beyond his imagined physical and emotional limits.

With that in mind, a group of adventurous filmmakers set out to document the physical and emotional development in a diverse group of young people, from their initial training at Outward Bound's Red Cloud base camp in Colorado to the summit of 18,700 foot Santa Rosa in Peru. The result: Journey to the Outer Limits—an hour-long special produced by the National Geographic Society in association with Wolper Productions, aired on ABC.

If the film's subjects tested their outer limits, no less can be said of the production crew. Over 70,000 feet of color film raced rock-steady, through the gates of their Eclair cameras without a single 'jam.' Shot from the most precarious angles, where the only 'foothold' was a single rope, anchored to sheer rock above. And the only link between cameraman and assistant, a rope that bounced and bumped

from outcropping to outcropping.

Swinging to and fro in the thin mountain air, below difficult overhangs; treading gingerly across frail rope bridges; and clambering from piton to piton, cameramen Mike Hoover, Charles Groesbeck, Tom Frost and Rick Robertson literally 'risked it all' to provide Journey's dramatic on-the-mountain 'takes.' Rapelling and traversing to get 'camera's-eye' views whose authenticity can best be appreciated by experienced climbers, the team credited ACL's light weight, natural balance and steady, one-hand operation as an important factor in their success.

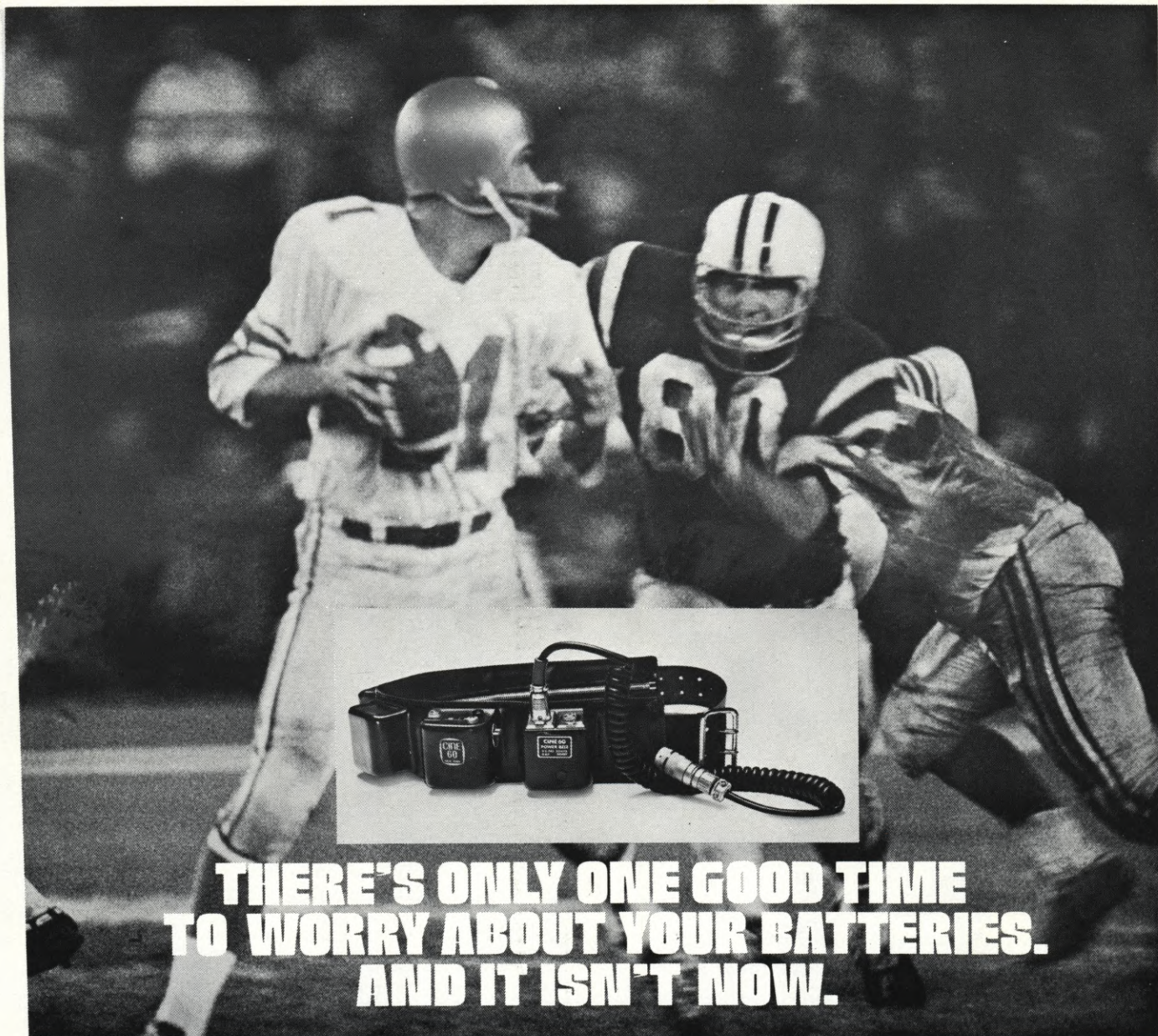
High marks were also given ACL's large, bright viewfinder, quick-change magazines and "human-engineered" design by Associate Producer Peter Brown who wrapped it all up by saying "When you're fighting the mountains, the elements and the unforeseen—holding your breath as much from how you're filming as what you're filming—the last thing you want to think about is camera problems!" Which is a good thing to think about when you're buying a camera, as well.

For more information about Eclair cameras, and how they can expand the outer limits of your creativity, please write Mr. Eric Falkenberg, Eclair Corporation of America, 62 West 45th Street, New York 10036 (212) 869-0490, 7262 Melrose Avenue, Los Angeles, California 90046 (213) 933-7182 Telex: 14-7208

eclair corporation of america



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**THERE'S ONLY ONE GOOD TIME
TO WORRY ABOUT YOUR BATTERIES.
AND IT ISN'T NOW.**

Many things on location happen only once. And if you don't get it, you've had it.

So portable power doesn't just have to be portable. It has to work. And work. And work. As hard as you do. And wherever you happen to be.

One way to be sure is to become a beast of burden. With a bunch of heavy extra batteries pulling your pockets out of shape, and slowing you down. Or, a big, bulky pack that gives you all the mobility of the Golden Gate Bridge. But is it worth it?

There's a simpler, more dependable, and much more comfortable solution. Connect your camera (any professional camera) to a Cine 60 Power Belt. The rechargeable nickel cadmium batteries are arranged in

perfect balance around your waist. Leaving you relatively free to jump, climb, ride, fly, or do whatever you have to do to get your shot.

And you *do* get your shot. Because the Cine 60 Power Belt delivers 6 to 30 volts of reliable power for up to 7 ampere-hours. It can be recharged quickly and safely at any 110- or 220-volt AC outlet. There's a reassuring little signal light to tell you you're getting the charge you think you're getting. And an automatic, built-in safety switch to protect you and your camera from a shock you'd never think of getting.

Since it was introduced over a decade ago, more professional filmmakers depend on the Cine 60 Power Belt than on any other port-

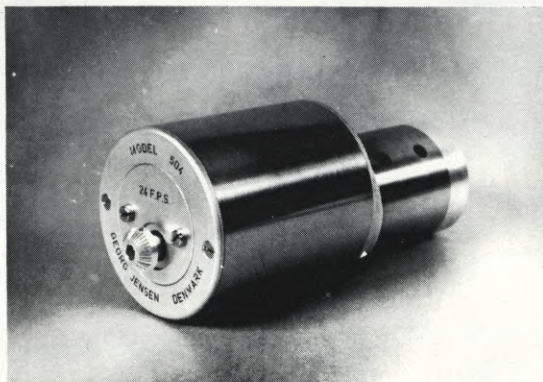
able power supply. And if that isn't one hell of a powerful endorsement, we don't know what is.

Cine 60 makes other motion picture equipment that helps prevent other kinds of crises. There's a battery-powered fiberglass blimp for Arriflex 35 cameras... unique, lightweight single- and double-shoulder pods... motor-drives for Angenieux, Zeiss and Canon zoom lenses... suction-activated platform and car mounts for shooting at any angle... all kinds of special connectors and camera/lens mounts for all kinds of cameras... and all kinds of helpful information, because we've been there, and we can help. With custom designs and repairs as well. All you have to do is ask.

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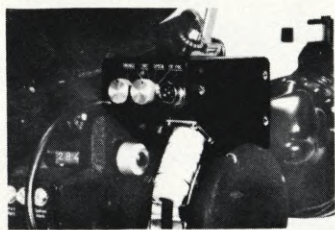
Crystalize Now!



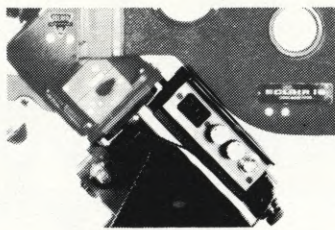
Arri S or M Model 504

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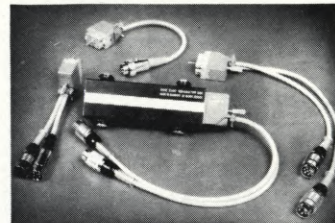
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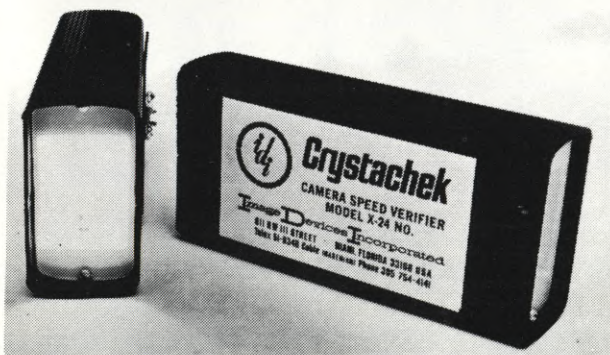


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Canon's super cameras for Super 8.

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Let your imagination roam, your Canon Super 8 will follow it with a new sense of freedom and innovation that could only come from the world's largest manufacturer of fine cameras.

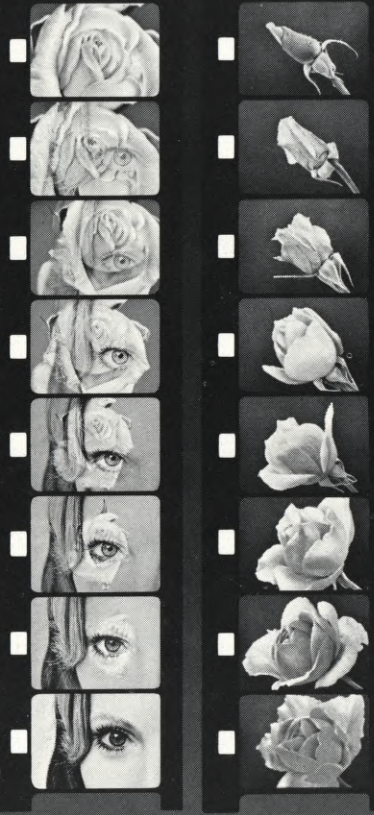
Canon Auto Zoom 1014 Electronic

Now you can get the spectacular effects other cameras denied you. Canon's newest Super 8, the 1014—with ten times zooming ratio—lets you glide effortlessly from 7.0 to 70mm either automatically or manually.

With variable shutter control you can make perfectly matched lap dissolves, superimposed images, fade-outs and fade-ins. Even animation is possible because the 1014 gives you filming speeds from instant slow-motion to single frame with synchronized flash.

Time lapse is also possible with the Interval Timer E. Or if you want to get into the picture yourself, there's the Self Timer E for delayed action filming.

In a Canon camera you'd naturally expect a superb lens. That it is. The 1014 gives you a fast f:1.4 lens with built-in macro capability. So you can shoot as close as $\frac{3}{8}$ of an inch from the front of the lens.



Metering is split-image through-the-lens rangefinder with an accuracy you'd expect from the maker of one of the most prized professional SLR cameras. And with built-in servo control, the camera sets the aperture for you. So you can concentrate on the shot instead of the light.

The Canon 1014—the Super 8 that meets and matches 16 mm head-on.

Canon Auto Zoom 814 Electronic

This is the camera from which the 1014 was born. And it's hard to find more distinguished parentage. The Canon 814 with eight times zooming ratio (7.5 to 60mm) has proven itself time and again as one of the most versatile, most reliable Super 8s available.

Since it's not mass-produced, it's not for everyone. Only those who want the best. A lucky few. But that doesn't mean anyone can't operate it.

The 814 gives you the same automatic exposure accuracy with servo electric-eye metering, the same automatic fade-out, fade-in capability as the 1014. Along with shutter speeds from instant slow-motion to single frame with synched flash, remote control and super close-up macro without attachments.

For more information about these and Canon's other fine movie cameras, see your photo dealer. Or write to us—Canon USA, Dept. AC-2



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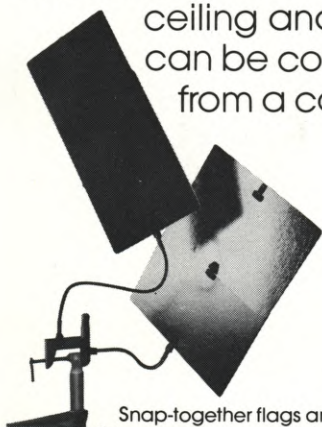
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Tota-Light.* More than just a new light, it's a new lighting concept. Compact 1000, 750 and 500-watt quartz lighting with an integral system of lightweight, modular mounting and light control components. Providing almost limitless location flexibility.

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A system where three walls can be lit smoothly and evenly from a single light mounted on the fourth wall. Or four walls, ceiling and floor can be covered from a corner.

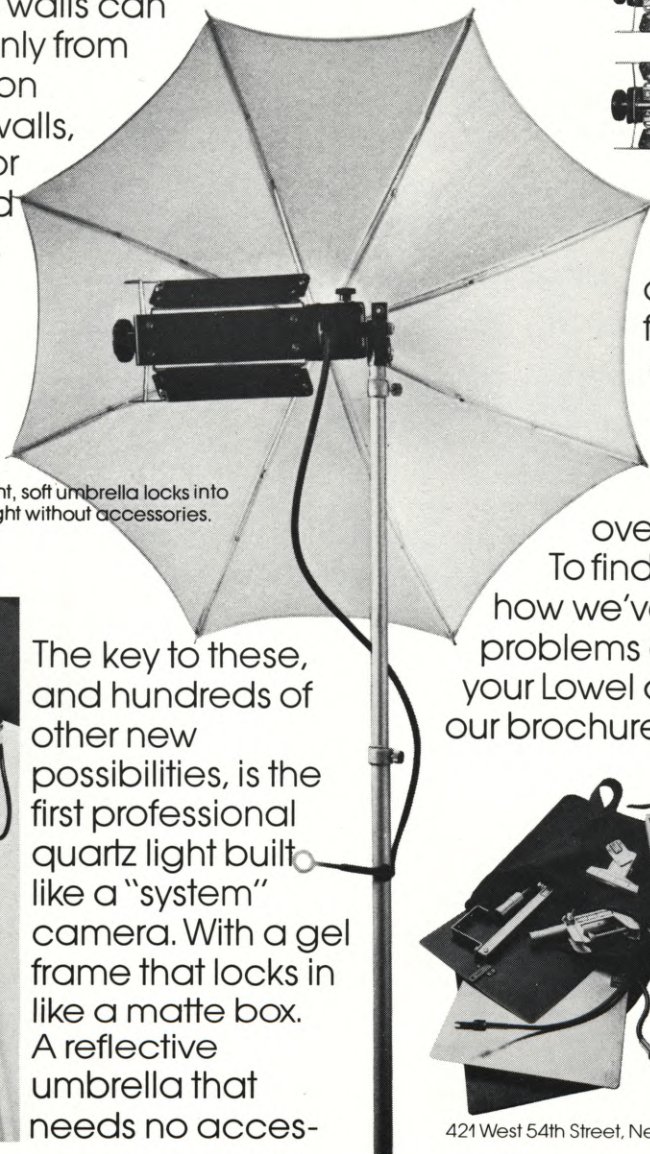


Snap-together flags and reflectors snap onto flexible arms.



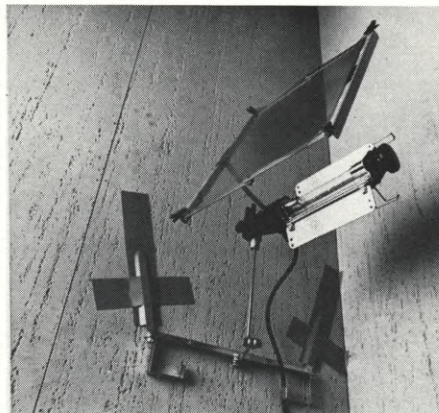
Locks atop doors, open or closed: flags control light precisely.

Bright, soft umbrella locks into light without accessories.

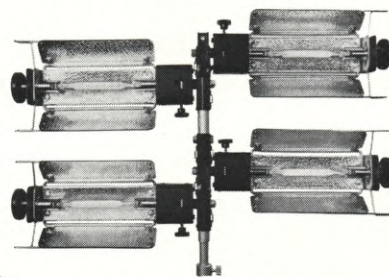


The key to these, and hundreds of other new possibilities, is the first professional quartz light built like a "system" camera. With a gel frame that locks in like a matte box. A reflective umbrella that needs no acces-

sories. And a family of snap-together flags held by flexible arms. Using these and other components, Tota-Light can be stacked, diffused, converted in seconds to a softlight,



Tota-Light tapes to walls and windows; frame holds precut conversion and diffusion gels.



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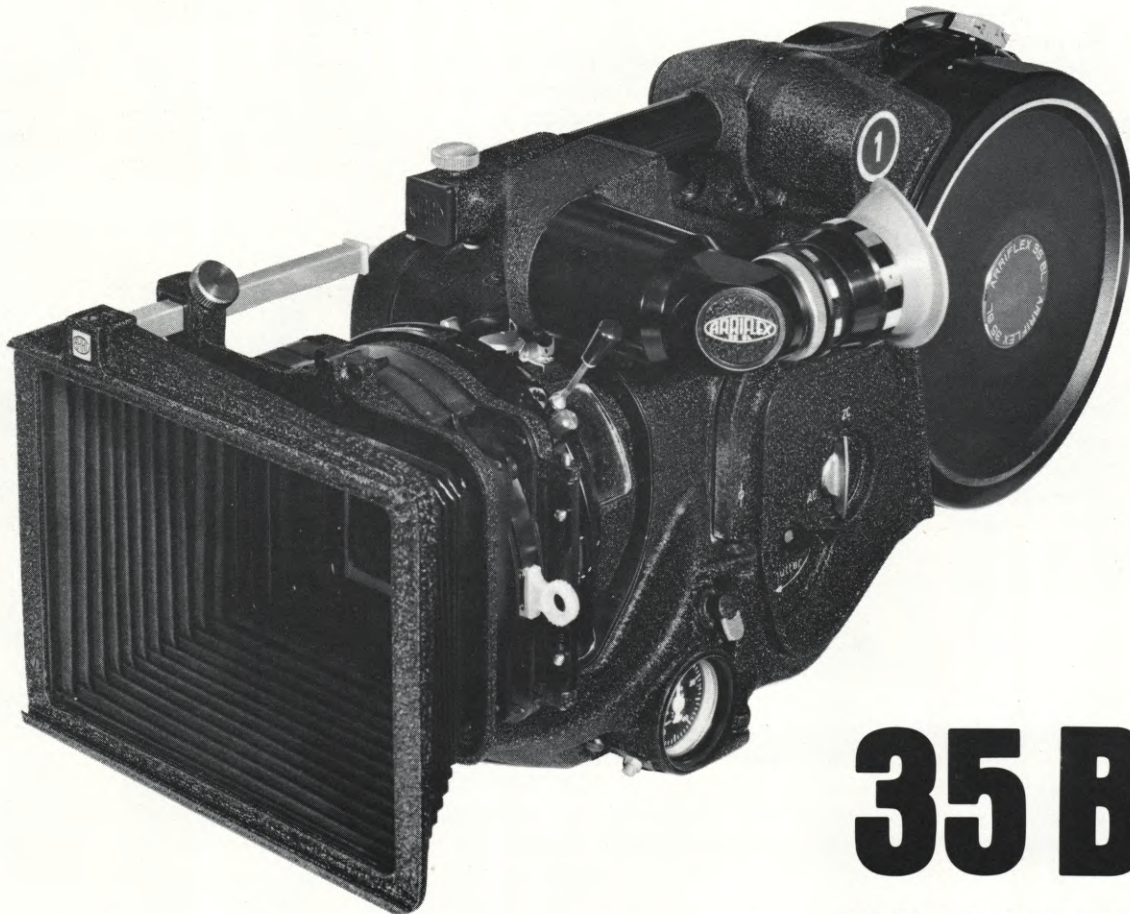


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FACETS OF FILM CRAFT

A newly updated edition of Peter Jones' *THE TECHNIQUE OF THE TELEVISION CAMERAMAN* (Hastings House \$14.50/6.00) presents the latest information on TV camera operating practices. Written by an experienced director of photography and revised by his colleague Edward Thomas, it is a standard text, covering knowledgeably and in a clear style all the areas of a video cameraman's activities, his equipment and procedures.

* * *

While not dealing primarily with cinematography, Prof. O. R. Croy's *GRAPHIC EFFECTS BY PHOTOGRAPHY* (Hastings House \$12.95) deserves mentioning here for its imaginative and practical tips on the creation of visual effects to enhance pictorial values on the screen.

* * *

A useful guide to cost estimates, *HOW TO PREPARE A PRODUCTION BUDGET FOR FILM AND VIDEO-TAPE* by Sylvia Allen Costa, covers effectively the numerous items of a properly prepared budget. Although some figures need adjusting to local conditions or newer scales, the basic information is thorough and well organized (TAB Books, Blue Ridge Summit, PA 17214 \$12.95).

* * *

The 3rd revised edition of Alec Nesbitt's *THE TECHNIQUE OF THE SOUND STUDIO* (Hastings House \$14.50/10.50) updates available information on the audio aspects of film, TV and radio. Written largely in non-technical language, it clarifies the nature of sound, discusses recording and reproduction, and surveys equipment and its utilization.

* * *

READY REFERENCES

Mel Schuster's *MOTION PICTURE DIRECTORS* is an extensive guide to articles on directors, filmmakers and animators published between 1900 and 1970 in 340 English language periodicals. More than 2300 individuals are represented in this indispensable and significant addition to research literature (Scarecrow Press \$12.50).

* * *

Two volumes have been added to the invaluable series of *THE NEW YORK TIMES FILM REVIEWS*, covering 1969/70 and 1971/72. Beside the reviews, they include the year-end Ten Best Films survey, New York Critics and Academy awards, and various addenda/errata. There are now in print seven such volumes of authoritative NYT appraisals of the world movie scene since

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By **GEORGE L. GEORGE**

1913 and the changing artistry, techniques and values of the medium. (Arno Press, \$27.00 & \$35.00 resp.).

* * *

Volume Two of Walt Lee's *REFERENCE GUIDE TO FANTASTIC FILMS* covers, from G to O, a large contingent of science-fiction, fantasy and horror movies from all over the world. This comprehensive listing with pertinent data on each film will, upon the Spring publication of the concluding volume, contain over 25,000 movies of this universally popular genre. (Available from Walt Lee, Box 66273, L.A., CA 90066 \$9.95 ea., \$28.00 for the set.)

* * *

An exhaustive bibliography of books dealing with cinema and television—as well as theater, radio, mass media and popular arts—has been expertly assembled by Ralph Newman Schoolcraft. *PERFORMING ARTS BOOKS IN PRINT* lists some 12,000 annotated entries of English language books published through 1971. Subdivided in appropriate categories, this basic source of scholarly information is an indispensable research tool, updated in quarterly supplements (DBS, 150 W. 52 St., NYC 10019 \$32.50, suppl. \$2.50 yr.).

* * *

New Mexico filming and production facilities are listed in *NEW MEXICO LOCATION MANUAL*, an attractive periodical guide issued under the Governor's seal and with a 1912 plug from D. W. Griffith. (Contact Fred Banker Assoc., 3467 Wrightwood Dr., Studio City, CA 91604.)

* * *

The 1973-74 edition of the *WHITMARK DIRECTORY* is a useful guide to talent, fashion and production services available in the Southwest: mainly Texas, but also Arizona, Colorado, Louisiana and Oklahoma (Whitmark Assoc., 4120 Main St., Dallas, TX 75226 \$15.00).

* * *

PERSPECTIVES OF HISTORY

In his perceptive study, *THE ART OF THE AMERICAN FILM 1900-1971* (Doubleday \$12.50), critic Charles Higham evaluates the esthetic contribution of a primarily American art form. While stressing the role of the director, Higham discusses understandingly the various camera techniques that played a significant part in the artistic maturing of cinema. Despite its condensed nature,

this is an intelligent and sensitive book, well illustrated and offering an informative historical survey.

* * *

The small, independent Hollywood studios which flourished between 1930 and 1950 are viewed with affection and nostalgia in Gene Fernet's *POVERTY ROW*. Monogram, Mascot, Talisman, PRC, Tiffany, and even Republic at the start, were part of the "Gower Gulch" complex that fought for a share of the seemingly unending flow of dollars into the coffers of their powerful competitors. They didn't make it and their eventual fadeout is a fascinating chapter of the Hollywood saga (Coral Reef Publ., 1127 S. Patrick Dr. Satellite Beach, FLA 32937 \$9.95).

* * *

A crucial era in the development of the British film industry is evoked by Rachael Low in *THE HISTORY OF THE BRITISH FILM 1918-1929* (Bowker \$18.50), one of a four volume set originally published in England. Dr. Low's work can justly be considered as a definitive text, written with the authority of extensive research and thorough experience, and in a lively style where fact and anecdote mix in highly informative fashion.

* * *

In *DEVELOPMENT OF THE FILM* (Harcourt Brace Jovanovich \$5.95), Alan Casty offers his interpretive view of film's historic progress as an art form. In his stimulating analysis of the contribution by filmmakers and scholars and the interaction with social forces, the author points out that cinema's habitual state of crisis has not inhibited the continuing growth of this "unique congress of art and commerce."

* * *

V.I.P.s—MORE OR LESS

A lavish volume and a glowing tribute, *STARRING FRED ASTAIRE* (Dodd Mead \$22.50) by Stanley Green and Burt Goldblatt surveys the career of that great entertainer in a rich display of 800 stills, behind-the-scenes stories, plot outlines, full cast-&-credit listings and technical information—such as the three simultaneous camera setup Astaire demanded for his dance numbers.

* * *

In *THE FABULOUS FONDAS* (McKay \$6.95), James Brough offers a documented inside look at the fascinating life of a theatrical family very much in the news. The clash of personalities, the problems of growing up, the constantly changing step-mothers and the eventual "peaceful coexistence" of the clan are told with an empathy that is both objective and candid. ■

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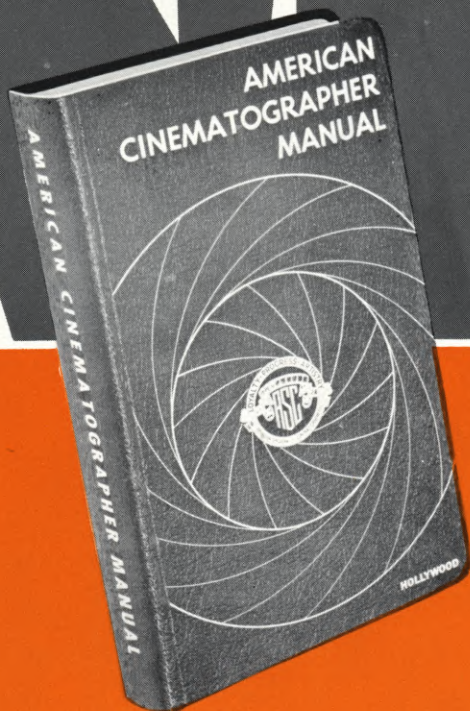
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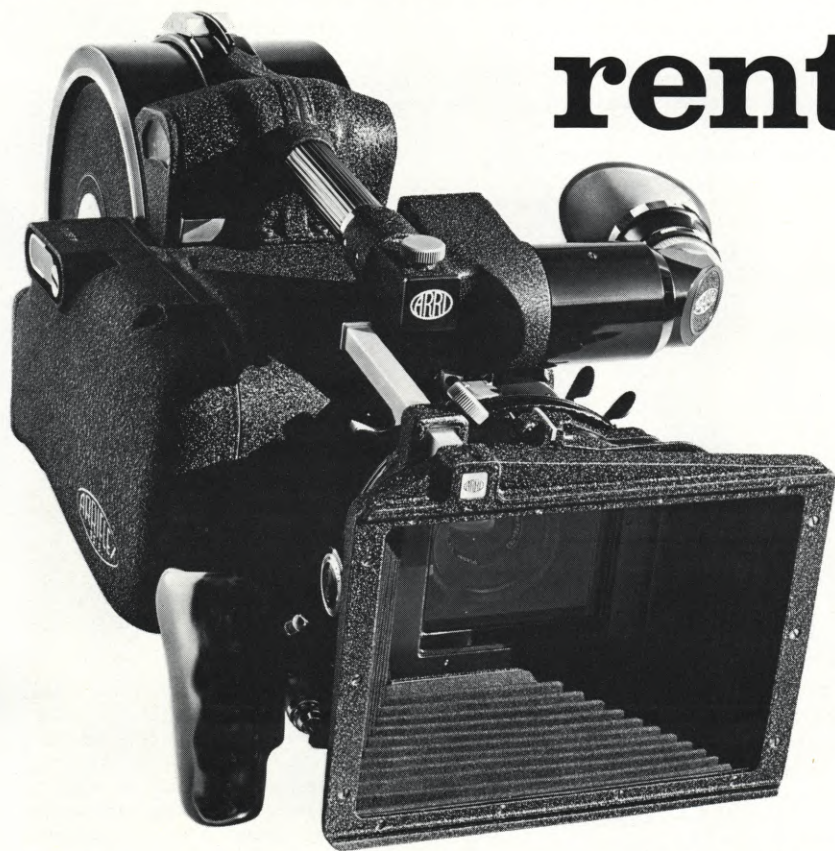
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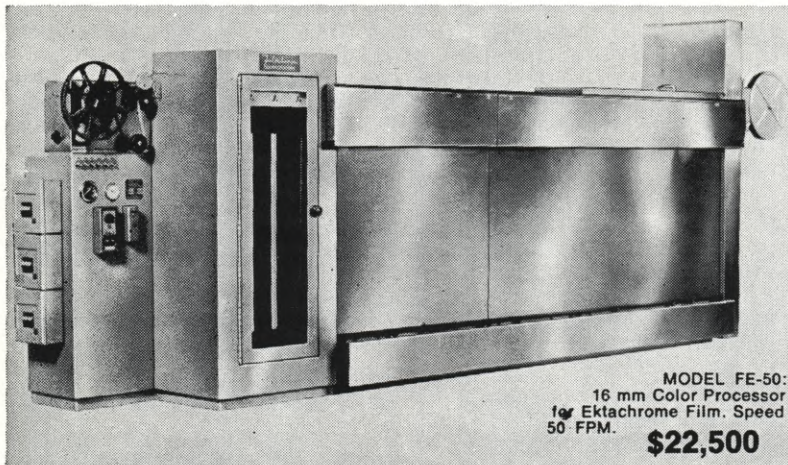
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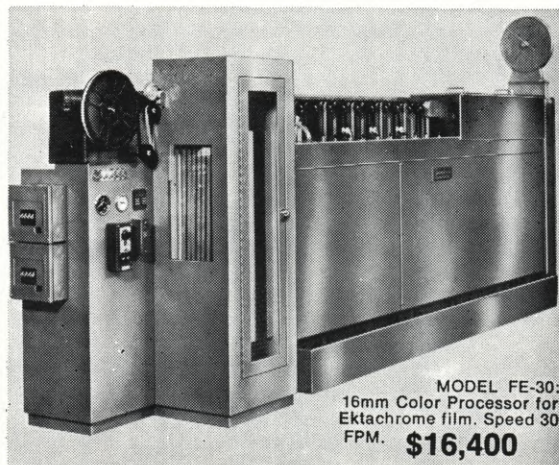
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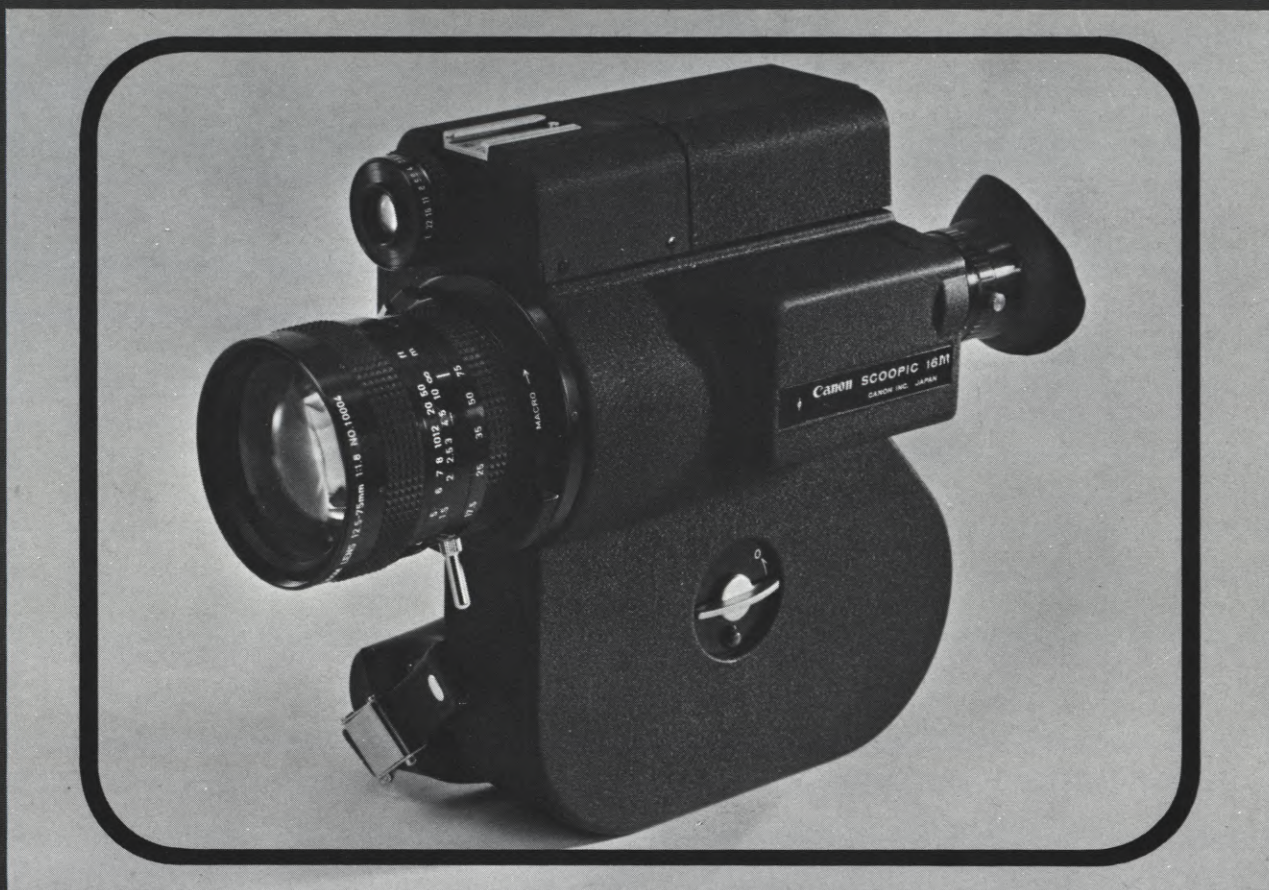
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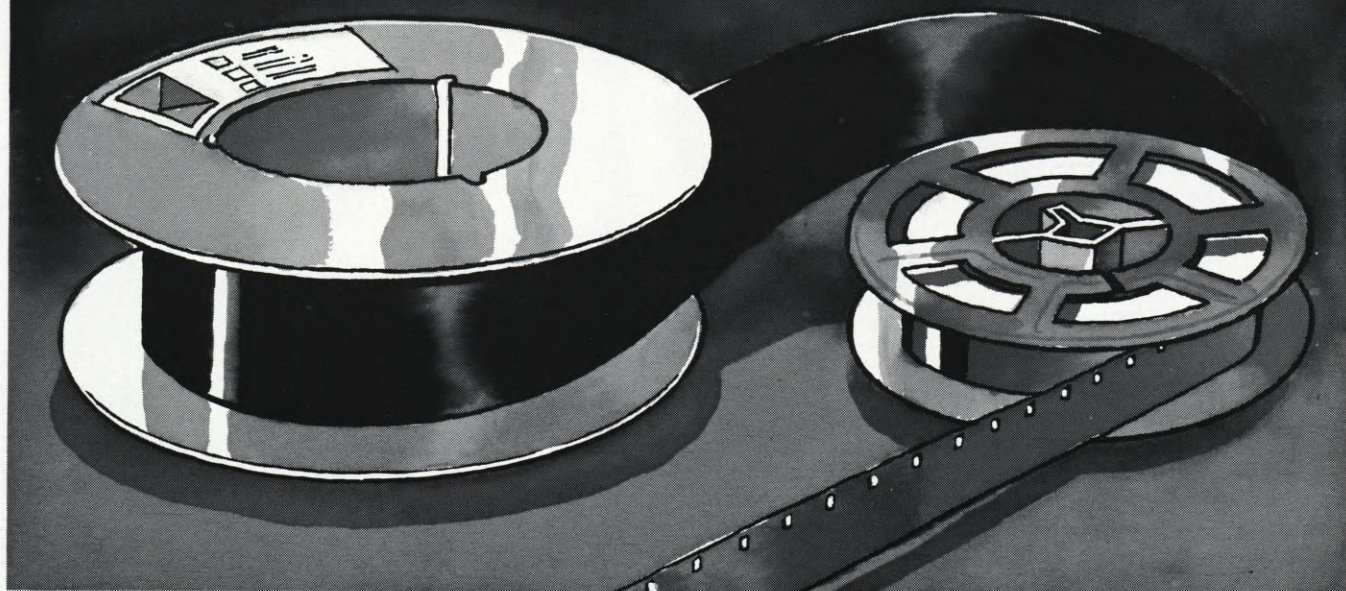
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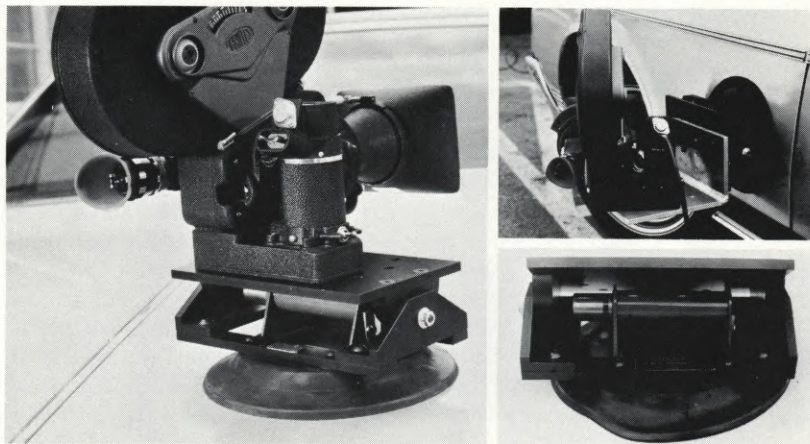
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THROUGH HELL AND HIGH SNOW DRIFTS TO FILM "JOURNEY TO THE OUTER LIMITS"

By PETER S. BROWN
Associate Producer

Intrepid cameramen-turned-mountain-climbers get a rough workout filming National Geographic television special

THE PLANNING STAGE

I was called into a meeting at the National Geographic offices on May 1, 1973. There I met with Nicholas Clapp, executive producer, and Alex Grasshoff, producer-director. They told me they were ready to proceed on a new one-hour television special involving the training and experiences of a group of 18 teenagers participating in a six-week course in Wilderness Survival given by the Colorado Outward Bound School. Filming would begin on May 27th in Chicago, New York, Boston, and Denver

for the first week, and then three weeks in Lake City, Colorado, filming the students scaling 14,000-foot mountains, rappelling down 120-foot cliffs, hiking over 150 miles, running a 10-mile marathon, crossing a spectacular gorge on a zip wire, shooting rapids in a kayak, and many other events, designed, under carefully supervised conditions, to take the participant beyond what he sees himself capable of doing... to his "outer limits". And the real test of what he has learned in Colorado takes place in the subsequent three weeks on 18,700-foot Santa Rosa Peak in the

Southern Andes of Peru. It became that way for all of us involved in the filming of "JOURNEY TO THE OUTER LIMITS".

I realized very early in the planning stage, that this was going to have to be truly a team effort in order to succeed. There were many uncertainties, and we would have to be on our toes at all times. To me, this was a fine opportunity, and a great personal challenge. I carefully prepared a realistic schedule which we would then have to adhere to as closely as possible, as it would be almost impossible to change our Peruvian plans once they were set.

Not being a mountain climber, I quickly familiarized myself with the type of specialized equipment needed for this expedition. What would work at 9,000 feet in Colorado, might not necessarily function at 19,000 feet in Peru. Thus, the latest in quick-charging batteries, portable generators, and lightweight cold weather gear, would have to be tested and tried.

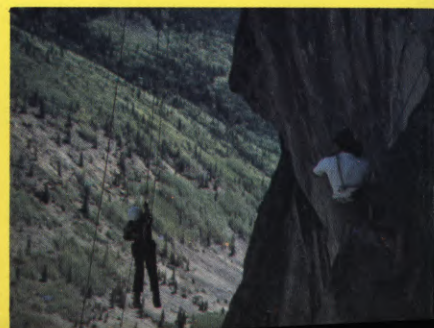
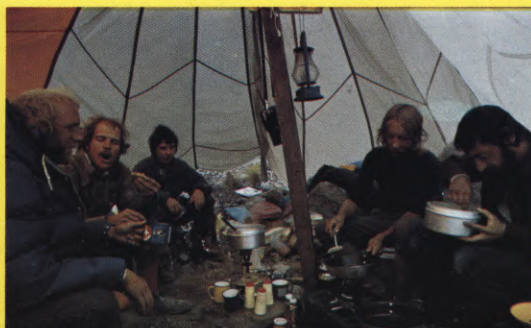
Cass Paley most ably assisted me in that endeavor. While we were in our critical first week of shooting in the various cities, Cass stayed back in Los Angeles to make last-minute equipment changes. He then met up with us at the airport in Denver. As we watched our equipment being loaded for our flight to Lake City, I leaned over to Cass and said "So far, so good!" As I made that statement, Cass and I stared in disbelief while an airline service truck ran smack over one of Peter Pilafian's sound cases. Three Vega wireless channels were totally destroyed.

Peter somehow recovered, and we air-shipped three more channels to Lake City. Inspired by what lay ahead, Peter, working day and night, developed a



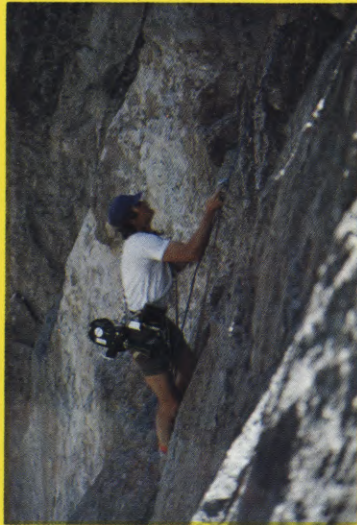
Teenage students of the Colorado Outward Bound School, in a final burst of energy, raced the last 100 yards to the summit of 18,700-foot Santa Rosa Peak in the Peruvian Andes, leaving the camera crew behind. They descended to wait for tired crewmen to catch up so that closeups could be shot at the top of the mountain. This was the final challenge of a complex wilderness survival exercise. (Photographs © National Geographic Society.)

(LEFT) Mike Hoover gives the Eclair NPR a workout on whatever flat ground there was. Over rough terrain he preferred the much lighter ACL. (CENTER) The National Geographic base camp was quickly dubbed "Fat City" by the Outward Bound students. (RIGHT) After establishing base at the top, Hoover, an expert mountaineer-cameraman, would race down a parallel rope to get side shot of climber from an angle that indicated the height.



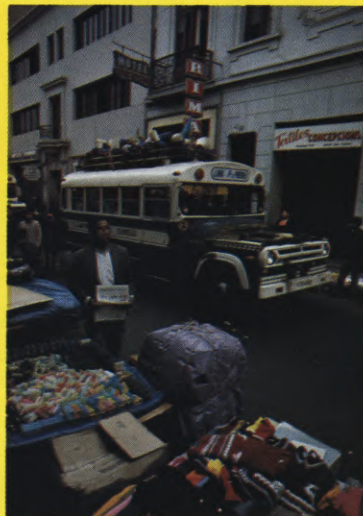
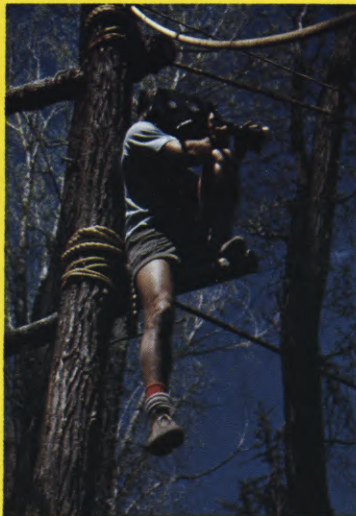


(LEFT) A student practices a roping technique prior to the actual excursion. (CENTER) Cameramen shot from the top of a bus moving through the streets of Lima, Peru in order to film scenes of the street vendors. (RIGHT) Soundman Peter Pilafian slates with one, two or three fingers hitting the microphone head. Many improvised techniques were pressed into service.



(LEFT) Mike Hoover, with Eclair ACL dangling from his belt, rappells down a steep rock face. His Academy Award-nominated film, "SOLO", included many scenes like this—except that he wasn't carrying the camera. (CENTER) Director Grashoff, Cameraman Meyers, First Asst. Worzinyack and Soundman Pilafian await the students' reaction to a 150-foot rappel. (RIGHT) Peter Brown's homemade helicopter mount. It's no Tyler, but it worked.

(LEFT) According to Hoover, the Eclair ACL, with Anton-Bauer batteries, is unbeatable when you're up a tree. (CENTER) In Peru, as always, the camera crew raced ahead—this time to keep ahead of the Outward Bound bus as it moved through the streets of Lima. (RIGHT) Franz Froelicher, with 5.9mm Angenieux lens on a K-100 helmet rig, goes after student's POV shot from a line over a 100-foot-plus waterfall.



(LEFT) As they moved up Santa Rosa Peak, the camera crew's tracks became a problem. Moving across the glacier snowfields, there was frequently only one safe route and the students would follow their lead—making for a messy master shot. (CENTER) Mornings were chilly for those who didn't sleep with their batteries—necessary for ni-cads to work in the cold. (RIGHT) First look at the objective—18,715-foot Santa Rosa Peak.





(LEFT) A small contingent of the motley crew that made the trek shown with local assistants and a mere fraction of the huge amount of equipment that had to be toted up the mountain. (RIGHT) Mike Hoover ignored all safety rules, saying "The shot comes first!" On the other hand, there are no old, bold climbers.

special mixer for the Nagra SN, which he also modified for the extremes of weather and altitude. The new combination proved especially effective high in Peru. We stuck to our schedule throughout the filming in Colorado, knowing that any major changes in the schedule would cause customs problems, flight problems, and a general logistical mess in Peru.

Our cameramen worked very well as a team, with Mike Hoover shooting much of the climbing footage. His ability in dangerous climbing situations was clearly depicted in the award-winning short film, "SOLO". Also filming for NGS were Dave Meyers and Rick Robertson, both of whom did fine work under a great deal of pressure.

Fortunately, we brought along a homemade rig that worked well for us in a very tight situation. That rig was a small, lightweight helicopter mount to be used where a Tyler mount could not be secured. I was able to charter a small Bell helicopter out of Durango, Colo. However, the seats were not removable, thereby not affording space for the Tyler. We secured our homemade mount, and Dave Meyers got several

spectacular shots of the Gorge crossing, and the rappelling area, that greatly enhanced the film. For that, I thank my friends Ron Lautore of Ferco in New York, and Peter Gowland in Los Angeles for helping me make it work.

Basically it consists of three rings of lightweight aluminum, supported by "Binky" baby pacifiers to help absorb vibration. As they say, whatever works!

Alex Grasshoff, Academy Award-winning filmmaker, concentrated heavily on the direction of the film so as to catch the immediacy of situations continually developing around the students.

As their characters emerged under the stress and strain of long weary hours of hard work and involvement, Alex had us moving in every direction in order to capture it all. The result speaks for itself.

We had the good fortune to have along one of the best camera assistants I've ever worked with, Tim Wawrzeniak. That man was virtually in two places at once.

Towards the end of our Colorado schedule, I felt it would be wise if I went on ahead to Peru, lining up locations in downtown Lima, taking care of

customs problems, and the myriad of logistical problems in the setting up of our base camp at 15,000 feet.

So as not to lose the acclimatization of 9,000 feet in Colorado, I had to make sure that as soon as the group arrived in Lima (sea level) they would clear customs as quickly as possible, film in downtown Lima, and stay the first night up at the town of Churin at 6,700 feet.

Like a scene out of "Mad Mad World", I left early in the morning on June 22nd in the usual rush, just making the Gunnison Airport for my flight to Denver, which connects with a flight from Los Angeles to Lima. I left Cass Paley back in Lake City to take care of things in my absence. There would be my Peruvian coordinator, Tom Frey, waiting for me in Lima for an immediate trek up the mountain to survey base camp.

At 9:15 they told me the flight to Denver was canceled. At that moment, I had visions of an entire film company burning me at the stake. I spotted a Cessna being gassed up on the field, and talked the pilot into flying me over the Rockies to make my Los Angeles flight

(LEFT) After three weeks of intensive, rigorous training in the Colorado Rockies, three students and an instructor of the Colorado Outward Bound School, near the summit of Santa Rosa Peak in the Peruvian Andes. (RIGHT) At the 18,715-foot summit, 17-year-old Jorge "Savage" Rosado hangs his cap on an ice ax. The cap, carrying the flag of Puerto Rico, is his way of honoring Puerto Ricans the world over.





Prototype of the Minitek Mixer, developed by Soundman Peter Pilafian especially for this excursion. The upper compartment contains a miniature Nagra SN recorder and spare tapes. Switch on the left is LF equalization. The makeshift waterproof carrying case was fabricated from nylon backpack materials. The two small switches on top control the Nagra SN recorder.

in one hour. The only problem was that I had to have another Cessna fly my overweight gear right behind us.

There was a mad scene in Denver as I retrieved my gear on the field, and sped over to the Continental loading area. The DC-10 was parked at the other end of the terminal. I ran through the terminal at top speed, grabbing my new glasses from a representative of Denver Optical (the old ones were lost in the filming of the River Crossing) and jumped across the ramp as the doors were closing. I couldn't find enough breath to ask if my bags were aboard.

Anyway, I made Lima by 4:00 in the morning, and by 8:00 I was on my way up to Base Camp in the Andes with my great Peruvian coordinator, Tom Frey. We made it as far as Churin, 6,700 feet. Our tough 4-wheel-drive vehicle was not yet ready in Lima, so we took anything we could get. The badly sprung vehicle we ended up with didn't do so well on our "Baja" run, so we rested.

The next day we took the bone-crushing ride from Churin up heavily-rutted roads past Oyon at 11,000 feet, on up to Raura Mine, then on up to our base camp site at 15,000 feet. At that altitude, you walk and talk slowly, or you're a fool!

It was with great relief and joy, after going through some very primitive country, to meet up with our two additional mountain climbing cameramen, Charles Groesbeek and Tom Frost. After a brief reunion, we discussed their advance reconnaissance work on Santa Rosa Peak. Both expert climbers as well as cameramen, they surveyed different routes up the mountain. Along with Outward Bound's Gary Zeigler, these men greatly contributed to our success in Peru.

After establishing the location of Base Camp, Tom Frey and I drove the remains of our vehicle back to Lima. We

then went through the most aggravating four days I have ever spent: clearing 2½ tons of camera equipment, climbing gear, and special dried food, through customs. Naturally, during that period in Lima, I de-climatized and, along with many others, suffered the ravages of altitude sickness up in the base camp.

Except for an overly curious customs agent who exposed two rolls of film, we somehow managed to stick to our schedule, and through a lot of ingenuity, skill, and perseverance, achieved far more than we had hoped for. In so doing, we have the enormous satisfaction of being a part of a film we can all be proud of. ■

TO KEEP YOUR NI-CADS WARM, PUT THEM IN YOUR UNDERSHORTS By MIKE HOOVER

Mountaineer-cameraman

In May of 1973 the National Geographic powers-that-be (Nick Clapp, Exec. Producer; Alex Grasshoff, Prod. & Director; Peter Brown, Assoc. Prod.) began to assemble a group of men who were undistinguished in intellect, personality, or vision. They were chosen not so much out of admiration or enthusiasm as out of fear and desperation. No one would deign to bestow upon this crew the superficial accolades that had frequently adorned their predecessors. No. The criteria for this crew were different; in fact, not unlike that which motivates a pro football scout.

This was to be the start of a new approach to National Geographic specials and the young Nicholas Clapp justified the crew's existence to Washington, D.C. by saying, simply: "They're big and they're fast. And everyone and everything has at least two back-ups. Nothing can go wrong."

The new National Geographic philosophy was simply to go one step beyond

the exploration and research films that had swept them into power in the sixties. After Armstrong's great step for mankind, "The New Guinea Bush" or "Euphoria Among the Alaskan Caribou" somehow seemed to be lacking. Outer space budgets being what they are, Geographic decided to delve into the inner mind of these earthbound explorers and researchers that hereto-

Continued on Page 92

Director of Photography David Meyers tries out the homemade helicopter shock-mount in Colorado. Though it looked less than elegant, it worked fine.





Partch intones "THE DREAMER THAT REMAINS", while playing the adapted guitar. This work, specially commissioned for the film, is a nostalgic reminiscence about his early childhood in Arizona.

Partch recalls his early childhood as an orphaned loner in a floppy hat. There were no signs in Benson, Arizona, but today everywhere Partch goes it's DO NOT LOITER.



The exotic instruments designed and built by Harry Partch take on a special magic when bathed in colored light. Filming encompassed a wide range of camera, lighting and sound techniques. Musical segments were filmed using two cameras, with lighting effects designed to dramatically interact with the performances.



I was on the island at about 7:30. Still pitch-black and raining. The thunderous sound of the 11 craters that almost split the island from shore to shore, pounded on my eardrums and occasionally a shower of ash drummed on my head. The glow from the fires lit the black clouds of belching smoke and threw multi-hued light on the abandoned houses nearest to the fissure. In most of the houses, lights were still burning, doors wide open and radios could be heard, giving latest reports on the eruption. It was a ghost town, impossible to describe. A symphony of destruction that makes Dante's fantasies sound like fairy tales.

It was difficult to get transportation, as only about 200 men were left on the island of Heimaey. I had been wise enough to carry only one Bolex Rex 5 and 100-foot loads. This paid off, as heavier equipment would have been impossible to lug around under these conditions. Using three prime lenses, 10mm f/1.6, 16mm f/1.8 and 25mm f/1.4, and being unable to take any dependable reading, I guessed at f/1.8 and pushed one stop which proved to be on the button, in most cases. Film was EF 7242, no filter while shooting the fires in the dark, but an 85 after daylight. Shooting after daylight began to seep in, without an 85, resulted in some interesting shots: for instance, the ponies against the fires and flames shooting out of the ocean.

It was not without fear that we newsmen ran over the trembling ground, trying to grab shots that could be made into valuable news material. The ground had split open in a mile-long fissure and it was still opening into the sea in front of me. Why could it not split under my feet?

I felt better, if not a bit ashamed, after finding an old lady in one of the houses nearest to the fires. She had her apron on and was drying dishes in her kitchen. She offered hot coffee to the visitors and then left her house neat and tidy. The house is now under 100 feet of lava, nothing was saved from it.

The black night turned into a bleak January day. I had finished my filming and had to get the material on a New York flight as soon as possible. I was lucky enough to catch a jeep to the airstrip where the F27 was waiting for passengers. Only five were on board as we took off, the evacuation was completed.

Ernst and Páll arrived on the island by boat, shortly before I left. They had covered the evacuation as the boats came to Thorlákshöfn, often carrying as many as 200 people on the deck. People were, of course, tired and sick after



The producers of "DAYS OF DESTRUCTION", (left to right) Asgeir Long, Ernst Kettler and Páll Steingrímsson, standing in front of the crater on Heimaey. All of them, as stringers for various news services, were originally assigned to shoot news footage of the cataclysm, but later pooled their talents to produce a full-scale documentary of the event.

being torn from their homes and, half-awake, pushed on board a 150-ton fishing boat which rolled and pitched in the comparatively rough sea. They also began to realize the size of the problem. Ernst shot great footage of the entrance to the harbour through a hail of tephra. The fires now extended into the sea and threatened to close the harbour mouth. He also shot interviews with men in command of the civil defense, police force, fire brigade and telecommunication. We never met that first day.

A few days later we started talking about making a film together. As I had undertaken an assignment that was to be shot in the Canary Islands, I had to leave the scene for four weeks. Before I left, it was decided that Ernst and Páll would keep on shooting and a rough plan was made on what to shoot, on the island and off. Upon my return, it was decided that we would make a film of our own, as Ernst had got all his footage from UPITN, either the master or a dupe master. I had made arrangements with Jack Bush, director of film at ABC to get all my footage duplicated and all this film arrived safely. We sent all of it to our lab in London and soon had the workprint back.

Then there was the question of money. Most people would have started to work this matter out, but we were too sure. There was no question of saleability of the finished film. So, we made money the second most important thing. We managed to borrow the equivalent of US \$3,000.00 and started editing. We had been very lucky in obtaining good material as, at first, all newspeople were banned from the erup-

tion area. Foreign news-crews found it hard to believe that there were restrictions on going to Heimaey, but the civil defence decided that this island was a danger area and could, at any time, explode like the island of Krakatoa.

Furthermore, thousands of homes had been left open and there was easy access to all valuables left there. The number of people who were permitted to stay there was limited to what was considered an absolute minimum for removing furniture, boarding up windows and looking after heating systems. The inhabitants were not permitted to come and collect their own valuables and each and every worker on the island had to have a special pass. This, of course, built up a strong anti-newsmen and scientist atmosphere and it even got strong enough to ruin an expedition that was backed up by the Smithsonian Institution. The scientists brought with them a laser beam instrument, worth 25-30 thousand dollars, and ABC News asked me to film them using this instrument to measure the expansion of the earth's crust, across the volcanic fissure, with an accuracy of 1/10,000 of an inch.

After two days of negotiating with Icelandic authorities, we finally got permission to visit Heimaey, but only four were allowed to go ashore. One more day was spent trying to get a boat to take us to the island, but when we were finally there, no transportation at all was available. The instrument never left the boat. Once, when filming the unloading of furniture at Thorlákshöfn, a skipper ordered "that nosy cameraman" to be thrown into the harbour.



Ernst Kettler prepares to film against a sulphurous background that evokes images of a landscape in Hell, as described in Dante's *Inferno*. The film-makers were continually hampered in their efforts by lack of transportation, uncooperative authorities and the dangers of shooting on ground that might erupt in a geyser of fire at any moment.

This was the attitude of both inhabitants (understandable, as they themselves were not allowed to go) and the authorities towards us and this we had to fight to get our now so-precious footage, both precious for us and them.

Many unforgettable moments are connected with the shooting on the island. One evening, Ernst and Páll were walking alongside the slowly advancing lava front. Without a warning, like when a dam bursts, the wall opened and thin flowing lava started to flow towards them. Camera was quickly mounted and as this fast flow only lasted for 15 minutes, theirs is the only footage available of this phenomenon. It is used in our film to build up suspense before the houses burn and go under lava.

After the eruption, the village lies silent and desolate, half-covered by a mountain of ash. Many villagers lost everything in the holocaust, but others have moved back and resumed life as normally as circumstances permit. Meanwhile, "DAYS OF DESTRUCTION" has won top awards in several film festivals.



glowing centre. We were too occupied looking at him and did not start the camera.

The human skin heals, and the bruises on my neck did, but a delicate piece of optical glass does not and our Vario-Switar was about as good a lens as a Coke bottle after a big squall of ash had sandblasted the front element. A 16mm f/1.8 Switar looked like a frosted glass window after another easterly.

Our Bolexes, though being protected with plastic bags and our parkas, finally stopped purring like cats and started sounding like coffee grinders. We had no alternative but to go on using the cameras and they seemed to pull through a pretty steady footage, but both of them quit running at speeds above 32 fps and one of them more than once stopped taking up and made salad out of hundreds of feet of film.

For sound a Sony Professional EM2s full-track machine with a pilot head did most of my recording. Ernst later got a UHER 1000 Report and a Sony TC 110 was added to the crew. The Sony ECM 21 Electret mike did an excellent job, both in the field and for recording interviews. The TC 110 is surprisingly good and now much of our background and wild sound is recorded on this machine. It is highly portable and has up to one-hour capacity on each cassette and the quality is good enough to cut into any other recording.

We decided to make a 25-30 minute film about the first two months of the eruption and market it as soon as possible, while we kept on shooting, later to build up a complete story. Working on two Pic-Syncs, one motorized, we started the editing.

Ernst and I each worked on one section of the film, while Páll checked with the script, gathered geological information and wrote the text. After rough-cutting each section, Ernst and I switched seats and one criticized the other's work. By this method, and often by letting Ernst edit film shot by me, and vice versa, a better job was done. In case of disagreement, majority ruled.

A great handicap to us is lack of processing and printing facilities for color in Iceland. We have to send all our film to London for developing and printing and, on top of this, there is only one place to go for sound transfer and simple mixing. The local TV station is open to outsiders for sound work one night a week and we have to pay overtime. Regardless, we got through to a cued workprint, two effects tracks, one music track, several loops and one each, Icelandic and English, narration. Pulling the original was done by Ernst, Continued on Page 90

SMPTE ANNOUNCES AWARDS AND FELLOWSHIPS

The Society of Motion Picture and Television Engineers presents a number of Awards in recognition of outstanding achievement. These awards have been created over a period of years.

Certain practices and rules are common to all the awards. Award Committees shall consist of five Honorary, Fellow or Active Members of the Society appointed biennially and confirmed by the Board of Governors. The Journal Award Committee is appointed by the Editorial Vice-President. Other Award Committees are appointed by the President. The Chairman shall be designated by the appointing officer. Membership in the Society shall not be a prerequisite to an award.

Any member of the Society shall be entitled to make a nomination for a medal award. Such nominations shall be made in writing to the Chairman of the appropriate committee, giving the reasons why the writer believes the award justified. The Committees shall forward their reports to the Secretary of the Society in time for presentation to the Board of Governors at their midyear meeting.

The awards shall be presented at such time as the Board of Governors may direct. Normally, awards shall be presented by the President at the first fall meeting of the Society following approval of the award by the Board of Governors.

The Progress Medal is recognized as the premier medal of the Society. The Samuel L. Warner Memorial Award Medal, the David Sarnoff Medal, the Herbert T. Kalmus Gold Medal, the E. I. du Pont Gold Medal, the Eastman Kodak Gold Medal, and like medals which may be established in the future are recognition of achievement in special fields of accomplishment less broad in scope than that for which the Progress Medal is awarded. In each case, these awards shall be made to one or more individuals rather than to organizations.

Receiving such awards at the recent 114th SMPTE Conference held in New York, were the following gentlemen:

Honorary Membership

It is the purpose of election to Honorary Membership of the Society to honor an individual who has performed a lifetime's work of eminent service in the advancement of engineering in mo-

tion pictures, television or in the allied arts and sciences.

Ralph M. Evans has for some 40 years been a leader in the study and applications of the phenomena of color perception and its various ramifications. Among the most important applications have been color photography in still and motion pictures, and color television. In all of this work he was a close scientific student of the phenomena of color vision and applied his findings to make these display systems more realistic and attractive. No current discussion in this field can omit references to his extensive and authoritative contributions to the art, in books, articles and lectures.

Progress Medal

It is the purpose of this award to do honor to the individual by recognizing outstanding technical contributions to the progress of engineering phases of the motion-picture and/or television industries.

A wide range of scientific and engineering disciplines and activities are conjoined to form the technological base of the motion-picture and television industry; each discipline has contributed in its unique way to progress in the presentation of sight and sound to human beings. In a highly specialized world, it is increasingly uncommon to find a scientist or engineer with the broad background and the versatility that one must have to contribute significantly to progress in several of the technologies in the motion-picture and television field. The conferring of the 1973 Progress Medal Award on Wilton R. Holm acknowledges not only the quality of his accomplishments as a scientist, author and administrator, but also pays tribute to his versatility and to the scope of his contributions.

E. I. Du Pont Gold Medal Award

It is the purpose of this award to do honor to the recipient by recognizing outstanding contributions in the development of new techniques or equipment which have contributed to the improvement of the engineering phases of instrumentation and/or high-speed photography.

Robert Shoberg's many contributions to the field of high-speed photography started over twenty years ago when he organized the Photographic

Instrumentation Branch of White Sands Missile Range. Since that time he has been active in all phases of the discipline and has contributed significantly to its growth and general acceptance as a useful tool by the engineering profession. He has also striven towards perfection in rotating-prism cameras and has personally been responsible for major advances in equipment design.

Eastman Kodak Gold Medal Award

It is the purpose of this award to honor the recipient by recognizing outstanding contributions which lead to new or unique educational programs utilizing motion pictures, television, high-speed and instrumentation photography or other photographic sciences.

The Eastman Kodak Gold Medal Award is presented to John A. Flory for his many years of leadership in furthering communications and the presentation of ideas in education, industry and the entire nontheatrical field through the use of 16mm and 8mm film. Through his intimate knowledge of the technology and broad acquaintance with individuals in all the related fields, he has been the catalyst in the development of many significant programs. Great credit is due for his continuing efforts in the education and training of young filmmakers at all levels for future careers in all related fields.

Herbert T. Kalmus Gold Medal Award

It is the purpose of this award to do honor to the recipient by recognizing outstanding contributions in the development of color films, processing, techniques or equipment useful in making motion pictures for theatre or television use.

The Herbert T. Kalmus Gold Medal is awarded to Charles J. Hirsch in recognition of his leadership in the development of the Hazeltine Color Analyzer. As an executive of the Hazeltine Research Corporation, his work led toward the color analyzer becoming a commercial reality. The Hazeltine Color Analyzer, now in world-wide use, has provided a means of progressive improvements in motion-picture laboratories.

David Sarnoff Gold Medal Award

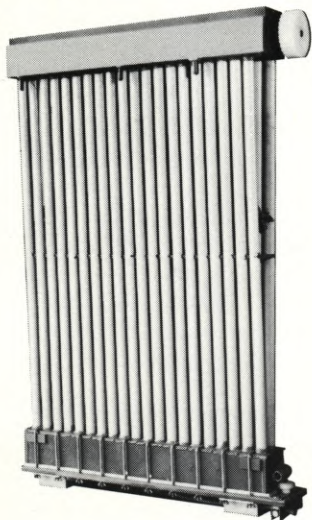
It is the purpose of this award to honor the recipient by recognizing outstanding contributions in the develop-

Continued on Page 91

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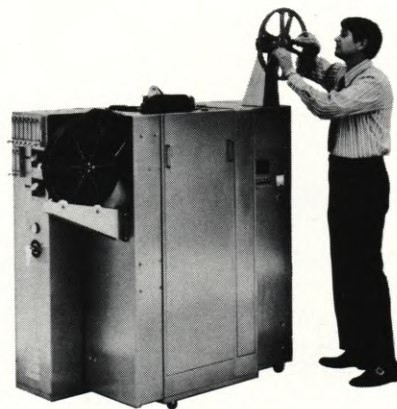
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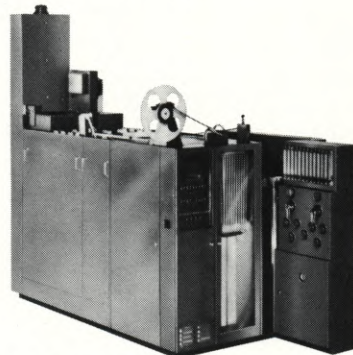
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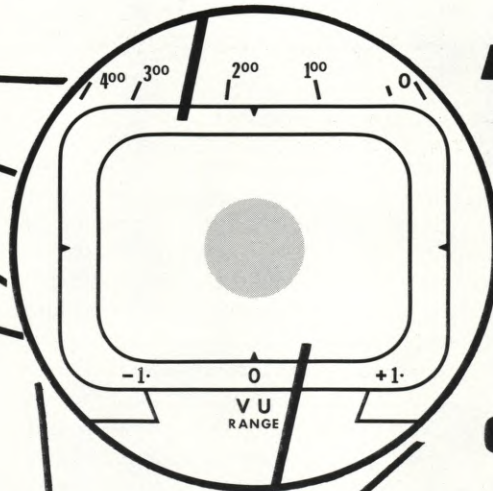


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THE NINTH ANNUAL CHICAGO INTERNATIONAL FILM FESTIVAL

A feast of fine films, interesting retrospectives and guests from faraway places make this festival a smashing success

By HERB A. LIGHTMAN

CHICAGO

The Windy City is not very windy just now. It's behaving itself very well, in fact. No icy blasts howling in off Lake Michigan. Just a brisk nip to the air, and cheery sunshine most of the time. The natives keep saying things like: "Dig this weather! Can you believe it for this time of the year?"

There *is* a hint of something special in the air, though—the air, at least, that I'm breathing at the moment—that unique whiff of excitement that seems to prevail when film-makers and *aficionados* of the Cinema congregate to view a roster of superior motion pictures. The occasion: The Ninth Chicago International Film Festival.

This is the first time I've attended the Chicago Festival, but I have a background of facts about it. The Founder and Director is Michael J. Kutza, Jr. who, nine years ago at the age of 23, decided that a cultural center like Chicago ought to have its own festival to pay tribute to great films and great film-makers. Getting it off the ground, I'm told, was extremely difficult and there have been lean years, but now the Festival seems to enjoy prestigious sponsorship and presents an impressive lineup of films in the following major categories: Feature Films, Short Subjects, Student Films, Business and Industrial, Educational, Television Production (Film and Videotape) and Television Commercials.

Kutza, pleasant and seemingly rather shy, makes all of the required public appearances, but stays mainly in the background, preferring to function, it would seem, like a kind of young grey eminence behind the scenes. His credo for the Festival: "We present the Film Festival to provide a showcase for stunning films which otherwise would never be seen in the United States. And we hope to reflect the current international trends in film-making by presenting a cross-section of what's new and exciting in film all over the world."

Executive Producer of the Festival is

Lois Stransky, a tireless little lady who does an extraordinary job of making things happen when and as they should. She is forever rounding up strayed foreign dignitaries, collecting and depositing them at the sites of their scheduled appearances, making sure that limousines are on hand to run everybody back and forth to screenings and to the airport—and she does it all with good grace and a touch of sardonic humor. She deserves some sort of special medal, or—at the very least—a Purple Heart.

I had been asked to serve on the Feature Film Jury—and I should have enjoyed that—but a super-tight schedule made it impossible to devote the amount of time it would have taken to screen in advance the 37 features from 19 countries entered in the Festival.

The Feature Film Jury, as it stands without me, is a most distinguished one and is comprised of: David Robinson (for 15 years film critic of the London Financial Times and current film critic of the London Times), John Russell Taylor (from 1962 until 1972 film critic of The Times of London and now a Professor in the Cinema Department of the University of Southern California), John Kobal (lecturer and author of many books on the Cinema) and Claudia Cassidy (Arts Critic for WFMT-Radio and the new Chicagoan magazine, as well as the Chicago Tribune).

This year's festival is taking place in five locations, with the co-sponsorship of the University of Chicago, and with the utilization on that campus of Mandel Hall, the Center for Continuing Education and the Oriental Institute. Screenings are also being presented at the Museum of Science and Industry and at the Devon Theater on Chicago's northside. The Devon (the name of which the natives insist on pronouncing with the accent on the last syllable) is a scruffy neighborhood house which has seen far better days, but its location at the epicenter of five college campuses makes it a most convenient place for the collegians to view films.



The handsome statuette this lady is wearing so winsomely is the Gold Hugo, highest award of the Chicago International Film Festival.

Honored guests of the Festival are quartered at the Ambassador East Hotel and the determined Britishness of this venerable hostelry is a source of innocent merriment to the genuine Englishmen in the crowd. Such affectations as "f's" for "s's" on the Pump Room menu (in simulation of what I believe is known as "Ye Olde Englishe" style) and a pair of uncomfortable chairs in the lobby on which Queen Elizabeth II and the Duke of Edinburgh once set their royal bottoms (with tasteful metal plaques commemorating the momentous occasion). One lady remarked that she felt as though she ought to curtsy when riding up in the elevator.

Two major retrospectives are being held during the Festival—one a 10-film tribute to famed Indian director Satyajit Ray—the other an 18-film tribute to David Wolper.

I arrive a couple of days after the opening of the Festival and David Wolper has already been there and gone, having alternately charmed and spellbound, I'm told, a sellout crowd of eager young film buffs.

As for Mr. Ray, it is my good fortune to be seated next to him at a small

dinner party hosted by Michael Kutza in the Pump Room, and we have a chance to talk.

Satyajit Ray is regarded as the most famous of all film directors from India and he has achieved a worldwide reputation as one of the great new-realist directors. His cinematic style has been characterized by contrast: the films have ranged from his uniquely sensitive depiction of village and family life to the comic and musical "GOUPI GYNE", with its undertone directed at the stupidity of war.

He started his career as an art director for a British advertising agency in Calcutta and made his first film, "PATHER PANCHALI", while still with that firm, working weekends over a period of two-and-a-half years. He gave up advertising for full-time film-making in 1955 and has, so far, made a total of 19 features and three documentaries.

I ask him about his methods of working and he tells me: "I usually shoot 40 to 45 days on a feature, but this is spread out over three or four months. I take time out between shooting sessions to do a bit of cutting and then continue filming. An arrangement is made with the actors so that they remain on call during that entire period. Everything about my films is very thoroughly pre-planned, including storyboards. I started out in graphic arts, so I make my own sketches. In general, I don't believe in improvisation, because counting on things to happen by accident is too much of a gamble. This doesn't mean, however, that if something good happens spontaneously it cannot be incorporated into the pre-planned action. There is some flexibility, but as a result of the careful planning, I can shoot at a ratio of four-and-a-half-to-one, and on one film, with a 25-day shooting schedule, I shot



A scene with Jacqueline Bisset and Francois Truffaut from "DAY FOR NIGHT". Truffaut not only directed it, but plays the leading role (that of a film director, of course). The film is fine entertainment for the lay moviegoer, but for those who have ever gone through the birth pangs of creating a film—any film—it has a thousand special meanings. Shown out of competition, "DAY FOR NIGHT" was a great favorite with audiences.

at a ratio of two-and-a-half-to-one. There is no waste, and it has to be this way; otherwise I couldn't make it on the low budgets available. In any case, I've found that the first take is usually the best. If you make too many takes, the actor often loses his spark and the performance becomes mechanical."

Speaking of actors, I ask him how he recruits his talent and he says: "Most of them are not professionals, but real people. I do employ some professional actors, of course, but many of them are young actors who have had only some stage experience."

He says that he writes all of his own

screenplays, although some are adapted from novels and stage plays. He tells me that there are fine cinematographers in India, but he prefers to operate the camera himself. "Only when I'm looking through the lens myself do I really know what I have on the film," he explains. "Then, too, cameramen often shoot to impress other cameramen. They will call for another take if there is the tiniest bobble in a dolly shot; whereas, I am quite willing to let that bobble go by if the performance has been great in the take."

He says that he makes on an average of one picture a year now, although his

(LEFT) Banners announcing the festival decked the campus of the University of Chicago, which co-sponsored the event. (RIGHT) Students regularly packed Mandel Hall on the University of Chicago campus to see the films. It was one of five citywide locations where screenings were held.





Chicago Film Festival Director and Founder, Michael J. Kutza, Jr., chats with Ludmilla Savlyeva and Yuri Uakovlev, stars of the Soviet film version of Anton Chekhov's play, "THE SEAGULL", which was very warmly received when shown at the Festival.

average used to be somewhat higher. "The reason is that I do other things besides—some graphic arts and the editing of a children's monthly magazine, *Sandesh*, which was started by my grandfather and later edited by my father. I have revived this magazine and it's great fun."

Sitting directly across from me at this same dinner party is a ravishing creature, the beautiful young Russian film star, Ludmilla Savelyeva. I must confess that I have been secretly in love with her ever since I witnessed her performance as the tremulous teenaged

"An Evening with David Wolper" was one of the main events of the Festival, along with retrospective screenings of 18 of his outstanding documentaries.



Natasha in the Academy Award-winning Soviet production of "WAR AND PEACE"—and time, it seems, has not diminished my passion. With her is her male co-star in the new Russian film version of "THE SEAGULL", Yuri Yakovlev (a very jolly character) and their interpreter, Valery Kozlov.

We had met before, the lovely Ludmilla and I, when she attended the Academy Awards Presentation on behalf of "WAR AND PEACE", but the language barrier had precluded conversation—Russian not being one of my languages. Now, however, I discover that she knows some French, so we are able to converse in that language. Actually she needn't say a word. All she has to do is sit there, with that radiant smile, and look beautiful.

Later, at the Festival premiere of "THE SEAGULL", she is to charm the audience with her delightful little speech in Russian, ending up with "Thank you" in English (which sparks an ovation from the young crowd at Mandel Hall). As for the film itself, she and her fellow players, aided by sensitive direction, manage to lift Anton Chekhov's basically soap-opera plot into the realm of cinematic art.

Equally charming, in a very masculine way, is the Swiss-born Academy Award-winning actor-turned-director, Maximilian Schell. His film, "THE PEDESTRIAN", which he acted in and directed in Germany and Israel, is one of the high points of the Festival. Although this is only his second film as

a director, Schell displays a masterful directorial touch in bringing to the screen the terror, guilt and fear of a modern-day respected German industrialist, whose past as a hostage-murdering wartime Nazi officer is exposed to the public.

Schell is followed everywhere in Chicago by an eager-beaver filming team intent on documenting his every move for German television. A very zany, Mack Sennett sort of scene transpires when I ride with him to television station WMAQ-TV, where he is to tape a show with Irv Kupcinet. Sitting up front beside the cab driver is the cameraman, grinding away with his Eclair NPR. Crammed into the back seat with Schell and myself is the assistant, bouncing a Colortran Mini-Pro light off the ceiling of the cab. I can hardly keep a straight face as we talk.

He tells me that he much prefers directing to acting. "The main reason is that, as a director, I have full control over what goes onto the film," he tells me. "As an actor, on the other hand, I simply do what I'm told and have no say as to what the camera is recording. I do feel, though, that my long experience as an actor has given me a very sympathetic and understanding point of view in working with actors. Actors are a special breed. They need a certain amount of petting and coaxing. Understanding perfectly how they feel, I am able to give them this. I'm a very good 'father' for them."

All in all, the Festival is characterized by the screenings of some really excellent features, many of them enjoying World Premieres here. Space limitations preclude analyzing very many of them in detail, but there are a few which bear mentioning.

There is one contrast which, I feel, brings home some basic truths regarding the kinetic function of Cinema. For example, "BETWEEN FRIENDS", Donald Shebib's Canadian entry, was obviously made on the premise that the small lives of small people doing small things necessarily makes for arresting screen drama. The sullen glowering of Michael Parks (which is supposed to pass for profound acting), the uninspired performances of the rest of the cast, and the pedestrian direction of even the climactic payroll heist sequence add up to a disappointing result and a just plain dull film.

On the other hand, in the film "ILLUMINATION", Polish physicist-philosopher-film director Krzysztof Zanussi takes the life of a very ordinary young man and, by dint of incisive directorial skill and an exciting technical command of the medium, makes it into

a totally arresting character study revealed in terms of pure cinema.

For me (and, I venture to say, for every film-maker present) Francois Truffaut's brilliant "DAY FOR NIGHT" is one of the great treats of the Festival. A straightforward, linear story (without artifice or gimmicks) about the making of a movie by a French cast and crew, it scores soundly on two distinct levels. To the layman, it is an authentic behind-the-scenes peek into the mad world of movie-making—totally absorbing and amusing. But to anyone who has ever suffered the birth pangs of creating a film—any film—it hits home in a thousand ways.

Truffaut, brilliantly underplaying himself in the role of the film's director, stands bewildered and very vulnerable in the midst of the creative maelstrom that whirls about him. He states early on that the making of a film is like starting out on a trip: At first, you hope it will be a pleasant journey, but after a while you find yourself praying that you will simply be able to complete the journey. Everything that can happen *does* happen. There is the aging former "great star" who keeps forgetting her lines and having hysterics. There is the neurotic juvenile who keeps fancying himself in love and throwing tantrums. There is the mellowed leading man who gets killed in an accident halfway through the filming (it actually happened to me once!) and there are the thousand and one personality clashes and intrigues, with Truffaut as the compassionate referee who is unable to get a tantrum in edgewise.

With "DAY FOR NIGHT", Truffaut once more proves that he is by far the most talented of the former "New Wave" French directors, the one least addicted to gimmicks (*a la* Godard), and the best story-teller in terms of film.

A truly wonderful film, both in terms of technique as well as sheer entertainment, is "MORGIANA" from Czechoslovakia. It is a real movie-movie, a no-holds-barred baroque thriller-chiller that maintains high suspense from start to finish. In it, Director Juraj Herz creates a strikingly effective *art nouveau* world, with actress Iva Janzurova playing the dual role of two sisters: the one, Klara, good and the other, Viktoriya, the baddest of bad. The plot concerns the attempt of Viktoriya to take over her sister's inheritance by administering a deadly, but slow-acting poison.

Everything about "MORGIANA" is high-style and top-drawer; the direction, the acting, the art direction, the make-up, the costuming. It has been superbly photographed by Jaroslav Kucera, who demonstrates control of low-key light

situations with a precision and artistry seldom equalled on the screen. Bizarre out-of-color-register optical scenes represent the point-of-view hallucinations of the poisoned heroine. Yet, with all of this masterful technique going for it, the behind-the-scenes mechanics of the film never intrude into the story-telling. "MORGIANA" is a picture to be proud of.

There are many other films to be proud of, too, in this festival—among them: "THE GOAT HORN" (Bulgaria), "TRIPLE ECHO" (England), "DAYS OF 1936" (Greece), "DISTANT THUNDER" (India), "THE HOUSE ON CHELOUCHE STREET" (Israel), "THE SPIRIT OF THE BEEHIVE" (Spain), "VISIONS OF EIGHT" (U.S.A.), "THE BITTER TEARS OF PETRA VON KANT" (West Germany) and "THE FOREIGNERS" (Sweden).

I am especially indebted to Paul R. Markun, Co-chairman of the Business and Industrial Jury, for arranging for me a special screening of some of the award-winning films in this category. These include: "OF JEWELS AND GOLD", "K-2 SHORT FILM", "HOT CARDS", "STEAMBOAT'S A COM-IN" and "SUGAR COUNTRY"—all of them very well made.

The major awards of the Chicago Film Festival are called "Hugos" (Gold and Silver) and it is explained to me that a Hugo is "a mythological god, symbolic of discovery."

The handsome award statuette (which looks vaguely ecclesiastical) was designed in 1964 by an Italian sculptor, Antonionni Fontannano, and its form was "inspired by the spirit figure in the Ingmar Bergman film, 'The Seventh Seal'."

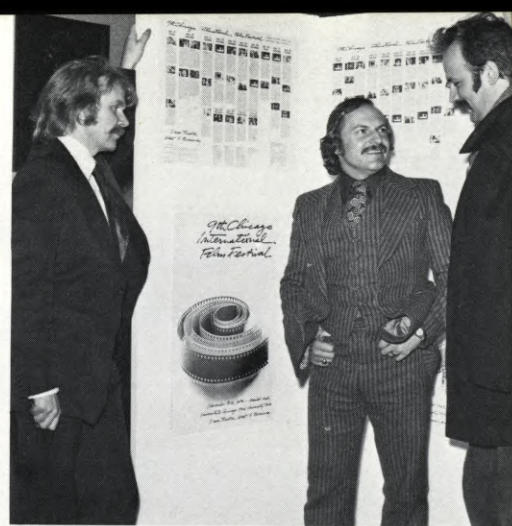
How's that for heavy symbolism?

On the night of the Awards Presentation, I am asked by the Feature Film Jury to accept the Gold Hugo for Best Feature, on behalf of the film's producers, who are not present.

I am happy to do so—and even happier when the Best Feature of the 9th Chicago International Film Festival turns out to be . . . that's right: "MORGIANA".

It is shown to a highly appreciative audience, along with other winners, on a program devoted to "Best of the Festival".

The organizers and hard-working staff of this event are to be congratulated for having very successfully achieved their objectives—namely, that of: "providing a showcase for stunning films which otherwise would never be seen in the United States" and "presenting a cross-section of what's new and exciting in film all over the world." ■



Three members of the Feature Films Jury: London Times film critic David Robinson, U.S.C. Cinema Professor John Russell Taylor and author John Kobal.

AWARDS OF THE NINTH CHICAGO INTERNATIONAL FILM FESTIVAL

FEATURE FILM WINNERS/1973

Golden Hugo for Best Feature Film:
"MORGIANA"
(Czechoslovakia)

Special Golden Hugo:
to Satyajit Ray, for his achievement in the cinema over two decades, culminating in his new film DISTANT THUNDER.

Special Prize of the Jury:
to Rainer Werner Fassbinder's
Continued on Page 106

Iva Janzurova plays a difficult dual role in the extraordinary film from Czechoslovakia, "MORGIANA", which won the Gold Hugo as Best Feature.



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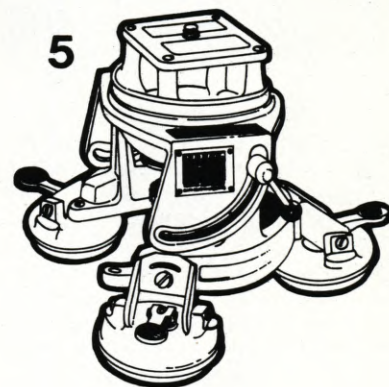
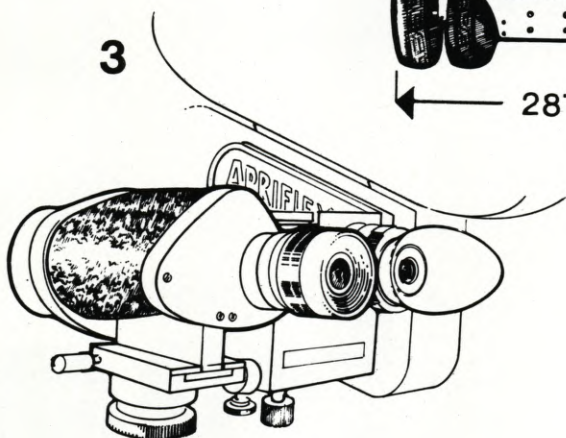
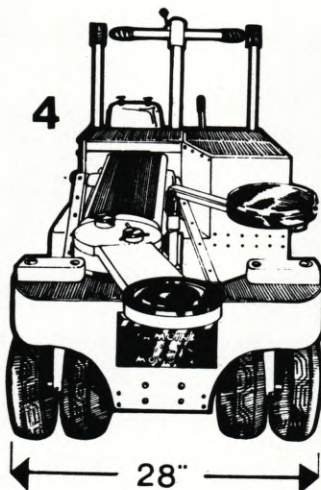
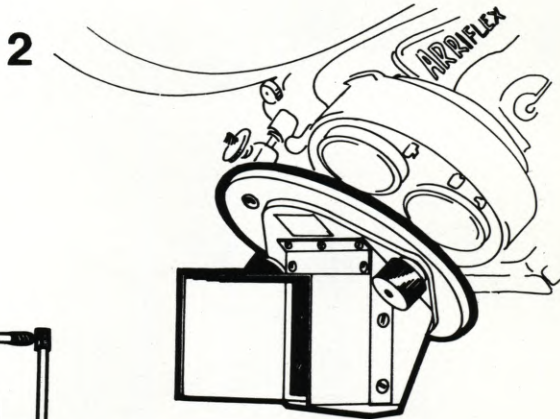
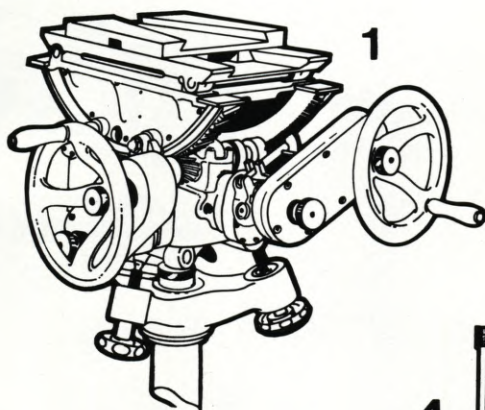
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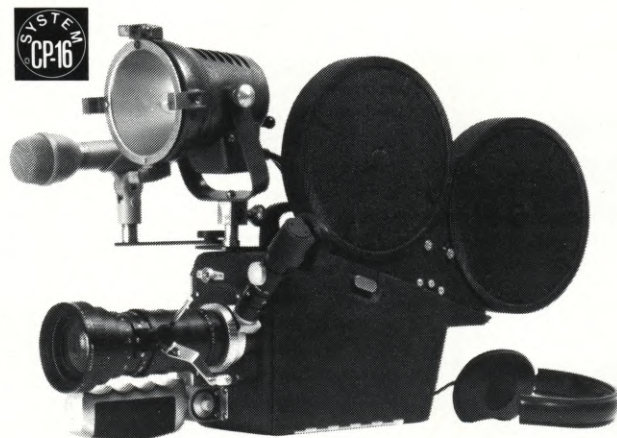
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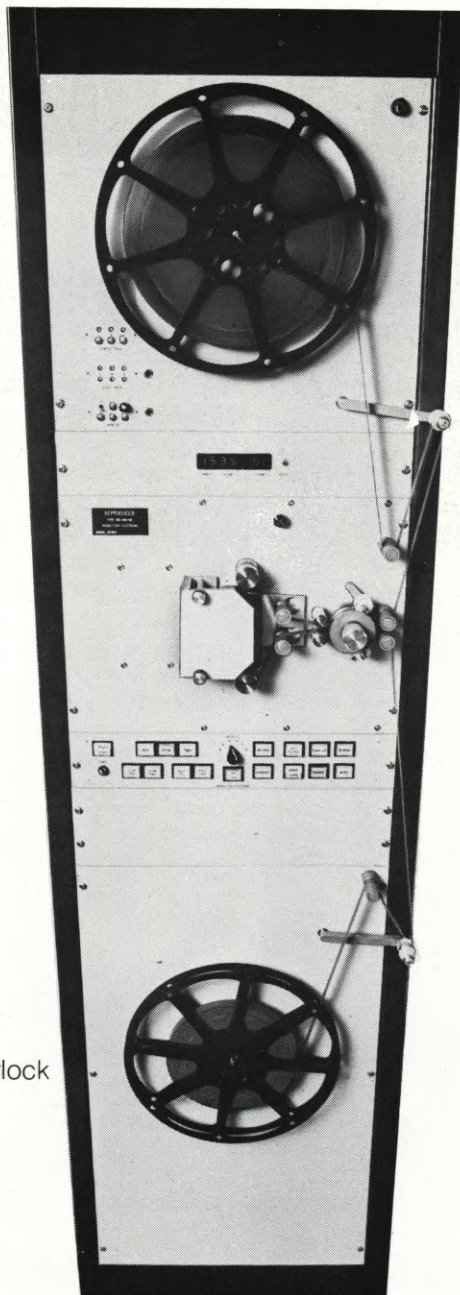
CP-16/A Camera (non-reflex) shown with Mike/Lite bracket, RE50 microphone, and Cinema Products' new *Sturdy-Lite* quartz 250 watt/30 volt battery-operated focusing spot light. The *Sturdy-Lite* focusing spot weighs only 12 ounces.

The state of the art in film sound just took a giant step forward. In Speed, Flexibility, Safety, and Ease of Operation. For sound transfers, looping, re-recording, double-system screening and telecine interlock.

Magna-Tech's new 600 Series is the reason. This versatile new system features electronic interlock, foolproof IC logic and improved mechanical and electrical design. Incorporating traditional Magna-Tech reliability and durability, the MTE 600 Series provides expanded capabilities and superior performance in any application from the most compact studio to the largest mixing complex.

Among its many features are:

- stepping motor sprocket drive
 - optical/electronic high-speed interlock system
 - local or remote advance/retard of individual films in interlock
 - operates at 6-times-sync speed through sprocket in interlock with Magna-Tech high-speed intermittent projector, via optical encoder
 - operates 10-times-sync speed in interlock with video tape recorder
 - operates local at sync and 10-times-speed through the sprocket
 - 115/220 volt—50 or 60 Hz operation
-
- flywheel accelerators for rapid start
 - film retracted from heads in all modes except sync speed forward
 - servo-controlled film take-up tension provides gentle handling of spliced tracks
 - automatic safety shutdown
-
- compatible with conventional interlock systems
 - multiple machine operation—as many as desired—in interlock via distribution amplifier
 - 6-buss interlock selector switch for studio delegation
 - can be cued on and off buss while running in interlock
-
- pushbutton-selected 16 or 35 speed and 24 or 25 frame rate, forward or reverse
 - local inching forward or reverse
 - plug-in head assemblies for play-only or erase/record/play, interchangeable for 16, 35, 17½ and multi-tracks
 - multi-track pick-up recording with selective erase
 - 3000-foot (1000-meter) reel capacity



HIGH-SPEED ELECTRONIC INTERLOCK IS NOW A PRACTICAL REALITY

MAGNA-TECH ELECTRONIC CO., INC.

630 NINTH AVENUE/ NEW YORK, N.Y. 10036

- QUAD-EIGHT, 11929 VOSE ST., NORTH HOLLYWOOD, CA. 91605
- CINESOUND INTERNATIONAL, LTD., IMPERIAL STUDIOS, MAXWELL ROAD, BOREHAMWOOD, ENGLAND
- MAGNA-TECHTRONICS (AUST) PTY., LTD., 49 WHITING ST., ARTARMON, N.S.W., AUSTRALIA 2064

KODAK INTRODUCES SUPER-8 SINGLE - SYSTEM SOUND CAMERA AND OTHER PROFESSIONAL SUPER-8 PRODUCTS

In addition to its new sound camera, Eastman presents a 200-foot capacity magnetic pre-stripped Super-8 cartridge, a new Super-8 Ektachrome film and a compact, automatic Super-8 film processor

Eastman Kodak Company has announced four new sound Super-8 products designed for professional use that the company will market by mid-1974. The new products are a single-system sound Super-8 camera, a 200-foot capacity sound Super-8 cartridge for magnetic prestriped Super-8 film, a Super-8 Ektachrome film, and a compact, automated Super-8 film processor.

"Sound Super-8 film has now matured as a viable low cost professional communications medium," Tony Frothingham, assistant vice president and general manager of Motion Picture and

Audiovisual Markets Division, said in making the announcement. "Today's Super-8 sound film is the closest thing to a truly universal visual communications medium. And these new product announcements close the final gap left by double-system Super-8, slow emulsion speeds, post-stripping and re-recording and, just as important, the lack of readily available in-house film processing."

In addition to noting the significant features of the new products, Frothingham related them to products announced earlier this year by Kodak for

The Kodak Supermatic 200 sound camera (LEFT) is an existing light, single-system sound Super-8 camera that runs at 18 and 24 frames per second with 18 frame separation, designed for use in television, education, business, industry and government. Camera features include acceptance of 50-foot (RIGHT) and 200-foot (CENTER) silent and sound Super-8 cartridges, manual and automatic exposure control, zoom lens, and automatic gain control for sound recording.

the display of sound Super-8 film, such as the Supermatic film videoplayer, Eastman videofilm projector, and Supermatic film projectors.

The Kodak Supermatic 200 sound camera is an existing-light, single-system sound, Super-8 camera that runs at 18 and 24 frames per second with 18-frame sound separation. The camera will accept silent or sound 50-foot Super-8 cartridges and a new 200-foot Super-8 cartridge (silent or sound). It has been designed for use by film-makers in television, education, business, industry and government.

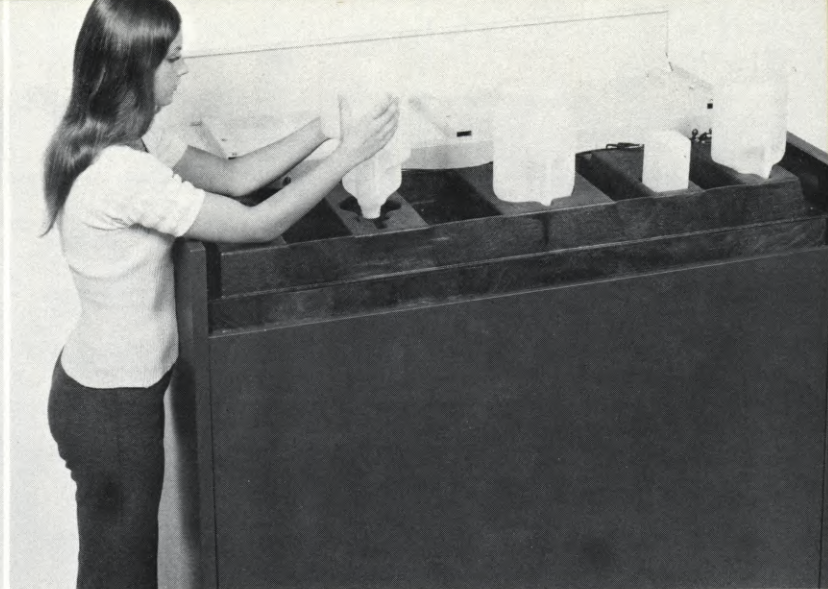
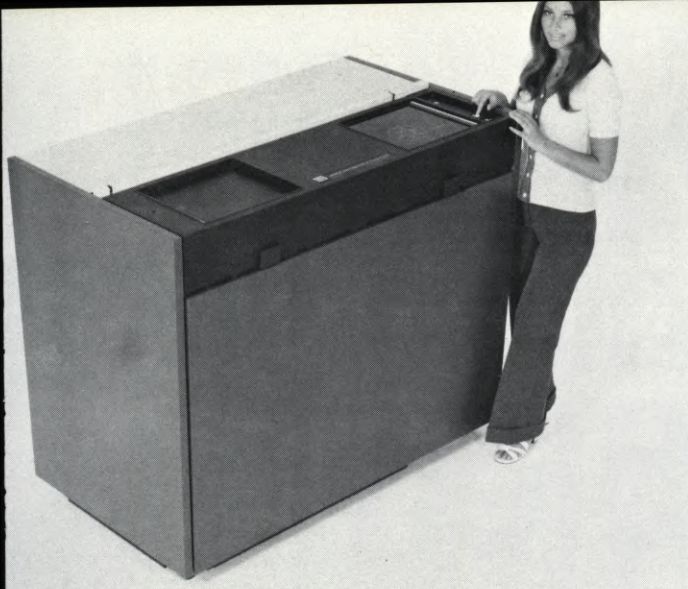
Features of the camera include a fast, 9-21mm, f/1.2 Kodak Ektar zoom lens, 230-degree shutter opening, manual zoom, manual exposure control from f/1.2 to f/32 or automatic exposure control from f/1.2 to an effective f/36 using a double-vane CdS exposure control system. The viewfinder is a high-aperture modified sportsfinder coupled with the zoom lens with corner marker references to television safe action area and is equipped with a focusing eyepiece. The external viewfinder and exposure system do not take light from the lens.

The Kodak Supermatic 200 sound camera incorporates a highly sophisticated sound recording system including amplifier with automatic gain control, allowing the camera to adjust automatically for existing sound. An alternate microphone input on the camera will reduce amplifier pickup by 10 db to help reduce the recording of ambient noise such as wind and other unwanted background noises.

Low-light signal and sound-recording signal in the camera are combined, the former blue and the latter red, and appear at the bottom of the sportsfinder. The red light (or purple under low-light conditions) tells the operator that: a sound cartridge is in the camera, a microphone is plugged into the camera, the 9-volt transistor battery is in good condition, and a sound signal is reaching the camera amplifier. An end-of-film indicator appears on the right side of the sportsfinder. The camera is equipped with a focusing eyepiece.

Six AA alkaline batteries power the film cartridge drive and a 9-volt alkaline transistor radio battery powers the am-





(LEFT) The Kodak Supermatic 8 processor is designed for use in office buildings and may be operated by someone such as a secretary, who has been familiarized with the unit. (RIGHT) Processing chemicals include Kodak ES-8 first developer, Kodak ES-8 stop bath, Kodak ES-8 color developer, and Kodak ES-8 bleach-fix, all provided in color- and shape-coded plastic containers to help minimize operator error in loading chemicals.

plifier. An external power jack accepts the 9-volt Ektasound camera battery pack consisting of 6 AA batteries to supplement the 6 AA batteries in the camera for extended camera operation or for operation in temperatures down to 20 F. There is a built-in battery check for the film cartridge drive.

The camera weighs slightly less than 4 pounds, has a molded, black body with bright metal accents and wood-grain finish, a molded built-in hand grip, tripod socket, and cable release socket, and is provided with an omnidirectional microphone with a 12-foot cord, wrist strap with swivel, rubber eyecup, and instructional manual.

Optional accessories available for the camera include a directional microphone, 15-foot microphone extension

cord, camera case and Kodak Ektasound battery pack.

The Kodak Supermatic 200 sound camera is scheduled to be available by mid-1974 at a list price of \$425.

The newly designed Super-8 film cartridge has a capacity of 200 feet of silent or magnetic-sound Super-8 film. Films available from Kodak in the new cartridge will include silent and pre-stripped Kodak Ektachrome EF film 7242 (tungsten) and Kodak Ektachrome SM film 7244.

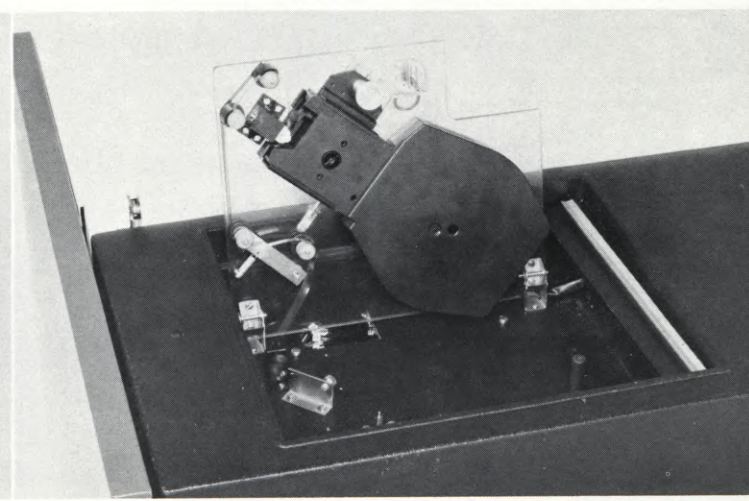
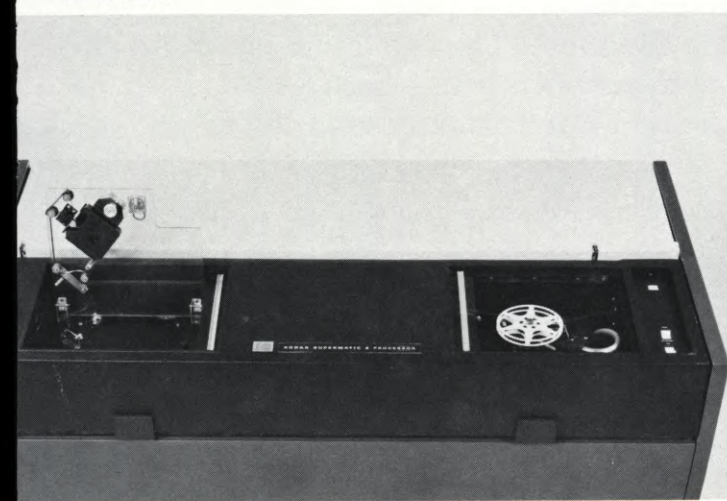
Kodak Ektachrome SM film 7244 will be available in 50-foot and 200-foot Super-8 cartridges, silent and sound. The new film has a daylight ASA speed of 100 (with a type A filter) and tungsten ASA speed of 160 and will be available only in the Super-8 format.

The Kodak Supermatic 8 processor is cartridge-loading, accepting 50-foot and 200-foot sound and silent cartridges, as well as a darkroom-loaded 400-foot cartridge. It operates at 10 feet per minute, features a process time of 8½ minutes, processes a 50-foot roll in 13½ minutes, and utilizes process ES-8 extended batch chemicals in kit form. The processor is designed for use in office buildings, as well as television stations and laboratories and may be operated by someone such as a secretary, who has been familiarized with the unit.

Loading the processor consists of pulling a short section of film from the cartridge, cutting it, and splicing it to a polyester threading tab, securing the cartridge in a nest that checks the film

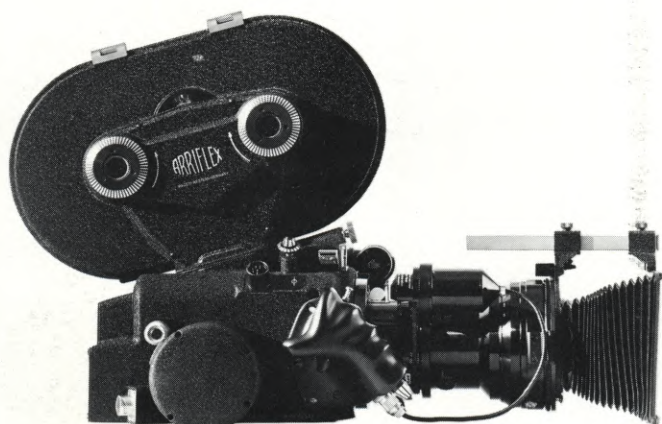
Continued on Page 88

(LEFT) The Kodak Supermatic 8 processor is cartridge-loading, accepting 50-foot and 200-foot sound and silent cartridges, as well as a darkroom-loaded 400-foot cartridge. It operates at 10 feet per minute, features a process time of 8½ minutes, processes a 50-foot roll in 13½ minutes. (RIGHT) Loading the processor consists of pulling a short section of film from the cartridge, cutting it, and splicing it to a polyester threading tab, securing the cartridge in a nest that checks the film type, feeding the threading tab around four rollers, and inserting the tab into the access hole.

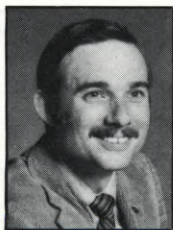


“Bought our 16BL in 1965. Still using it. No problems.”

The first five 16BLs were delivered in 1965. *Three* of those are still with their original owners. One was sold. The fifth was stolen — and immediately replaced with *another* 16BL.



“I’ve never regretted the purchase. If I had the choice, I’d do it again.”



Jim Legg

That’s cameraman Jim Legg speaking. He works for the Foreign Mission Board of the Southern Baptist Convention. They bought an Arri-Flex 16BL in December 1965 —and Jim Legg has been using it ever since.

Good Experience

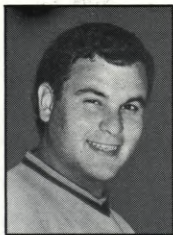
“We’ve been right around the world with that camera,” says Mr. Legg. “It’s been to every continent except Africa. All weathers. And we’ve had no problems at all with it.”

Serviced Once

“Once we sent it in for routine servicing. And at one point I fitted a brighter groundglass. That’s all. In fact, our experience with it has been so good, we’ve bought ourselves a *second* 16BL.”

Bought a Second One

Another film maker still using his 1965 BL *also* bought a second one. Because he works for a government agency, we can’t publish his name. If you call us, though, we can give it to you privately.



Joe Davis

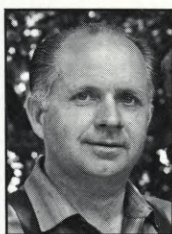
Cameraman Joe Davis works for the Orange County Board of Public Instruction, in Florida. He's still shooting with his 1965 16BL. He once spent \$32.00 on the motor. And that's all.

Like a Mercedes

"I enjoy working with that Arri," says Mr. Davis. "And you can't ask much more than that from a piece of equipment. It's like driving a Mercedes."



THE ARRIFLEX 16BL: IT HOLDS UP.

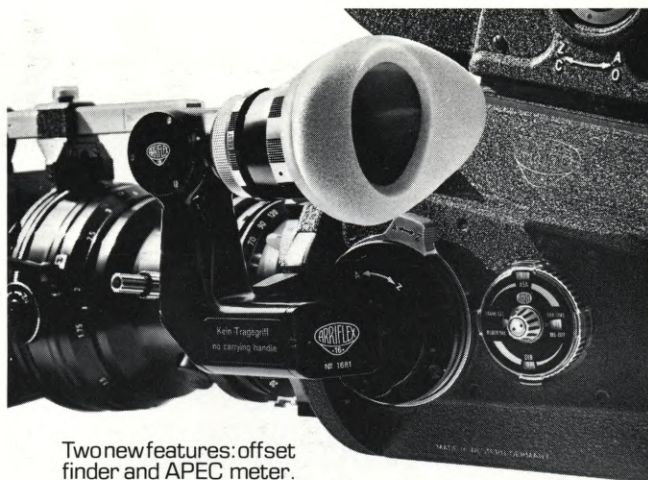


Dana Fuller

Dana Fuller runs a rental business in San Mateo, California. In 1965, he bought a 16BL. While out on rental, it was stolen—so Mr. Fuller bought another one.

Trouble-Free

"Ours is a small operation," says Mr. Fuller, "So I pick *solid* cameras that don't need constant servicing. All my 16BLs have been completely trouble-free."



Two new features: offset finder and APEC meter.

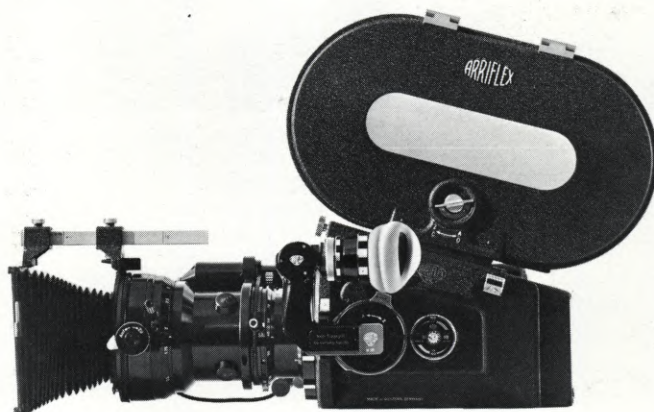


Greg Clapp

Camera Service Center bought a 16BL in October 1965. After five years of rental use, they sold it. Why? Because people wanted more recent 16BL models with the latest features.

Bought Eleven More

Says Greg Clapp, Executive Vice-President of C.S.C.: "That first 16BL was always totally reliable. So are the others. We have eleven of them on rental now."



ARRI

ARRIFLEX COMPANY OF AMERICA

BACKED BY SERVICE



FOR FREE BROCHURES ON OUR 16MM AND 35MM CAMERAS, WRITE TO ARRIFLEX COMPANY AT P.O. BOX 1050, WOODSIDE, N.Y. 11377; OR AT 1011 CHESTNUT ST., BURBANK, CALIF. 91502.

A SNEAK PREVIEW OF THE NEW ELEMACK "MANTIS" TELESCOPIC BOOM CRAB DOLLY

Designed as a totally new concept toward meeting special demands of the cameraman, this rugged and versatile dolly stole the show in New York

Not simply because of its bright orange color, but more importantly because it would seem to represent a totally new concept toward meeting special demands of the cameraman, the new Elemack "MANTIS" Telescopic Boom Crab Dolly attracted a furor of attention when the prototype was given

of feet off the ground. The new hydro-electric boom-dolly is described by the manufacturer as of "limited weight"—which is a strictly relative term. Weighing in at 300 lbs, it is, nevertheless, considerably lighter in weight than most of the small boom crab dollies on the market and is readily transportable, if

not actually portable.

The most significant features of the new "MANTIS" are as follows:

1. A telescopic boom arm which rises progressively in relation to the angle it forms. Whereas most booms' arms describe an arc as they swing up or down (thus necessitating a change in focus of the lens), the telescopic arm of the "MANTIS" keeps the lens of the camera in a constant vertical plane as it raises or lowers (from one foot to approximately six feet in height), thereby eliminating the necessity of re-setting focus.

2. A folding-arms wheel assembly that permits width adjustments for passing through narrow halls or a 23" door, as well as instant employment on tracks.

3. A unique steering and crabbing system that compensates the wheel angles by employing three chain sprockets and one cam.

4. A quiet-action hydro-electric telescopic boom system, which produces six full boom elevations.

5. A stainless steel core which provides ruggedness, while maintaining light weight. Its compensated steering mechanism allows 360° circles of 34" radius (without change of vertical axle), tight turns and any crab movement desired.

Elemack representatives at SMPTE emphasized that the "MANTIS" shown there was a prototype and, hence, the

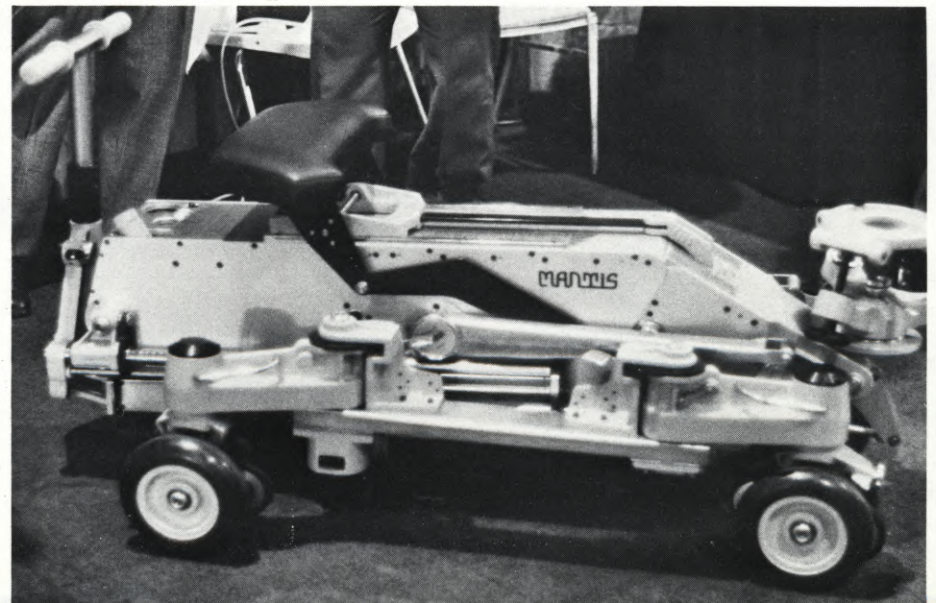
On display at the Equipment Exhibit of the recent 114th SMPTE Conference in New York, a prototype of Elemack's new "MANTIS" telescopic boom crab dolly was a popular conversation piece with those attending. (LEFT) Shown as it would be used on a bare level floor. (RIGHT) Shown in operation on standard tubular metal tracks.

its first public showing at the 114th SMPTE Conference and Equipment Exhibit recently held in New York. It quickly became the "conversation piece" of the event and the comment heard was almost unanimously favorable.

The "MANTIS" translates into hardware a studied effort by Elemack to bring a fresh "evolutionary" approach to motion picture and television shooting. The new unit was not conceived to compete with the company's universally known and highly successful "SPYDER" dolly, but more to complete the range of the Elemack line.

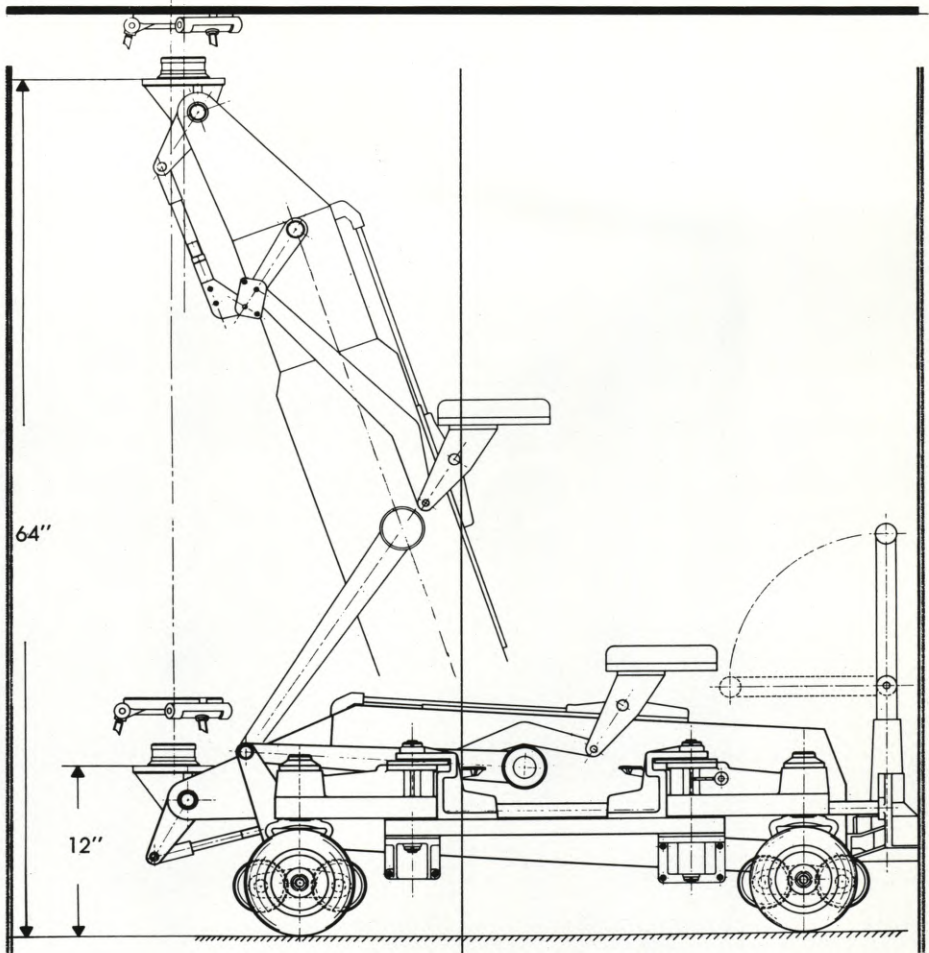
When folded down, as for transport, the "MANTIS" is only 4½ feet long, two feet wide and stands another couple

All buttoned down for transport, the "MANTIS" presents a very low profile. It is only 4½ feet long, less than two feet wide and about two feet high. It can dolly through a 23-inch doorway. The "MANTIS" was not designed to compete with the Elemack "SPYDER" dolly, but rather to complete the Elemack line.

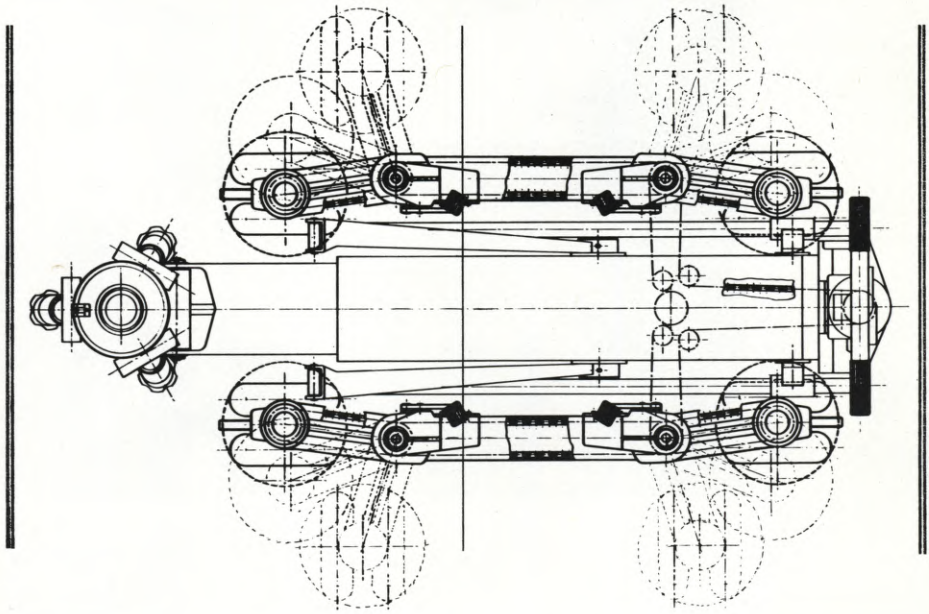
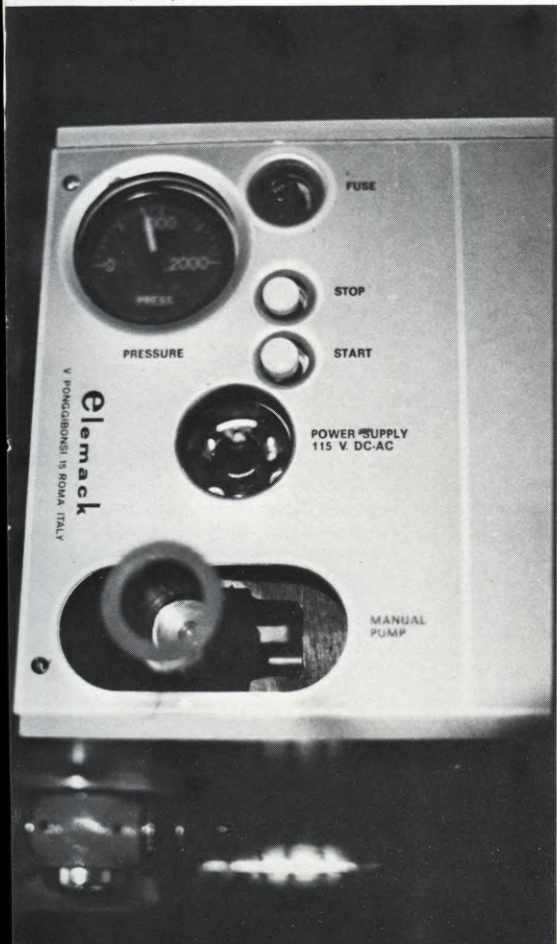




Demonstrating the strength of the "MANTIS" a lady takes a ride on its arm, while Grant Loucks of Alan Gordon Enterprises looks on in amazement.



The control panel for the dolly has pressure gauge for the hydraulic lift, start/stop buttons to activate it, power supply gauge and manual pump.



(TOP) Diagram showing the "MANTIS" with crane arm fully extended. Unique telescopic boom keeps the camera lens in a constant vertical plane as it raises or lowers, eliminating necessity for re-setting focus. (BOTTOM) Diagram showing progressive wheel positions from narrow to full width.

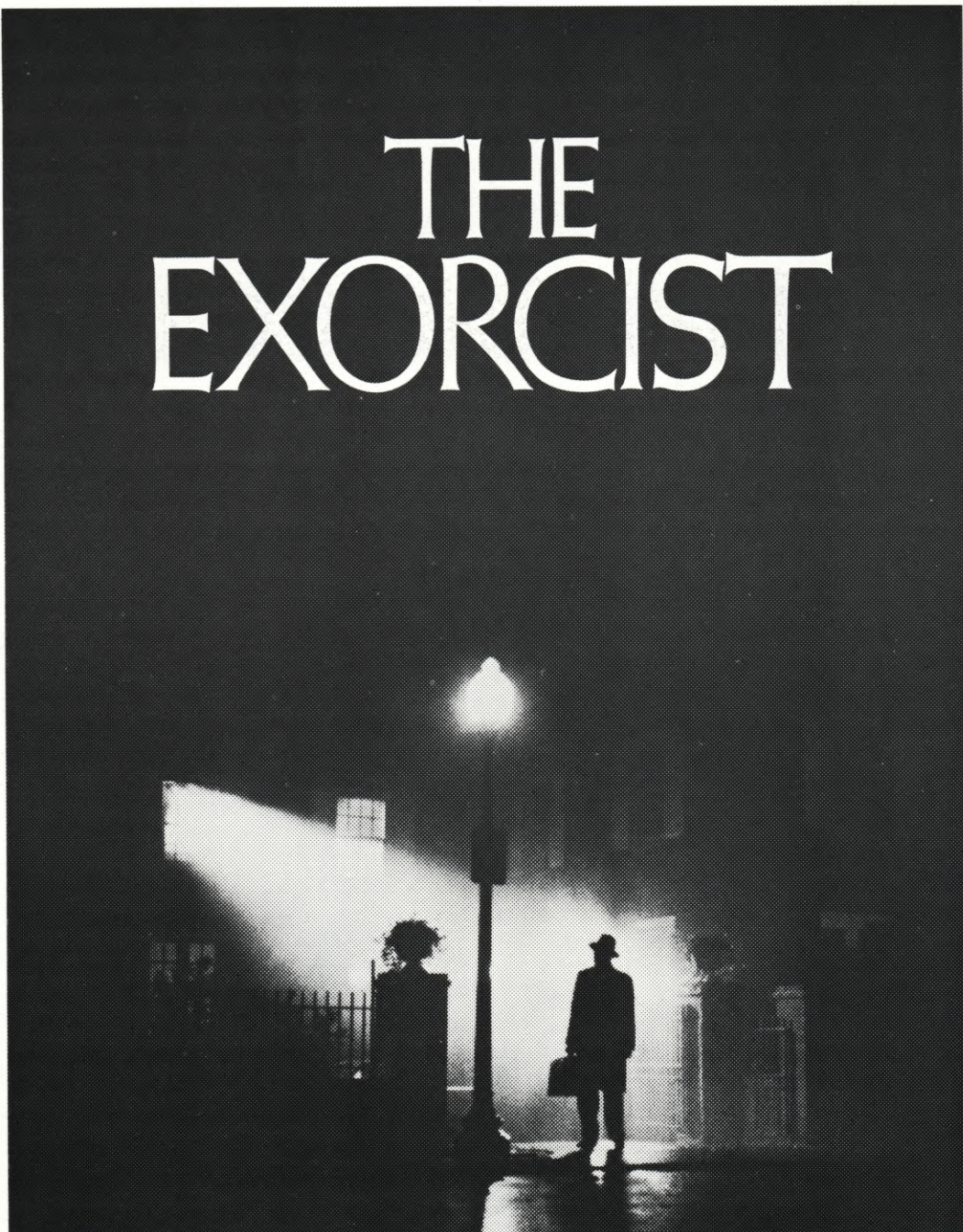
company welcomes suggestions and comments.

When will the "MANTIS" become generally available? No pin-pointed date has been set but, knowing that they've got something good here, the Elemack

people are doing everything possible to make that date soon.

For further information, comments or suggestions relative to the "MANTIS", contact: ELEMACK, Via Poggibonsi 15, ROME 00148, Italy. ■

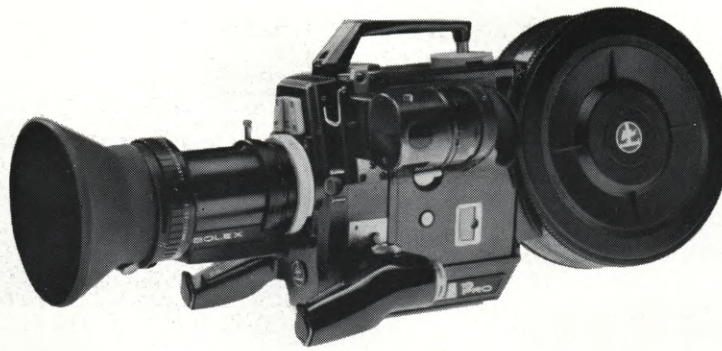
THE EXORCIST



TITLE DESIGN
DAN PERRI

— DAN PERRI —
— FILM DESIGN —
— GRAPHIC DESIGN —
— 1213 N. HIGHLAND AVE. —
— HOLLYWOOD, CALIF. 90038 —
— (213) 463-2367 —

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How much do you want to know about BOLEX 16 PRO?

I'd like to know more about:

THE MAGAZINE

- Coaxial for 400' reels or cores.
- Compact light and inexpensive
- Sprocketless design for quick loading
- Footage counters for each chamber
- Rear-mounted for optimum mobility

FILM THREADING

- Fully automatically in 3 seconds
- Fully automatic film take-up in 400' magazine
- Signal light tells when camera is ready to shoot
- Light signals when empty
- Built-in cutter for removing partially exposed film

MOTOR DRIVE

- Crystal controlled for sync sound filming
- One electronically controlled motor for all filming needs
- Variable speeds 16 to 50 fps; 16-100 fps models available
- Forward and reverse
- Single frame filming
- Instant start and stop—no blank frames between scenes

SOUND

- Double system at 24 or 25 fps
- Super quiet—no blimp needed
- Wireless synch sound shooting with accuracy ± 1 frame per 1,000 feet
- Automatic slating lamp
- Single system sound model available

FILMING AUTOMATION

- Fully automatic exposure control
- Variable speed power zooming
- Variable speed power focusing
- All controls built into handgrips
- Manual over-rides on all controls
- Remote control possible for all functions

EXPOSURE CONTROL

- Automatic, through-the-lens
- Manual over-ride
- Film speeds of 12 to 1600 ASA
- Meter coupled to camera speed control
- f-number visible in viewfinder
- Audible signal when insufficient light

LENSES

- Wide range of zoom lenses
- Extreme wide angle lens
- Rugged bayonet mount
- Lens controls coupled to servo motor
- Silent operation of powered lens controls
- Shock-absorbing rubber lens shade

VIEWFINDER

- Practically flickerless mirror shutter reflex viewing
- Camera stops without mirror blackout
- Possibility of right or left-eye viewing
- 20X magnification
- Instant change from ground glass to clear glass
- TV and 16mm frame markings
- Can be rotated 45, 90, and 180 degrees
- Indicates f-stops
- Remote viewing possibility

FILM TRANSPORT

- Very low pressure required at pressure plate
- High-precision single tip claw transports and registers film
- Superb picture steadiness better than 0.1%

POWER PACK

- 12V rechargeable battery
- Plug-in electronic modules
- Plug-in crystal synch controls
- Outlets for connecting tape recorder, time lapse units and other accessories
- Choice of powerbelt or powerpack
- Signal light on camera shows condition of battery
- All of the above

BOLEX 16 PRO

If, in addition to information, you'd like a demonstration of the Bolex 16 PRO, write Pailard Incorporated, 1900 Lower Road, Linden, New Jersey 07036. We'll notify you when we'll be in your neighborhood.

NAME _____

AFFILIATION _____

STREET _____

CITY _____ STATE _____ ZIP _____

For countries outside the U.S.A., write Bolex International S.A., 1450 Ste. Croix, Switzerland

cut along dotted line

ASACA ACC-5000 PORTABLE COLOR TELEVISION CAMERA SYSTEM

A new portable color television camera, designed to meet all standards of professional broadcast quality, but priced considerably below other cameras of like capability

Introduced by SOS Video Equipment at the SMPTE Equipment Exhibit was a new portable back-pack video camera, the ASACA ACC-5000, which SOS claims meets all standards of professional broadcast quality and is priced considerably below other cameras of like capability.

The ACC-5000 Portable Color Television Camera System is a light weight compact video pickup system developed

The new ASACA ACC-5000 Portable Color Television Camera System is shown here mounted on a tripod, which can be done when time and conditions warrant. Shown with it are the Back Pack and the Control Box, which is used when commercial AC power is employed.

for high mobility and fast on-site reporting. This camera and back pack combination provides a perfect high quality NTSC (composite) output.

ADVANTAGES

Ultra-compact light weight camera head design for convenient operation and handling.

Excellent mobility for relay broad-

casting, on-site news reporting and interview duties.

Full complement of self-adjusting features; color adjustment is extremely easy and set-up time minimized.

The perfect NTSC signal output permits direct connection to a VTR without going through a base station.

Genlock capability via external sync allows parallel camera operation and centralized control.

Camera can be powered by either a regulated power supply contained in the control box (installed at the base station) or battery voltage supply.

Camera Head

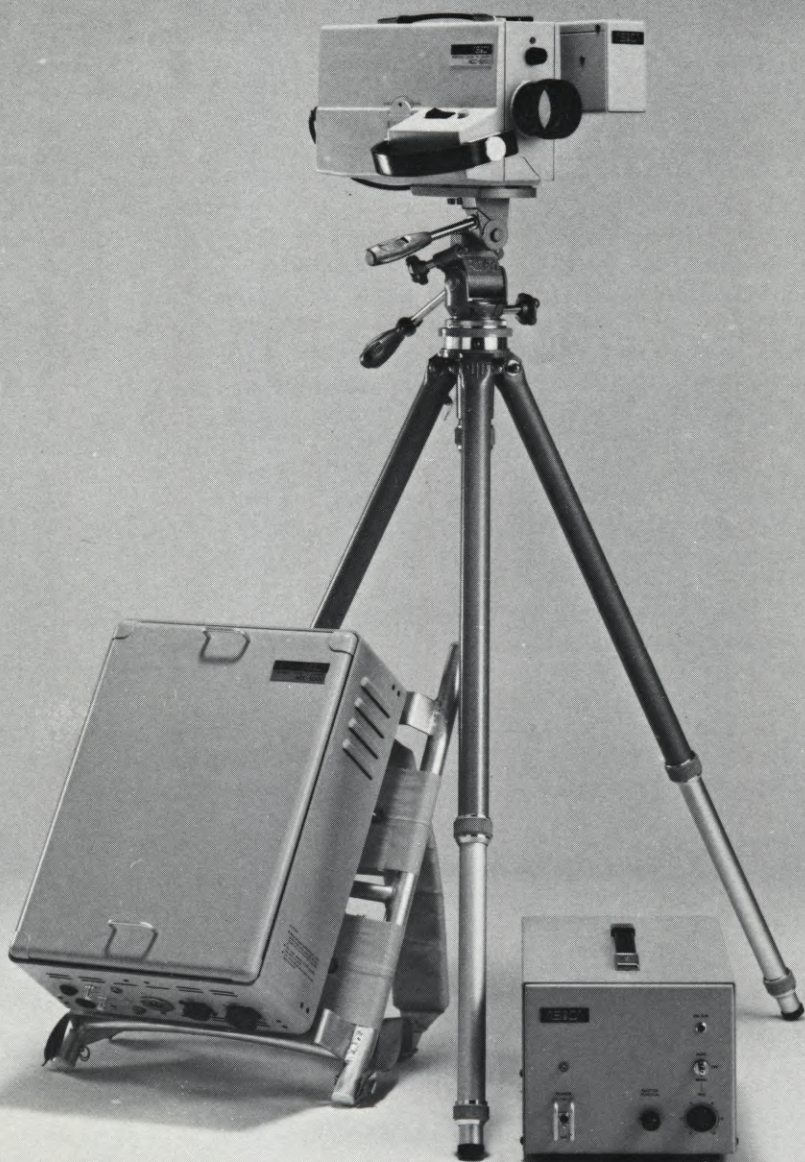
The compact camera head contains the optical system, pre-amplifier and deflection circuits, and 1.5 inch CRT type viewfinder. The optical system consists of zoom lens, three new type 2/3-inch pickup tubes, and four filters. The 6x F:2 12.5-75mm zoom lens employs electrically operated zoom drive and manually operated focus. It is capable of servo iris control. The three pickup tubes are securely mounted in perfect alignment with ample consideration given to vibration, temperature and height.

Electrical circuitry is contained on two modules and consists of video pre-amplifiers and deflection drive circuits. The camera head construction features a strong light weight chassis which assures mechanical reliability. It can be installed on a shoulder brace for easy field reporting and its approximately 11 lbs. weight renders it as convenient to use as a conventional motion picture news camera.

The camera head may also be mounted on a tripod when time and conditions warrant. In addition to extending the versatility of television reporting, it is also highly appropriate for numerous applications in such fields as medicine and optics which demand high color fidelity and sharp image reproduction.

Back Pack

The back pack houses plug-in modules for the principal camera control functions, including auto-white control, process amp, color coder, sync and test signal generators, high voltage generator, image enhancer, and audio control unit



for microphone intercom. Outputs are NTSC video at 1V-p-p and microphone. Color adjustment is very easily performed due to the wide incorporation of automatic control functions. A carrying harness is included and at less than 11 lbs., the back pack is light enough for extended reporting duties.

Control Box

The ACC-5000 camera system can be operated from either AC power source or battery voltage supply. When commercial AC power is employed, the stabilized power supply regulator of the control box is utilized. The control box also contains a cable compensating circuit and audio amplifier. Iris and pedestal remote controls can be incorporated.

TECHNICAL DATA

VIDEO SIGNAL

Video Preamp: Gain Control 0.5Vp-p
75 OHMS

Process Amp (RGB): Individual Pedestal Control; White Clip; Knee Slope & Knee Level Control; Gamma Control 1-0.45

Auto-White Control: Auto-White capable of operating thru color temp. range of 3000°-6000° K.

Image Enhancer: H & V Enhancement Capability

Color Coder: Modulation System: R-Y, B-Y Narrow Band Modulation

VBS 1.0Vp-p 75-ohms 1 line

Video Compensator: Compensates for video loss due to cable length between back pack and control box

ELECTRICAL PERFORMANCE

Resolution: 500 TV lines at picture center

S/N Ratio: More than 45dB (rms/p-p) (Signal 0.3uA, gamma off)

Frequency Response: 60Hz-4MHz ±0.5dB; 4MHz-6MHz: ±1.0dB; Above 6MHz: roll-off response

Registration: Zone 1 (circle 80% of picture height): within 0.1%; Zone 2 (circle 100% of picture height) within 0.3%; Zone 3 (remaining portions): within 0.6%

Deflection: Less than 1.5% of picture height

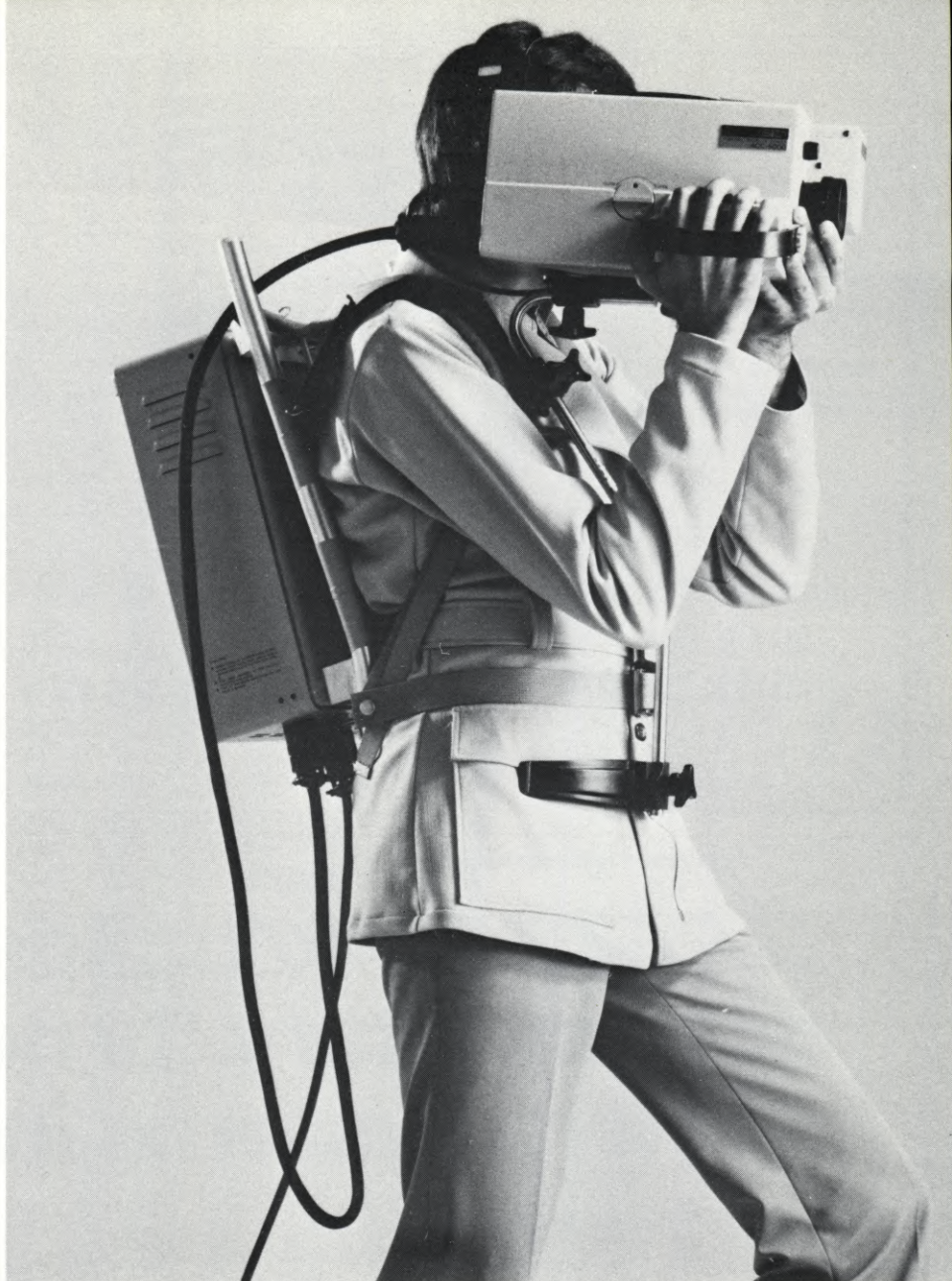
Sensitivity: Useable pictures at 27 F.C.; (Outdoor-Indoor) on production units; WIB 6dB gain on PRE-AMP down to 15 F.C.

Bias Light: Each RGB channel 20nA (10% [approx.] of signal current)

Cable Length: Camera Hd-Back Pack up to more than 40 ft. (6 ft. standard); Backpack-Control Box 1 Mile (5,000 ft.)

BACK PACK

Auto-White; Process Amp; Sync. & Test Signal Generators; High Voltage Generator; Color Coder, Color Bar Gen-



The ASACA ACC-5000 shown hand-held with Back Pack for completely portable operation. The camera head weighs 13 lbs., and the Back Pack 14 lbs. Its light weight and ultra-compact design lend it excellent mobility for relay broadcasting, on-site news reporting and interview functions. In addition, it is highly appropriate for numerous applications in such fields as medicine and optics, which demand high color fidelity and sharp image reproduction.

erator; Image Enhancer (H & V); Video Divider; Audio Amp.; Voltage Regulator (±10V)

SCANNING STANDARD

EIA 525/60 Fields/S
Color Standard: NTSC

OPTICAL

12.5-75mm F/2 lens with electric zoom and auto iris. Manual focus. Optical analyzing system contains 4 filters.

No. 1-Clear

No. 2-10% N.D. Trans.

No. 3-6000°-3200° K conversion

No. 4-Black Plate

ENVIRONMENTAL

Ambient Range:-20°C to 50°C

Rel. Humidity: Up to 90%

Altitude: 12,000 ft. (max.)

Start Up: Useable picture within 2 mins.

after turning on power. Completely stable after 10 mins. of operation

CONTROL BOX

Cable Compensator; Power Supply Circuit; Iris & Pedestal Remote Control.

CAMERA HEAD

Optical Assembly, Electrical, Viewfinder; (CRT 1.5 inch G Channel Process Amp Output)

WEIGHT VS 1.0 V P-P

Camera Head: 13 lbs. (including cable)

Back-Pack: (including frame) 14 lbs.

Control Box: 25 lbs.

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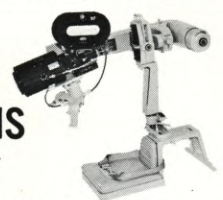
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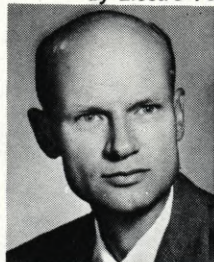
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ROBERT C. RAMSEY
Chief Engineer,
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Making a shock mount that really serves its purpose is no simple matter. One must consider the nature of the expected energy that might be transmitted to the microphone, as well as the sensitivity of the microphone itself to mechanical excitation.

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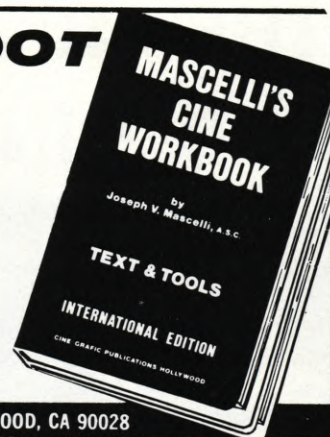
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THE 14th ANNUAL IFPA CONFERENCE AND "CINDY" AWARDS PRESENTATION

Information Film Producers of America meet at Palm Springs for conference oriented to the theme: "A Time for Transition"

By Don Magary

The world is in a revolution, and filmmakers fail to recognize their influential role in that revolution, according to philosopher Don Fabun, speaking recently to the poolside gathering at the close of the 14th Annual Information Film Producers of America (IFPA) Conference in Palm Springs.

Fabun said the world is changing from an industrial oriented society to an information oriented society, and audio-visual communicators are largely responsible for this social evolution. Yet, the over-all flavor of the conference presentations did little to emphasize that fact, he said.

Fabun, director of publications for Kaiser Aluminum and Chemical Corporation, was IFPA's resident philosopher in Palm Springs. He offered his synthesis of the conference at a "rap session" with the nearly 300 conferees during the concluding seminar of the three-day meeting.

"A Time for Transition" was the theme of the conference which blended philosophy and technology in an attempt to see a sharply-focused image of what the future holds.

Bob Scott, assistant director of United States Information Agency for motion pictures and television, set the stage as the keynote speaker. He talked about "Image Enhancement-USA." He said, "Audio-visual communication, like truth, is a two-edged sword. It can build

an image or destroy an image. Let's think seriously about what the world needs and think constructively about what we have to give to meet those needs."

Scott praised IFPA for its contribution to the development of audio-visual communication technology and professionalism.

This year's conference was divided into formal morning presentations followed by informal afternoon seminars.

The first day's theme was "The Use of Visuals for Exhibits, Displays, and Point of Purchase Advertising." The program featured two queens of the sea—the Queen Mary and Queen Elizabeth II.

Addison Taylor, substituting for Jean Michel Cousteau, described the underwater seaworld museum aboard the Queen Mary, permanently moored at Long Beach, Calif. He presented examples of Cousteau's approach to showing life beneath the surface of the sea without imprisoning any living creature—through complex audio-visual displays.

Edd Farrell of the United States World Trade Exposition explained how exhibitors aboard Queen Elizabeth II would utilize audio-visuals in their floating world-wide trade show.

Lunch breaks did not mean a break in programming. The luncheon that first

day featured actor/narrator Mike Rye and his lovely wife Pat. They presented an innovative Exhibitors Fashion Show. Pretty girls modeled not only fashions from Sax of Palm Springs, but audio-visual hardware from the exhibitors in the IFPA Trade Show as well. Mike described the fashions, Pat, the equipment. Her unique, witty descriptions kept the filmmakers highly entertained.

Award-winning films were previewed in the "Cindy Theater" which ran simultaneously with the afternoon informal seminars and trade show.

"This Electronic Image, What's New?" was the theme of the second day. Editor-Publisher Stephen Edward Poe, Video-Player News Magazine, presented a status report on video-cassettes and video-discs. His slides showed the large number of systems competing—or hope to be soon—for acceptance in the marketplace.

Jerome T. McGarry, Audio Visual Specialist of Eastman Kodak, disclosed a new Super-8 color processor at the IFPA meeting. The Super-matic Super-8 Film Processor can be operated in an office by a non-professional with a few minutes orientation—an electronic "fail-safe" system virtually eliminates error, he said. It requires no venting or special plumbing, except for two ordinary garden hoses—one for draining, one for supplying cold water. An exposed film cartridge is ready for viewing 13 min-

(LEFT) The versatile and "multi-lingual" Don Adams of Eastman Kodak was the West Coast Program Chairman of the Conference, and an able pinch-hitter for Marvin Hodges' presentation on "Projection Advertising—Optical Imaging for High Ambient Light Conditions". (RIGHT) Edd Farrell of the United States World Trade Exposition tells the IFPA conferees how audio-visual softwares are being incorporated into the exhibits of the floating trade show aboard the Queen Elizabeth II.



utes after it's loaded on the machine. The chemistry bottles are shape-coded to eliminate the possibility of putting the chemicals in wrong. McGarry said the new processor should be available in late spring or summer of 1974.

Dr. Charles Joyce from the Executive Office of the President, Office of Tele-Communication Policy, was the luncheon speaker. He told the film producers that earlier figures released by the General Accounting Office showing government audio-visual production costs at \$240 million were misleading. Those figures included such unrelated areas as in-house newspaper photography and reconnaissance, he said.

The government has been criticized recently for maintaining audio-visual production facilities and personnel, and not contracting the work with commercial producers. Critics, like Congressman Barry Goldwater, Jr., R-Calif, apparently, had been quoting the previously released figures.

Joyce said his research indicated only \$65 million was going into film, and less than half of that—\$30 million went for production costs. Two-thirds of the production monies is contracted to commercial producers.

On the final day, the theme was "The Information Process—Multiple Images—A Better Way to Learn." Dr. Howard Hitchens, Executive Director of the Association for Educational Communication and Technology (AECT) in a Keynote address looked at audio-visual's past and future. He had a concluding thought for people involved in the fast-changing audio-visual communications field. He said, "If you can't make a contribution, at least, don't get in the way."

Dr. Jay Sedlack, director of instructional development for Tratec, Inc., challenged the communicators to pre-test their materials to insure they are effective and complete the task they were designed to do.

The theme for the "Cindy" Awards was Hawaiian. Following the "Royal Hawaiian Luau," Master of Ceremonies, Les Tremayne, star of the new feature, "HOLY WEDNESDAY", introduced IFPA's First Lady—President Jackie Stilwell.

Ms. Stilwell and Dr. Howard Hitchens of AECT announced IFPA's national affiliation with AECT. Dr. Hitchens read a proclamation from AECT receiving IFPA. The affiliation has no effect on the names or the autonomy of either organization.

In addition to the "Cindy" Awards, IFPA presented four special awards. L. S. Wayman, president of Magnasync/Moviola Corporation, accepted the Alan

Gordon Award for Technical Achievement on behalf of his company. The award was given because of Magnasync/Moviola's many years of producing outstanding recording and editing equipment.

The Eugene C. Keefer-Consolidated Film Industries Award to an outstanding in-house film unit went to China Lake Naval Air Station. S. M. Shelton, head of the film unit, accepted the award.

Les Novros of Graphics Film Corporation in Hollywood was honored, and he received the IFPA Award for Excellence by an independent filmmaker.

Robert Montague, Convair Aerospace Division of General Dynamics, presented the Eugene C. Keefer Scholarship Award to Lewis C. Hall, a student in Cinema at UCLA. Hall received \$2,350. in cash and services from IFPA, their friends and sustaining members.

The conference was climaxed by the presentation of the "Cindy" Awards. The "Cindy" is IFPA's symbol of excellence bestowed on films that exemplify the highest professional and technical standards. The award presentations closed—until next year in San Diego—the IFPA Conference.

1973 "CINDY" AWARDS

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Making of Silent Running

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Florida Cypress Gardens—Cypress Gardens, Fla.

Tom Trahan—Director

The Consumer Game

Pyramid Films—Santa Monica

Directions Unlimited Film Corp.

Continued on Page 86

Wilbur "Bill" Blume, 1973 Conference Chairman addresses meeting, as IFPA President Jackie Stilwell (right) and Mike Rye listen.



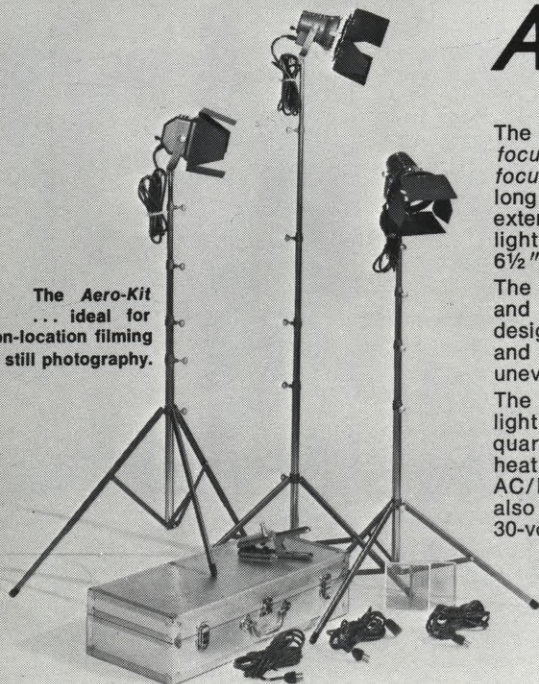


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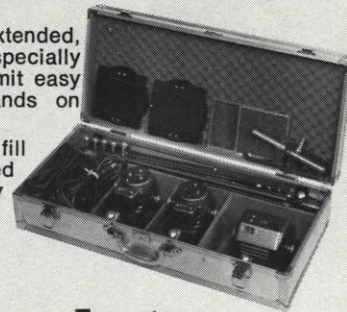
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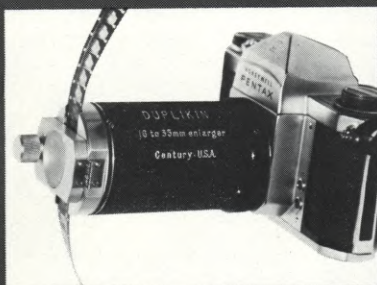
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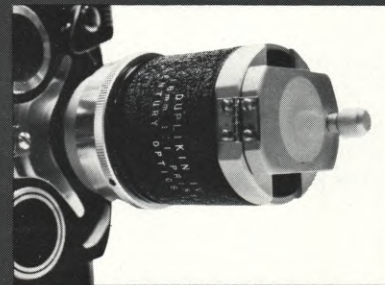
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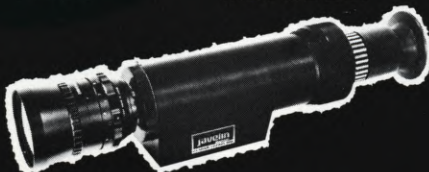


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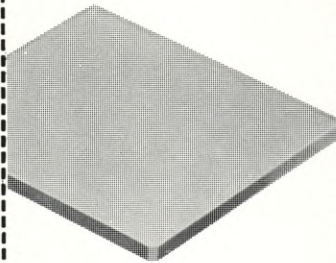
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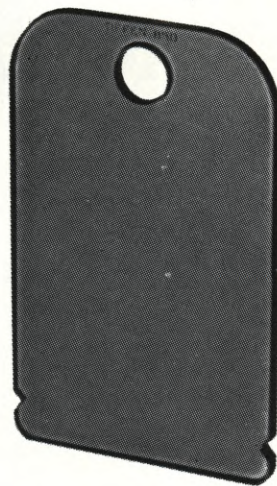
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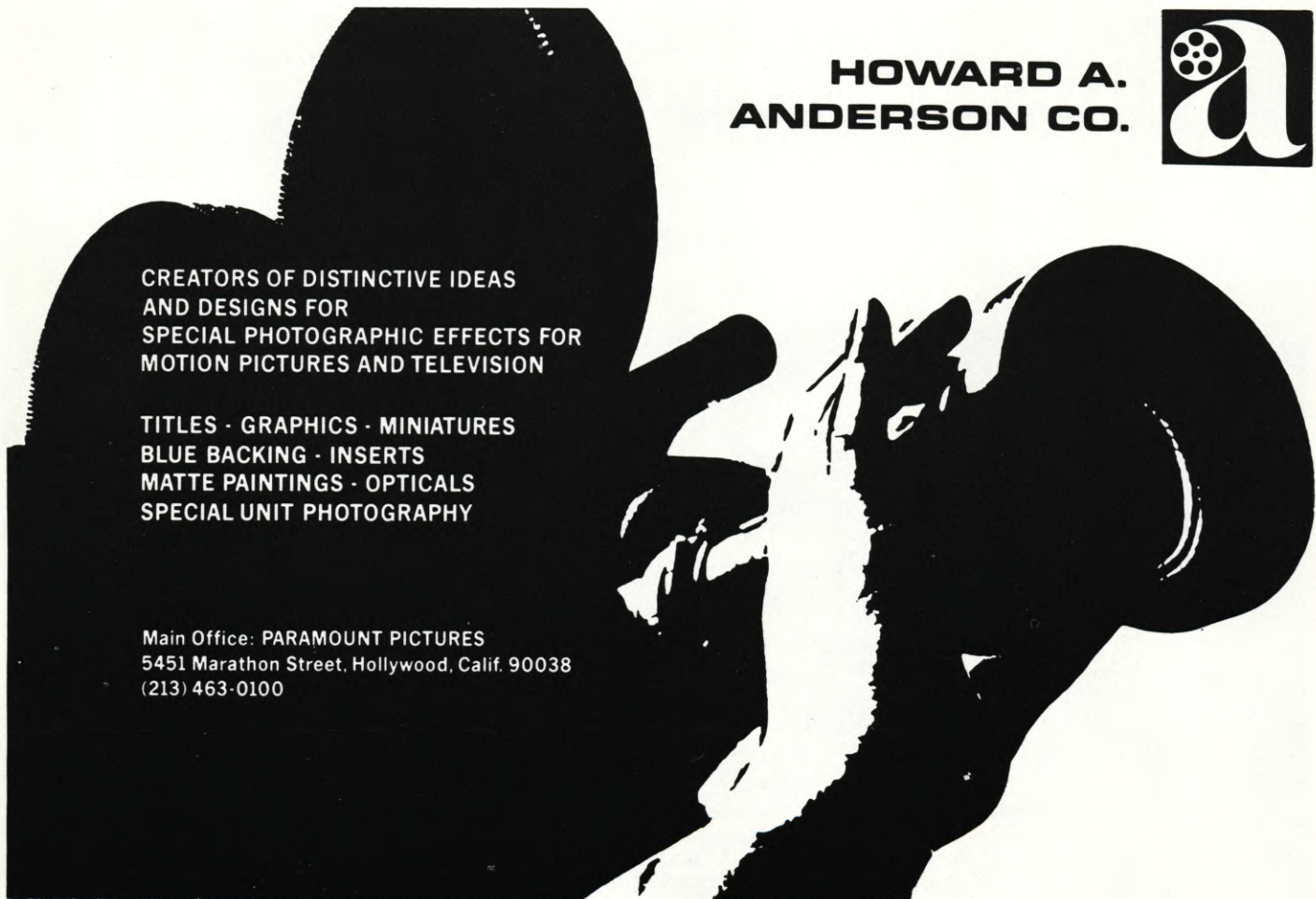
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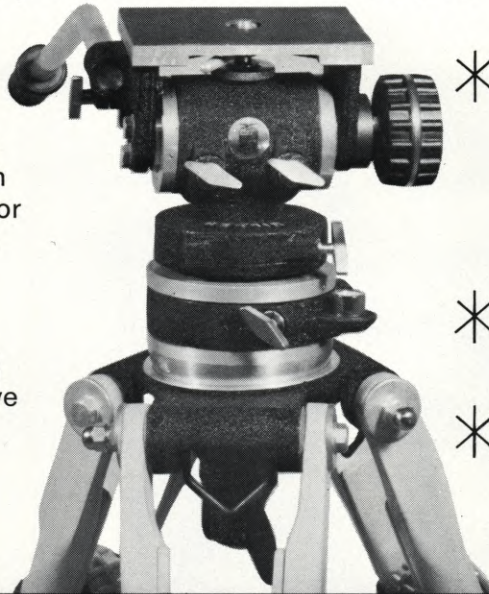


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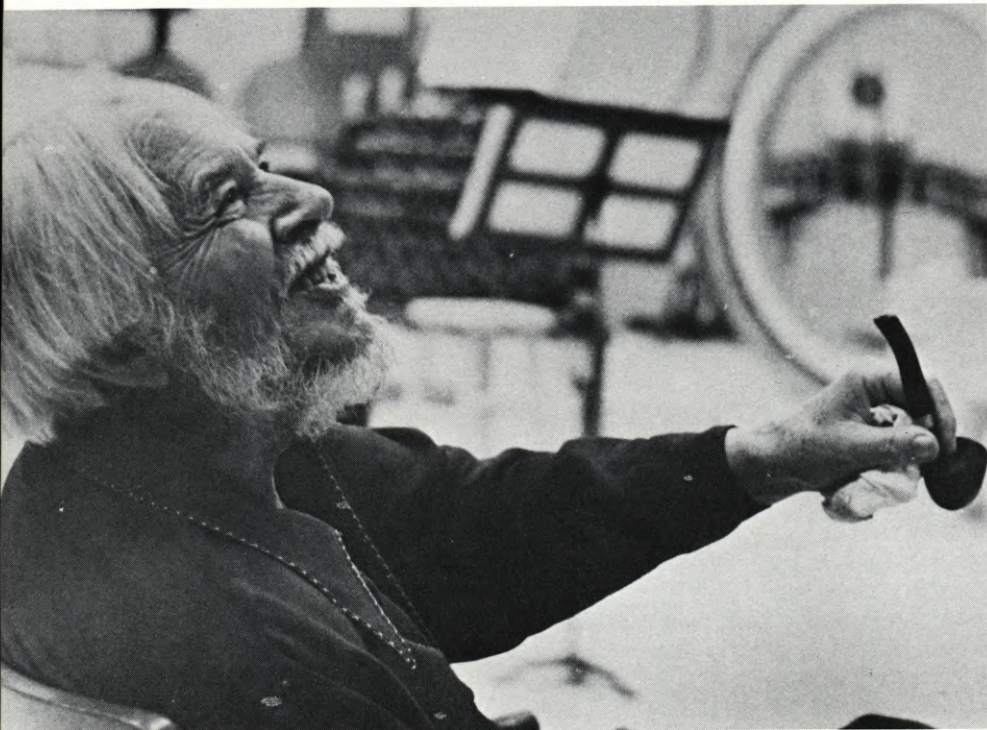
Documenting the special "universe" of a remarkable American character who is composer, musician, designer and creator of unique instruments

By STEPHEN L. POULIOT

"THE DREAMER THAT REMAINS" is a film about Harry Partch. To say that this man is a composer, musician, designer and builder of unique instruments is simply not saying enough. I cannot describe the "universe" of Harry Partch, for one must experience it in order to really glimpse its meaning. For this reason film, at its best, is uniquely capable of communicating the Partch experience.

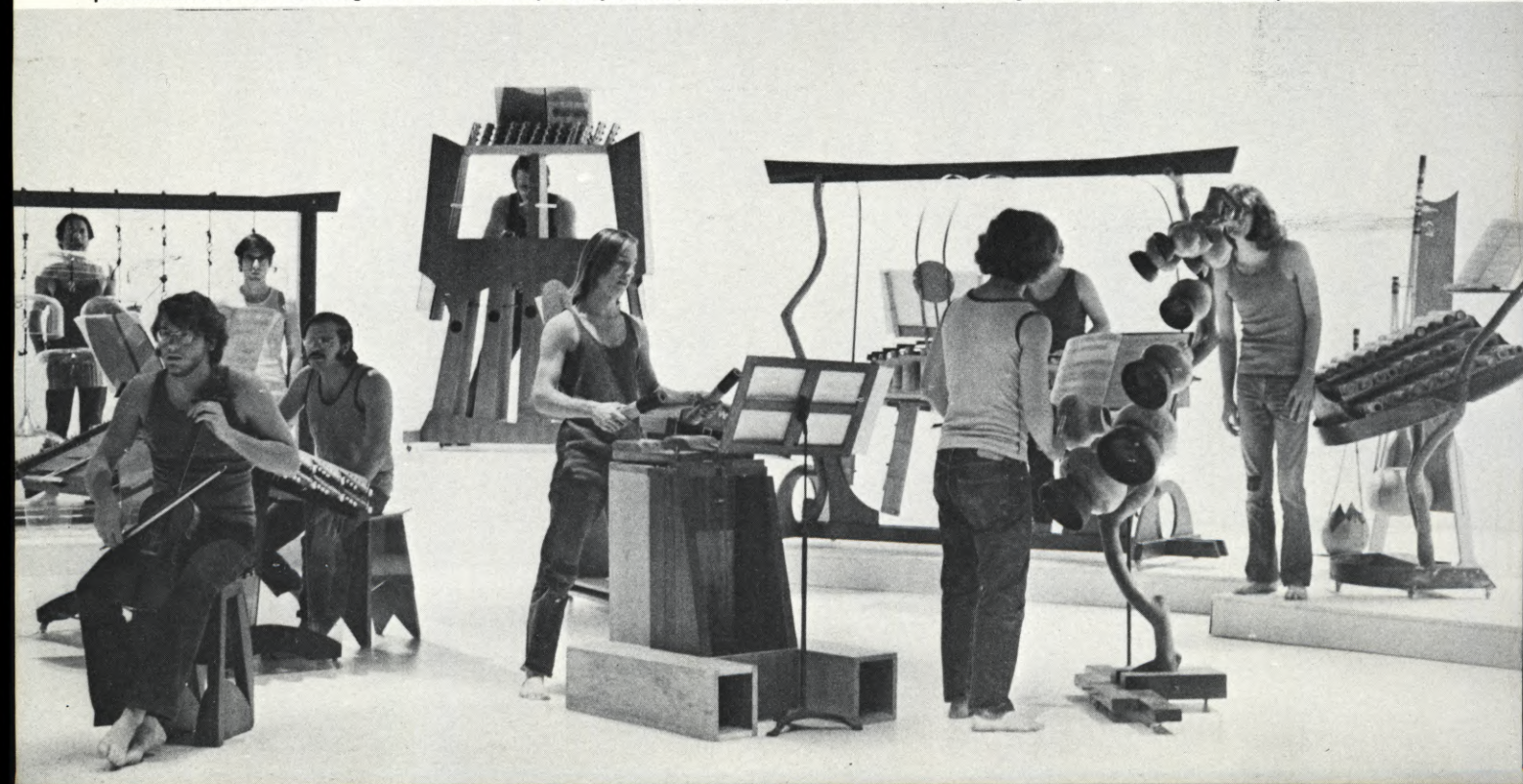
When I met Harry in the autumn of 1972, I did so out of complete fascination and admiration. Here was a man who not only had a dream, but the perseverance to make it a reality. After forty years of struggle and triumph, he has built his own orchestra, invented a 43-tone scale to go with it, and has written a book, GENESIS OF A MUSIC; to explain his theory to the world.

Columbia Records has released the Partch "extravaganzas", as he prefers to call them, but nowhere up to this point has there been a strong representation of his work on film. With a wink, Partch admits, "I am not a musician, but a philosopher seduced into carpentry." This attitude provided a double challenge to the documentary format I had



Harry Partch, in an exuberant moment on the set of "THE DREAMER THAT REMAINS", a reminiscence of his Arizona childhood. Partch, a true "original" and creative iconoclast, not only "marches to the tune of a different drummer", but designs and builds the drum himself. His musical "extravaganzas" are regularly released on Columbia records, but nowhere up to this point has there been a strong representation of his work on film. The aim of "DREAMER" was to correct that oversight.

San Diego State University music students rehearse for their first camera performance of Partch music, using an array of Partch's own exotic musical instruments. The student musicians were fascinated by their new instruments and threw themselves with total dedication into a stunning performance of the "extravaganza" on film. They were joined by a full complement of actors and singers—also from the University.



FILMING UNDER A RAIN OF FIRE FOR "DAYS OF DESTRUCTION"

By ASGEIR LONG

A terrifying volcanic eruption in Iceland provides the subject for an award-winning documentary film

The phone woke me up at 0400 on the morning of January 23rd. Outside it was pouring and windy and cold and I looked forward to the comfort of my warm bed again. All plans for returning to bed vanished immediately as my friend gave me the news. A volcanic eruption on Heimaey, the only populated island in the Vestmannaeyjar group, had begun. Evacuation was in effect and the local radio station had been opened, by request from the civil defense.

I hardly believed the news and turned the radio on. Yes, the lad had told the truth. Since I am a stringer cameraman for ABC News, a quick phone call to New York was made to acquire an assignment confirmation, which was readily granted.

Rushing to Reykjavík Airport, thinking that it was the best spot for news and possibly a lift to the erupting island, I dropped right into the hot spot of events. I slowly began to realize the problem. Huge rescue helicopters from the NATO base were bringing in load after load of hospital patients and people from the old people's home. Ambu-

lances were ready to carry them on to wherever there was a vacant bed, in a school or hospital. The local airline had formed an airlift to the island, but showers of ash threatened to put the island's airstrip out of use. Small, private aircraft also were put to use and photographers had already got some air shots of the eruption.

Not knowing, at that time, that my colleagues, free-lance film producers Ernst Kettler and Páll Steingrímsson, both UPITN stringers, had also been alerted and were about to reach the seaport Thorlákshöfn, I boarded a F27 in the company of a dozen cameramen and newspeople. We were told that we were going at our own risk and no seats were reserved for newsmen back to Reykjavík, until everybody had been evacuated from the island.

The fact that Ernst and Páll went to Thorlákshöfn, and not to Reykjavík airport, later proved to be very fortunate for our film as, by combining our footage from that first morning, we were able to make a very complete story of the evacuation.

Close to 4,000 of the roughly 5,000 inhabitants had been ferried to Thorlákshöfn by the Vestmannaeyjar fishing fleet which fortunately was in the harbour at Heimaey due to bad weather the night before. Had the weather been more favorable, no boats would have been in the harbour at all.



(ABOVE RIGHT) On the Icelandic island of Heimaey, the gutted village church stands in stark silhouette against a fountain of fire spewing up from the tormented earth. (BELOW LEFT) The fissure as it appeared on the first day of eruption, before a central crater had formed. (CENTER) The fissure slowly approaches the houses on the first day. (RIGHT) Bystanders look helplessly on as the lava flow widens.



(RIGHT) A burning house, set on fire by tephra smashing through its windows. (CENTER) As the fountain of fiery lava continues to spew forth from the bowels of the earth, a crater is slowly formed. (LEFT) After the eruption has ceased, the ruins of the village continue to smoke and smolder. As of now, millions of tons of ash have been removed from the town, but it will take the great mass of lava a good 20 years to cool, while white steam and sulphurous fumes linger in the lava field.





Five a.m. "body surfing call", filmed at Swami's Beach near Encinitas, California. This is a regular part of Partch's physical fitness routine. He arises at three in the morning, works until ten and sees no one from eleven until two in the afternoon. The film crew agreed to work around this unusual schedule.

in mind. Not only were the music and instruments one of a kind, but Partch, a one-time Depression hobo, had wonderful stories and sage advice to share with the world.

Producer Betty Freeman, a friend and fan of Partch, recognized the need for a film. The economics of shipping the instruments curtailed performances. Film would be the logical substitute. Betty generously offered her time and raised \$27,000 to make my dream a reality. Her first advice was get to know Partch. "Get to know your genius," she said. And that is what I did.

After a weekend meeting with Partch in his modest, instrument-cluttered home in Encinitas I came back to Los Angeles and filled a notebook with observations about the Partch character. I sketched a few of the particularly vivid stories he had told me, and what had triggered them. I also made notes on his

eating and sleeping habits. Harry usually awoke at three in the morning, worked until ten, then saw no one from eleven until two in the afternoon. I knew I would have to respect these hours. His high energy peaks were in the morning. This is when we would have to film.

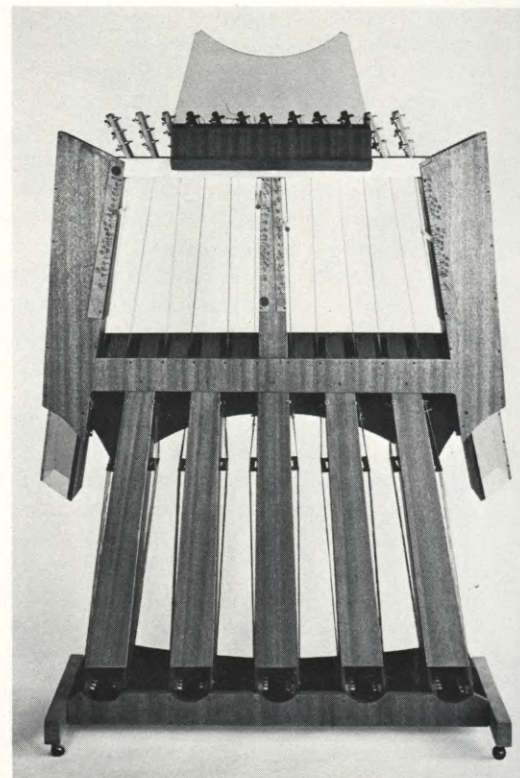
Before beginning production there was a catalogue of musical expressions to learn, as well as the names of his exotic instruments. They included: the Spoils of War, the Quadrangularis Reversum, the Eycal Blossom and the Blue Rainbow. I expected my crew to familiarize themselves with Harry's world, for he was sensitive to uninformed intruders and was equally aware of our every move.

When Partch agreed to do the film, several decisions were in order. He requested a small crew, and wanted to know how I planned to present him. I selected John Monsour for first camera.

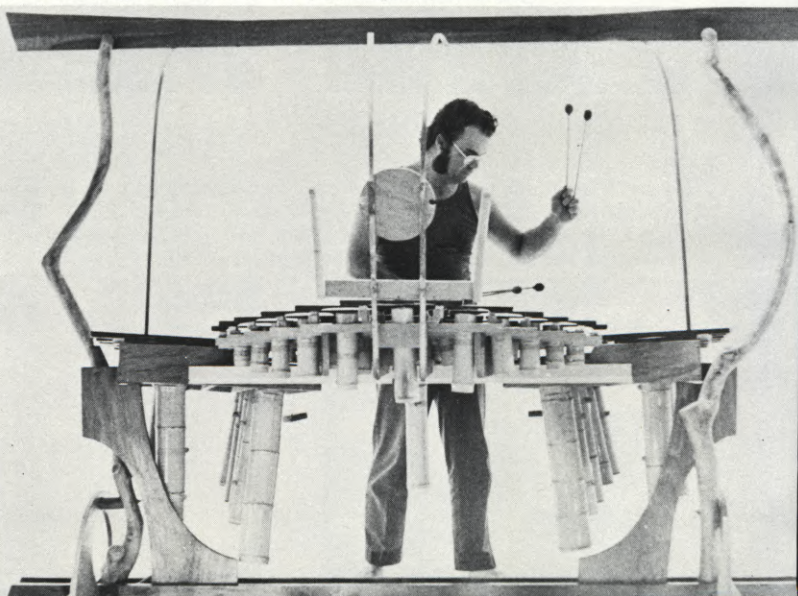
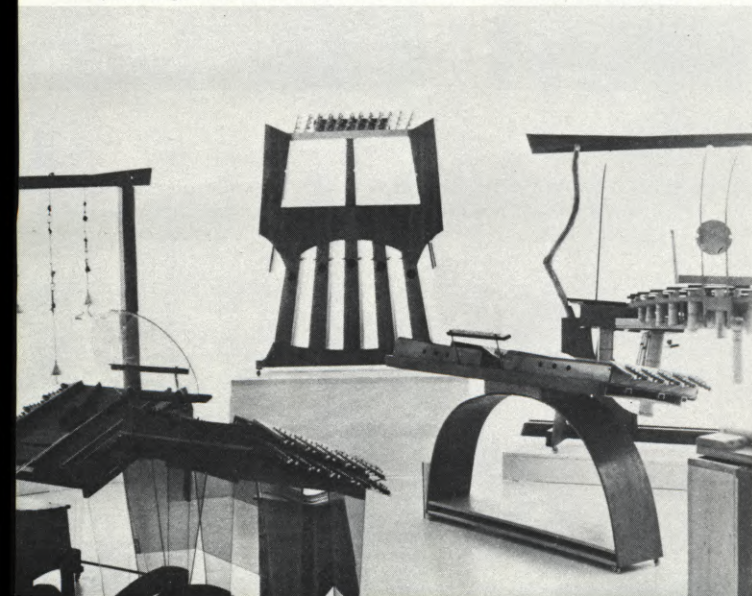
John was familiar, with Harry's music, and had a good technical background in sound and lighting as well as camera. He also had the easy-going personality to ride along with the demands of the strange shooting schedule.

Other crew members who filled in during heavier assignments were carefully chosen, not only for their technical ability, but their interest in Partch as a film subject, plus their ability to get along with him. I believe the right crew chemistry was the magic ingredient in helping Partch relax. He was among friends. That was the congenial atmosphere we were both after.

I spent several weeks with Partch visiting his favorite beaches, listening to his stories, meeting his friends. I also



(ABOVE RIGHT) One on Partch's unique musical instrument designs, the 72-string kithara is based on the lyre of Orpheus. (BELOW LEFT) A collection of Partch instruments, including (left to right): the cloud chamber bowls, harmonic canons, the kithara, blue rainbow and the quadrangularis reversum. (RIGHT) Danlee Mitchell, conductor of the Partch extravaganza, tries out the quadrangularis reversum.





(LEFT) Part of an active day, filmed at the Partch home in Encinitas, California. Partch requested to work with a small crew for these sequences. (RIGHT) Partch and cameraman John Monsour take a break to reload the ever-faithful Eclair NPR camera. (BELOW RIGHT) Partch passes on his theories and a unique tradition, as he explains the 43-tone scale on the chromelodeon.

took the opportunity to fly to San Francisco with him to visit his old haunts—the places where he wrote and performed his first music.

All of this preliminary planning paid off. On the weekend before shooting began, I visited Partch with a tape recorder. We reminisced, and these recent memories became vivid voice-overs in the film. The careful research that took almost two months permitted me to write an in-depth shooting outline for the film. What emerged was a flexible treatment about the man and his music—how one necessarily grows out of the other. In the film Partch tells his own story. There is no outside narrator to carry the action or bridge time. Partch reveals himself.

Due to other assignments we filmed sporadically over a three-month period. Each shoot was prefaced by visiting Partch without the presence of cameras or tape recorders. Pertinent questions were informally rehearsed for discussion. It became evident that Partch was sensitive to the cost of filming and did not want to ramble. So, we verbally outlined the upcoming sequence of action or parts of a story I wanted to capture on film. This preparation paid off in freer, more spontaneous interviews.

Betty Freeman commissioned Partch to write a special work for the film. Partch called it, "The Dreamer That Remains", a reminiscence about his early childhood in Arizona. As with most Partch extravaganzas the music included actors, singers and a full ensemble of Partch instruments. The cast was gathered and trained at San Diego State University. I moved to San Diego for three weeks to design the set, discuss the score with Partch and plan camera moves to complement the music. Even in live performances it is difficult to know what sound is coming from what source. Here was a chance to improve

upon a live performance. For example, in the film, when the cloud chamber bowls are being featured musically they are explored visually.

The elements come together—Partch the philosopher, the carpenter, and Partch the music man *extraordinaire*. These sequences were edited in and around the rehearsal and concert. The final result is a truly intimate portrait of the artist and his world. As a labor of love, the film was a success. Audiences loved it. But would distributors buy? I am happy to report that THE DREAMER has been purchased by television stations in England, Germany, France and Canada. It is going on tour in Japan, and has been invited to be shown at the Lincoln Center Summer festival. In the United States four distributors are asking to represent it to museums, schools and libraries. It looks like the exposure will be terrific. This, to me, is reward in itself, for after 70 years the world may finally be ready for Harry Partch.

As a result of the portability of 16mm film equipment, a little effort
Continued from Page 81



Cameraman John Monsour and director Steve Pouliot, both graduates from the film school of the University of Southern California, line up a shot. In order to accommodate other assignments, they filmed sporadically over a period of three months. Each shoot was prefaced by visiting Partch without the presence of cameras or tape recorders.



CREATING SUPERIMPOSED COLOR IMAGES FOR "THE BALANCE SHEET"

An unusual visual idiom is adopted to lend added interest to a semi-documentary film on employment of the handicapped

By FRED HECHT

Director of Photography

"A really good-looking documentary with delicate colors and with no visible cuts. The scenes will gradually blend into each other in a series of multiple images that will make the word 'superimposition' sound crude." Don Klugman told me about the challenge of *THE BALANCE SHEET*, a film his company, The Creative Establishment, was planning for the Illinois Governor's Committee on Employment of the Handicapped. "I'd like to work with you," he said, "because of your background in still photography—your experience in bipacking and tripacking to produce multiple images and matching compositions through the supers."

My background had been in still photography, and I've always believed I have a good feel for composition in superimposed images, but this project was disturbing for several reasons.

The film was to be a fully scripted semi-documentary, with handicapped people describing and demonstrating their jobs. The script was built by Klugman from weeks of interviews with workers and their employers. Looking at it conservatively, I saw twenty-five

locations, widely separated throughout the state of Illinois, with at least four totally different interior setups in each location. With a documentary-size crew, chasing from location to location, I wondered how I'd find time to compose and control the supers.

I was concerned, also, about working with Klugman. In Chicago, Don is known as an incredibly meticulous director. I'd seen his shorts in theatres; knew that he had been a cameraman. If there's one thing a cameraman doesn't need that's another cameraman looking over his shoulder.

But my most urgent question was about the visual idiom of the film. Would constant superimposition detract from the hard-driving message of skilled handicapped workers saying, "We do our jobs well. Hire us!?" Through weeks of discussion and pre-production planning, I argued this out with Don, with our unit manager, Ron Osso, and with our editors, Paula Shapiro and Richard Uber until, finally, I got this concession: if the supering technique failed to pay off in the first cut—if it detracted from the message of the film—the supers

would be dropped.

Along the way, I reached an understanding with Don. Because of the short time frame and the small crew, his hands would be so full with the directing job that he'd leave the first camera position to me. In the end, it didn't always work out that way, but we came to achieve a rare degree of mutual trust and collaboration. In retrospect, neither of us felt much competitive pain.

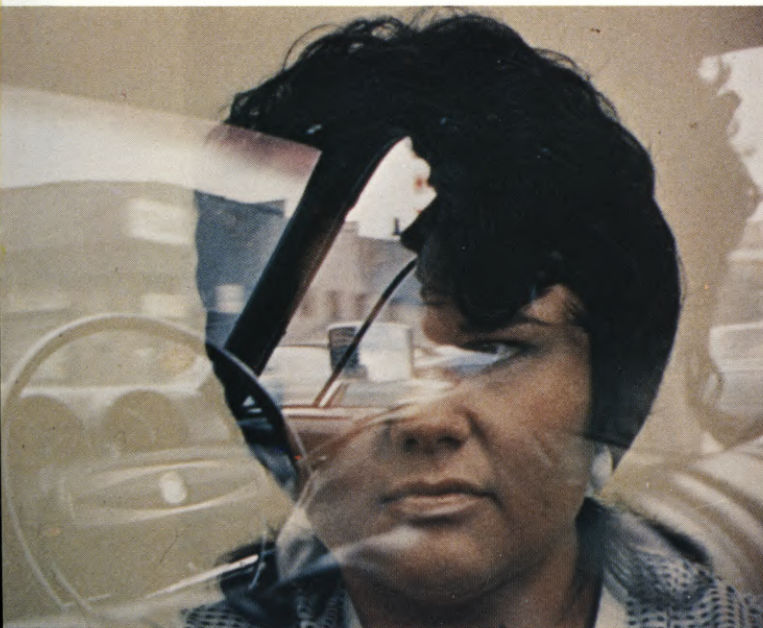
Since ninety percent of *THE BALANCE SHEET* was to be shot with sync sound, we gave a great deal of thought to cameras. After some argument and some field tests, we adopted a Yoder converted Auricon Cine-Voice as our prime camera. For a reliable backup machine, we picked an Arriflex-S with both wild and synchronous motors.

For greater ease in planning superimpositions, we had special matching viewfinder reticles made for the two cameras. The reticles had TV apertures as well as crosshairs like those in a Cine Kodak Special camera.

The crosshairs made it easy to remember the position of any object in the frame, for accurate supering. On the

Frame blow-ups from "THE BALANCE SHEET", a film for the Illinois Governor's Committee on Employment of the Handicapped, showing some of the superimposures that were achieved. Crosshairs of specially made viewfinder reticles facilitated locating any object in the frame for accurate supering. Careful logging of these positions by the script secretary during shooting also made the job easier.





The cameraman used 7242 stock pre-fogged through colored gels, not only to reduce contrast, but to achieve an unusual and attractive color balance. The subtle, but visible, result combined an overall pastel quality with acceptable skin tones. The film is actually comprised of a series of multiple images blending into each other with no visible cuts.

set our script secretary, Pat Fako, often found herself logging and reading back information like, "Subject appears in lower left quarter," or "Subject moves slightly left of center line." It made the job easier.

In the film department, Don and I had once shared an experience that we wanted to recapture. In preparation for shooting a commercial, we had experimented with pre-fogged 7242. Our object was not only to reduce contrast but to achieve an unusual and attractive color balance.

With the help of Cinema Processors, Inc., we experimented with pre-fogging through colored gels. The results were subtle but visible, and one particular test roll delighted us because it combined overall pastel quality with acceptable skin tones. We used it for the commercial, and we repeated the process on a larger scale, as we prepared our 7242 film for *THE BALANCE SHEET*.

For maximum mobility we carried minimum equipment—nothing that wouldn't fit into the back of our Pinto station wagon. Under these circumstances, without dollies or special camera mounts, my job sometimes became precarious.

Photographing a handicapped man driving to work, I lay on the hood of the car, facing the driver. In the absence of a Limpet, we locked a pair of belts under opposite sides of the hood, the buckles holding loops of belt around my arms. This gave me some security at twenty-five miles an hour, and it provided a "human shock mount" more effective than any Limpet. Before making

the shot, I wondered whether a paraplegic, using manual controls, could accurately ease his car through the toughest traffic situations. Now I'm a believer!

The belts again came into play when we executed a complex crane shot without a crane. Our subject was a blind chime tuner in a musical instrument factory. His tuning-room was about the size of your average small closet, and the floor was rough. To smoothly move the camera past the chimes, centering on the man at work, we ran a pair of interlocked belts from the camera to a nail in the ceiling. Pulling the camera downward tightened the belts and gave us a great deal of stability as we swung the camera forward and over a sixty-degree lateral arc, following the action of our man.

I'll be everlastingly grateful to our sound man, Manuel Alcantara, and our key grip, Shawn McDermott, for supplying their belts despite the acute risk of losing their pants on the job.

Throughout the production, the crew was impressed with the high level of talent in the non-professional handicapped cast. One day, Jim Pannebianco, an ad agency art director, demonstrated how he goes to work in the morning. Jim, who moves in a wheelchair, lives alone in a skyscraper apartment and works in another tall building several busily-trafficked streets away. Though the morning trip was sometimes hair-raising for us, Jim took it all in stride.

As an art director, Jim was invited to comment on the layout and lighting of the shots he appeared in, and his sugges-

tions contributed greatly to the results we got.

Similarly, Paul Stebbins, a blind sound engineer who appears in the film, helped us with our recording of his own voice and, later, recorded and transferred some of our effects in his studio.

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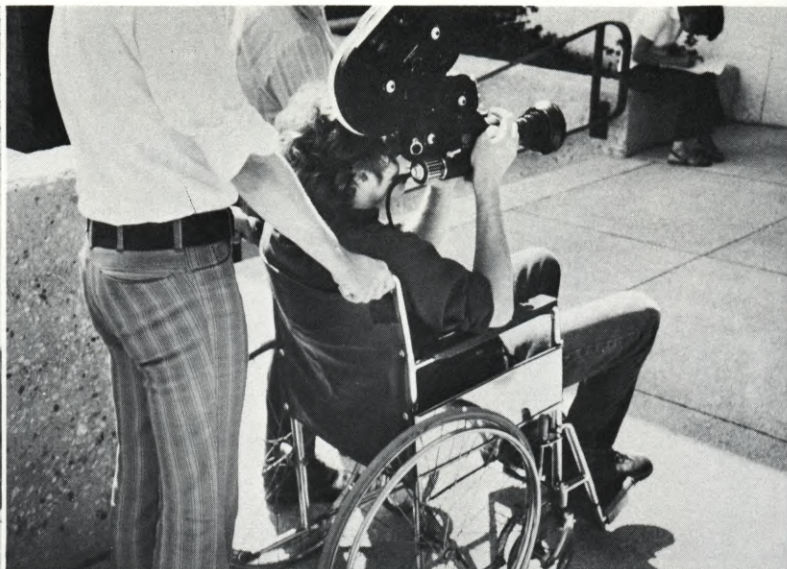
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(LEFT) Director Don Klugman looks on as Cinematographer Fred Hecht adjusts the Miller head for a scene, the purpose of which is to show how Pete Smith, in wheelchair, goes to work. (RIGHT) Turnabout is fair play. Hecht, shooting a subjective point-of-view shot, finds out what the world looks like from a wheelchair.

Bob Greenberg, who happens to be blind, is a stringer for *Wide World of Sports*. In *THE BALANCE SHEET*, Bob interviewed Chicago Cubs star, Milt Pappas, and described the needs and capabilities of handicapped communicators. An expert in outdoor sound, Bob offered helpful suggestions to our sound crew.

Our handicapped cast was certainly not handicapped in terms of acting ability. A bright moment occurred when Kathy Tasker, who is mentally retarded, not only showed up with her lines perfectly memorized, but helped her employer—supposedly unhandicapped—to memorize *his*.

Lighting for superimpositions sometimes was tricky, since every scene had a particular face or object that had to

“punch through” the super while other objects receded into the non-interfering background. The prominent object or person couldn’t be hotter than the remainder of the scene or contrast might be increased through the printing generations and color or flesh tones lost. The answer was to work with small light sources—modeling lights that would “kick” the important object without bringing its level up too high.

As far as I was concerned, the moment of truth for *THE BALANCE SHEET* was the point when we viewed the first cut on a three-screen Moviola. Time after time, with the help of editors Paula Shapiro and Richard Uber, Don considered the force and efficacy of the superimpositions. At times he sandwiched two rolls together and bupacked

them through a single gate to judge the effect.

Sometimes an advance or retard of a frame or two made the difference between an acceptable super and unharmonious visual discord.

Unfortunately, budget did not allow for a total optical printing job, which would have smoothed some of the superimposed transitions. If we ever do a similar film, I hope it will be optically printed.

Nevertheless, in the long run, I believe it worked. *THE BALANCE SHEET* is a prime example of good supering technique. At the same time, it’s a thought-provoking film that proved to our crew—as it should prove to audiences—that handicapped workers are capable and enjoyable people. ■

(LEFT) A two-camera sync-sound set-up is utilized for a sequence showing blind sportscaster Bob Greenberg interviewing ballplayer Milt Pappas. (RIGHT) Script secretary Pat Fako doubles in brass as makeup artist. Because of the unique pre-fogging technique used in this film, complexion tones were critical.



"THE DREAMER THAT REMAINS"

Continued from Page 77

and a lot of love, audiences everywhere will finally be able to share in the musical gifts of a remarkable American character. A genius whose time has come. ■

THE PHOTOGRAPHY OF "THE DREAMER THAT REMAINS"

"True creativity is present. It is here because man is here in his true, deep self, unmutilated."

HARRY PARTCH

Those who have heard Harry Partch's recorded work know that he is a serious and unique composer. In his way he has expanded normally accepted musical forms. His profound faith in human creative capacity is contagious. My own respect for Harry Partch's work goes back a few years; naturally I was pleased when asked to film "THE DREAMER THAT REMAINS" by my friend, Steve Pouliot, director of the film.

"Specialization, a dancer just a dancer, a musician only a musician, is self-defeating because it denies fulfillment."

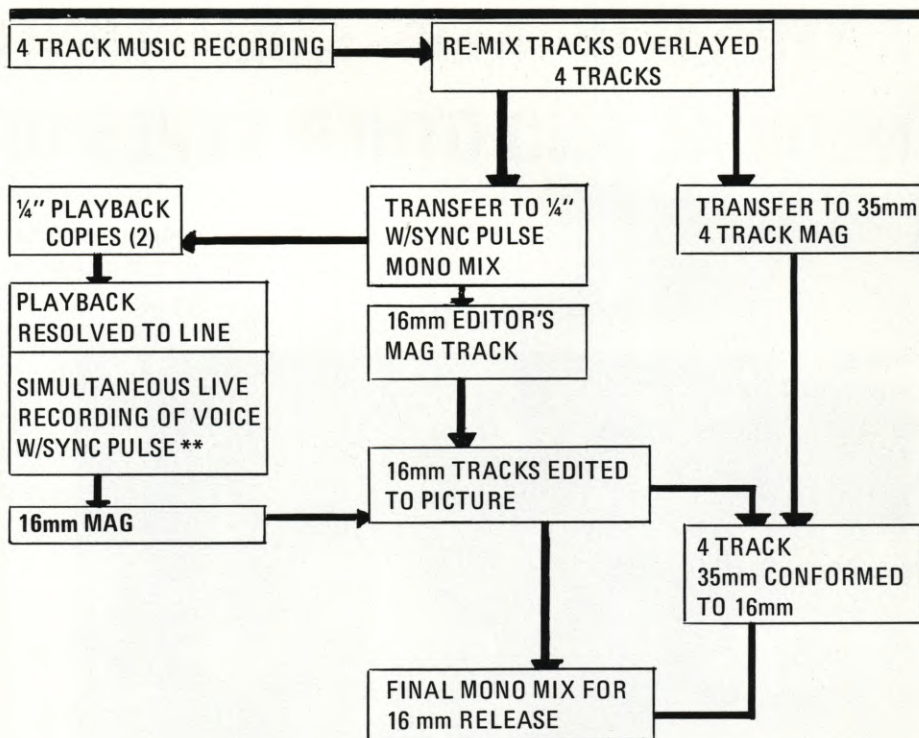
HARRY PARTCH

Harry Partch conceives of a performance of his music as a whole, no single element functions independently. Filming Partch became a process of interaction. We tended to avoid strict lines of specialization; more than 50% of our filming was accomplished by a total crew of two. This minimized distractions, helping Partch to relax and be himself on camera. Steve Pouliot and I worked together to light locations, compose shots and set up sound equipment.

Filming encompassed a range of camera, lighting and sound techniques. Whenever working from a tripod on a planned documentary sequence I was prepared to pull the Eclair from its cradle to cover appropriate spontaneous action. Musical segments were filmed using two cameras, with lighting effects designed to dramatically interact with the performances. One element basic to the shooting plan was our desire to show Partch's incredible range of instruments. In some situations the fine textures and colors were explored, in others we examined the intricate construction or emphasized the overall forms.

Much of the shooting took place in and around Partch's home. Interiors as well as exteriors were done with ECO,

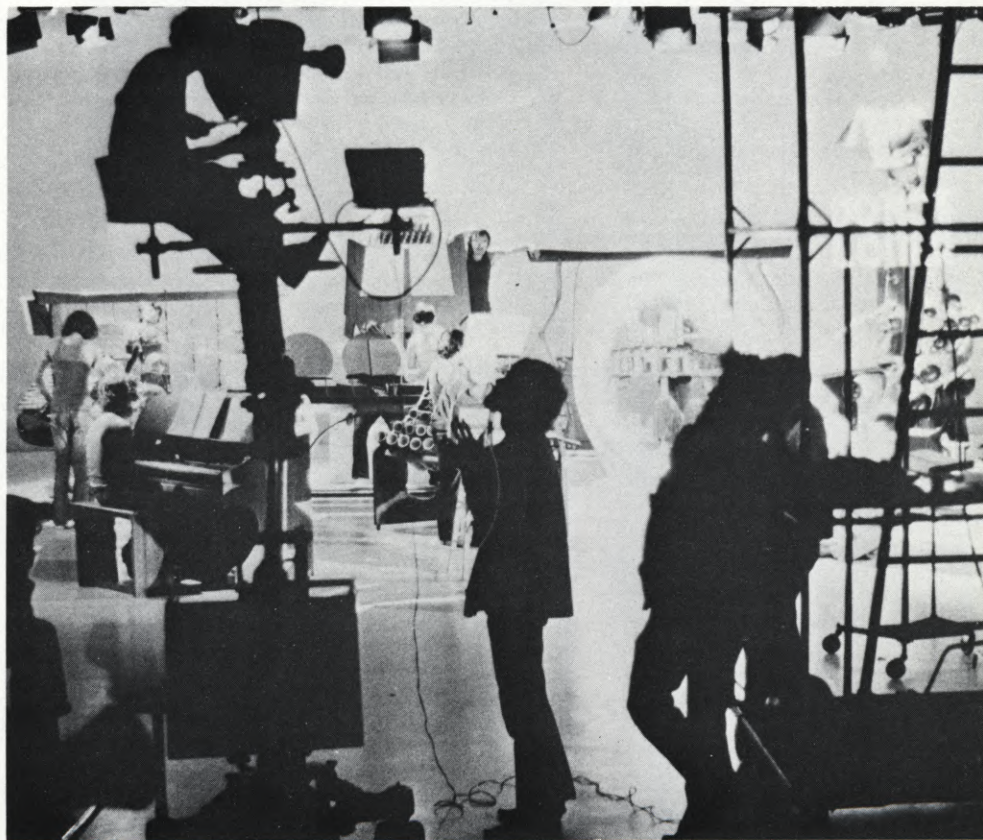
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** The main music track was pre-recorded. During playback Harry Partch's Voice part was simultaneously recorded live. Low playback level and close micing kept the live track acceptably clean.

Flow chart illustrates the various steps involved in prerecording, playback, live recording, editing and mixing. The music was pre-recorded on an Ampex four-track, but Partch also had a spoken part in key and in time with the music.

Preparing to shoot the performance against a total white limbo background. The stage used was in San Diego, where only 320 amps of electricity were available. This basic current was augmented by a generator, which brought the available amperage up to 570. Opting not to use the standard soft light for situations of this kind, Monsour used all direct lighting, carefully controlled to keep it off of the performers.



A SERIES OF NEW COLD LIGHTS USEFUL FOR MEDICAL AND OTHER TYPES OF PHOTOGRAPHY

The Bio-photographer now has at his command a new concept in lighting for stills and cinematography that should make him more than welcome in the operating suite



At Beth Israel Hospital in Boston, a surgical team performs an operation on a patient, while bio-photographer (left) using the illumination from two Art Bodkins Bio-lights, films the procedure. The new lights provide correct visual color of tissues, organic structures and medical procedures without trauma to the patient or doctor.

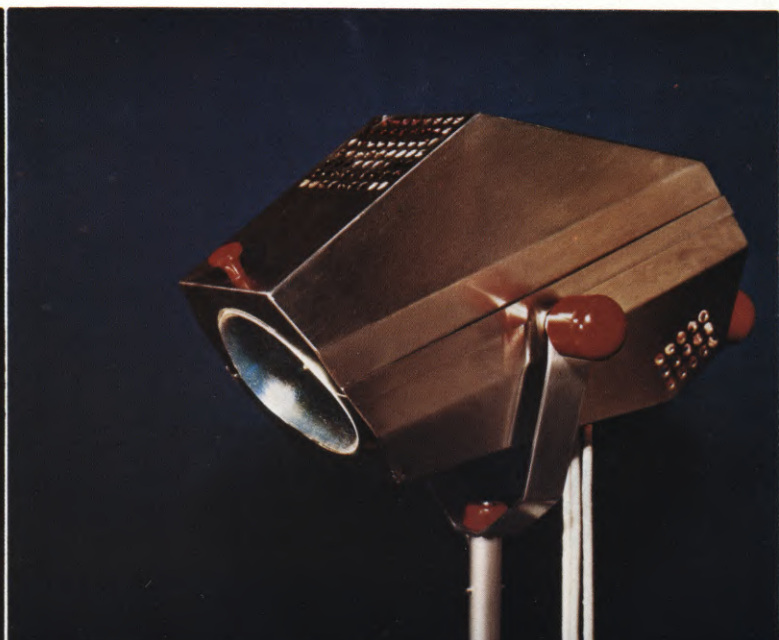
Lighting previously employed in Bio-Photography has been a serious problem because of the intense heat and incorrect Kelvin color temperature in the ambient light beam.

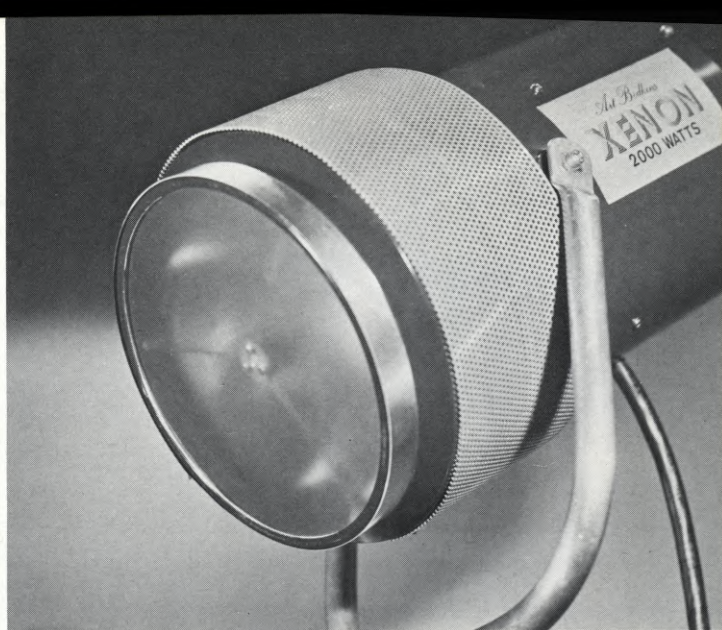
After many years of research and development a new concept was designed in a lighting system that can now provide excellent visualization and correct visual color of tissues, organic structures, movements, and medical procedures without trauma to the patient or doctor.

The Art Bodkins Bio-Light now makes it possible to provide 650 watts of daylight (5500°K) with a sharp attenuation of the infrared that provides comfort for both the patient and doctor. The Bio-Photographer has at his command a new concept in lighting for both stills and cinematography in medical and life sciences that should make him more than welcome in the operating suite.

The Art Bodkins Bio-Light, which has been successfully tested in Beth Israel Hospital in Boston, utilizes an arrangement of cold mirrors and heat transfer techniques to minimize heat reduced by infrared radiation while providing a high degree of illumination. This is accomplished by a high vacuum chamber system that deposits the multi-

(LEFT) The basic Art Bodkins Bio-light provides 650 watts of "daylight" (5500°K) with sharp attenuation of the infra-red that provides comfort for both patient and doctor. The Bio-light luminaire employs a special type p of PAR-36 tungsten-halogen globe that passes substantially all of the light, except for the infra-red (heat) portion. A cold light beam emerges from a hot tungsten filament after passing through three heat-rejecting elements in tandem. (RIGHT) Another Art Bodkins variation of cold light useful for doctors to examine small areas close-up.





(LEFT) Prototype of a new Bio-light, soon to be available, that employs a 650-watt special-type PAR-36 sealed-beam globe that contains a GTE/Sylvania 3400°K capsule—burning life 25 hours, 20,000 lumens. Daylight beam conversion is 5500°K. (RIGHT) New Art Bodkins Xenon 2000-watt lamp, to be produced in 1974. 6000°K, 24-to-28 volts. Burning life of Xenon module approximately 1000 hours. Flood mode: 32,000 lumens. A Xenon 6000-watt luminaire is planned for 1975, or sooner.

layers of inorganic elements onto the pyrex substrates.

The Bio-Light luminaire is designed to employ a special type of PAR-36 tungsten-halogen globe that contains specially formed films on the Pyrex reflector surface which are adapted to selectively reflect substantially all of the light except for that part which lies within the infrared portion of the daylight spectrum.

Each of the PAR-36 lamps also is provided with a selective reflective coating which is adapted to reflect infrared radiation and pass the remaining portion of the spectrum which is emitted from the lamp filament. By directing the light from the filament successively against a plurality of selectively reflective surfaces, the amount of infrared radiation may be progressively decreased. To the non-tech tester, it means excellent illumination quality without the excessive heat.

The Bio-Light is one of several units developed as part of a revolutionary new lighting system introduced by ART BODKINS-OPTICS, Inc. of Boston, Massachusetts, in which a cold light beam emerges from a hot tungsten filament after passing through not one, but three heat-rejecting elements in tandem in the unit. The new unit is suitable to use in hospital operating rooms where the infrared heat component from conventional luminaires contributes to discomfort of doctor, patient and attendants, in turn delaying and harrying the medical team, and reducing the likelihood of recovery and even in some cases, the survival, itself, of a critically ill patient.

The new light is made possible by the

miracle of selective reflection and selective transmission of the radiation from the lamp. Thin, fantastically accurate deposits of specific chemical salts are laid on the glass surfaces in elaborate high vacuum chambers to produce reflection of certain wavelengths of the light beam and allow the transmission of other wavelengths. The coatings, which may even number over a hundred in some instances, are carefully designed on the basis of the truly amazing coating technology, to pass or reflect any single wavelength or wave band to a high degree of effectiveness. Coatings which reflect the infrared region but transmit the visible, are commonly referred to as "hot mirrors", and those which operate in the reverse manner are called "cold mirrors".

The Art Bodkins units contain as a basic element a glass reflector of the cold mirror type, which collects the bulk of the lamp output and reflects the desired band of visible light, allowing the bulk of the infrared radiation to pass through the glass and dissipate in the interior of the unit.

This cold mirror does not, of course, affect or control the heat in the small portion of the lamp output which emerges directly outward from the lamp. A second cold mirror is therefore introduced to take care of the cooling of the direct rays and, at the same time, remove even more of the heat radiation from the beam. The second cold mirror element is arranged at a 45° angle to the beam, thus directing the beam at right angles to the original direction.

The front lens of the unit, necessary to protect the unit from dirt and me-

Continued on Page 89



(ABOVE) New Art Bodkins Daylight PAR-64, 1000-watt long-life lamp under test. Globe employs a 3200°K GTE/Sylvania capsule, transferred to 6000°K by optical coating of reflector. (BELOW) Art Bodkins 250-watt Xenon Sun-Scout, designed for TV news cameramen. Contains a convertible reflector system from 6000°K to 3200°K. Operated on 30-volt battery.





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"THE DREAMER THAT REMAINS"

Continued on Page 81

7252. Thirty amps, available from a tie-in to the main box, were totally adequate. We avoided the need for a generator by tying in to three houses at once, allowing us to draw about 150 amps. In this situation I found an accurate voltmeter valuable for keeping the various circuits at an even voltage. We were able to maintain consistent skin tones in the camera original by eliminating color shifts in the lights caused by varying voltages.

In Partch's workshop we filmed the creation of his two newest instruments. The first, a 72-stringed Kithara, was photographed in a pre-planned manner. Various angles gradually revealing parts of the instrument were used, while Partch explained the Greek origin of its design. Not until the assembly of the instrument was completed did we show the sculptured wooden form as a whole. The other instrument, a bass dyad, was filmed in the final stage of creation at the point where Partch and his two assistants made final adjustments producing the very first dyad sounds. The excitement of the occasion and their spontaneous reactions were followed freely with the hand-held NPR.

Except for dramatic effects used during the various musical performances, our lighting approach was to re-create the natural lighting of the location. Sources of light were motivated by those actually there. The workshop, for example, was lit with small, direct overhead lights augmenting the actual work lights. Partch's living room, on the other hand, was lit entirely with soft bounce-light to simulate the light which normally filters through a large curtained window.

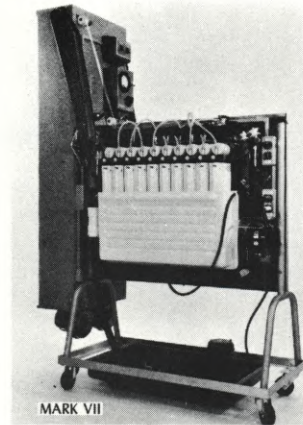
In general we were able to employ enough light to expose 7252. However, there were two important exceptions. In a small practice room with no windows and one door, twelve musicians and the full array of Harry Partch's instruments were tightly packed for rehearsal. The room was lit by twenty Cool-White fluorescent tubes, which put out only 50 foot-candles of light. Quartz lights would not have worked, because we would be filming all day and the room would have become unbearably hot, throwing the instruments constantly out of tune. To film under the Cool-Whites would mean filtering the lens and pushing 7242 one stop. Aside from the added cost of processing, this would result in color fidelity loss and added grain.

After some testing, I found that of

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the six types of fluorescent lights available, Warm White Delux put out more usable light and required only a CC 10 Y filter. The cost of switching to Warm White Delux proved much less expensive than pushing the film. To fill eye shadows I mounted a small light on the camera. Using an ACL I was able to move through the crowded room, following Partch as he worked with the young musicians.

The performance was filmed two weeks later at a television sound stage in San Diego. The music was pre-recorded on an Ampex four track, but Harry Partch also had a spoken part in key and in time to the music. He could not perform to playback, so his part was recorded live. The steps involved in prerecording, playback, live recording, editing and mixing are illustrated on the accompanying chart.

The performance, which involved a total white limbo effect and also various color effects, had to be shot in 7242. A similar limbo lighting design is described in *American Cinematographer*, August 1972, page 941. In that situation, shooting 16mm reversal, the lighting used was given as 930,000 watts, drawing 7,700 amps. However, Harry Partch did not want to travel to Hollywood, nor was it practical to transport the many large, fragile instruments that far. The stage we used in San Diego had only 320 amps available. We augmented that with a generator which brought us up to 570 amps.

The standard approach used to create a limbo effect is plenty of soft light from all directions, but soft-lights are actually very inefficient. I used all direct lighting on the floor and cyclorama, carefully keeping this light off of the performers. This produced just enough soft-light bouncing back from the floor and cyc to evenly light the performers at an exposure of F/2.8 with EF. Flashing was not necessary. The performers appear softly illuminated, floating in an infinite white void. Utilizing two NPR's and with the help of a small but dedicated crew, we were able to light and shoot the entire ten-minute sequence in 72 hours. There were no complaints that I know of; in fact, everyone worked with a dedication that can really only be explained by the presence of Harry Partch, which was nothing less than an inspiration. ■

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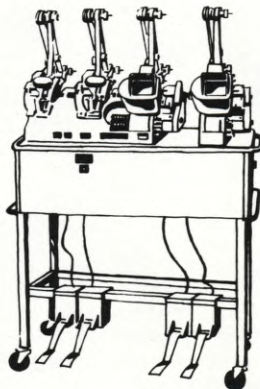
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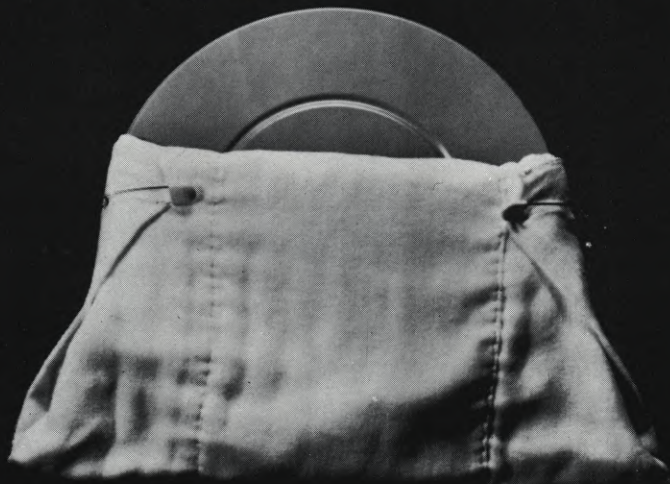


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"CINDY" AWARDS

Continued from Page 69

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Third Places (Bronze)

Bolero
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Tantalus, Inc.—Hollywood
Saul Rubin—Executive Director

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KODAK SOUND CAMERA

Continued from Page 57

type at the end of the processor, feeding the threading tab around four rollers, and inserting the tab into the access hole. A jog mechanism feeds the tab into the access hole and the processor is ready to run. With practice, an operator can continuously feed film into the machine. Processed film is automatically wound onto the take-up reel at the opposite end of the processor.

Processing chemicals include Kodak ES-8 first developer, Kodak ES-8 stop bath, Kodak ES-8 color developer, and Kodak ES-8 bleach-fix, all provided in color- and shape-coded plastic containers to help minimize operator error in loading chemicals. One Kodak ES-8 processing kit will process 5,000 feet of film. All chemicals are liquid concentrates and are automatically diluted and mixed in the processor.

Solution storage, recirculation, replenishment, processing solution temperature control, wash-water heating, and rinsing are all automatic. The processor features standby, ready-to-operate facilities with a rapid 30-minute warm-up of processing solutions and wash water from room temperature, permitting quick start-up.

Operation in an office building is facilitated by simple requirements for electrical power and plumbing. The unit is designed to operate on a 240-volt, 45-amp, single-phase, 50 or 60 Hz, two-wire electrical service. Plumbing requirements are two hoses: one providing cold water supply at 45 to 100 F and the other providing drainage at a rate of up to 10 gallons per minute. The processor uses only one quart of water per minute when running film. Heat and moisture gain to the room from the processor is very low. An outlet is supplied for a flexible hose to conduct dryer exhaust to a suitable collector duct, although under normal ventilation conditions, the dryer can be exhausted directly into the room.

The Kodak Supermatic 8 processor measures 49 inches in height, 32 inches in width, and 53 inches in length. It weighs approximately 730 pounds dry and 930 pounds with chemicals.

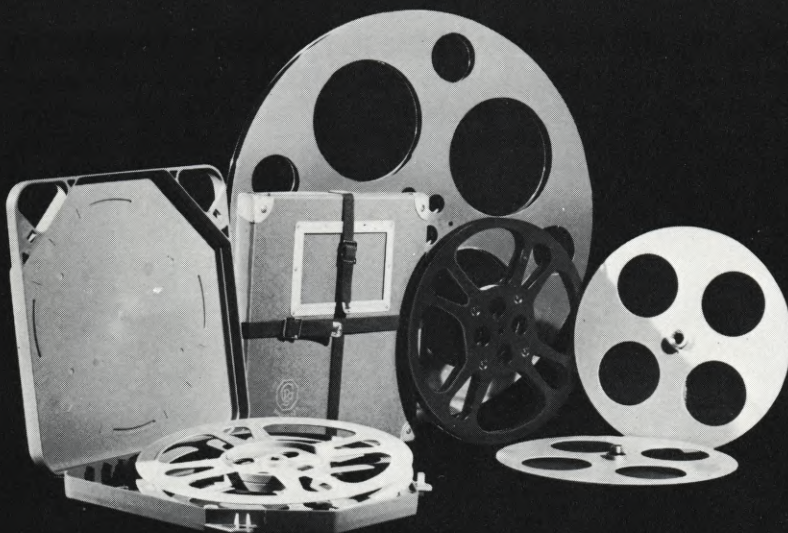
Major emphasis in the design of the processor has been placed on simplicity and safety of operation. A series of controls and interlocks, including warning lights and buzzers, helps to prevent operator error and to apprise the operator of potential problems, such as low chemical supply.

The Kodak Supermatic 8 processor is scheduled to be available in mid-1974 at a list price of \$12,500. ■

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NEW COLD LIGHTS

Continued from Page 83

chanical injury, is also coated, forming the third element, this time being coated as a hot mirror.

The effectiveness of the unit is such that the emerging light beam feels *entirely cold* to the hand or face. So little of the heat radiation remains in the beam that the skin is not able to sense it. The significance of this cold beam technology can only be grasped when by comparison, a similar light of the conventional type, using the same quartz-halogen light source, can be demonstrated to ignite paper and to light cigarettes.

The new Bio-Light will come equipped with such accessories as barn doors; polarizer attachment; dolly-type stand with wheel locks; interchangeable lenses for narrow, medium and wide beams; and safety improvements, such as a fuse, 3-wire power cord, red pilot light and a single button switch mounted into the comfortable gun-grip handle.

Arthur Bodkins came into the light manufacturing field through the ophthalmic route. From plastic eyeglass lenses through research in contact lenses, high vacuum optical coatings for lenses, photographic color filters, he recognized the potentialities of selective reflection coatings as applied to lighting equipment. He has made several significant inventions, patented and patents pending in this field, and has established the plant in which this sophisticated technology is fully realized.

Mr. Bodkins plans to incorporate his lighting system into other types of luminaires that will produce heat-free lighting for Motion Picture and Television productions that would include units of 650 watts; 1000 watts; 2000 watts and 5000 watts.

Other types of lighting equipment for the medical and life science field will be manufactured which will include a Bio-Micro light for heat-free high intensity light for Photomicroscopy with 5500°K and should be excellent to use with the new Kodak Photomicrography Color Film 2483. The company will also produce the MINI-BIO-LIGHT for very narrow-beam, heat-free lighting for deep cavity lighting, such as inter-oral surgery. The Mini-Bio-Light will contain 300 watts of daylight 5500°K light and the unit can be attached to any 8mm movie camera.

For further information regarding the Bio-Light, contact: ART BODKINS OPTICS, 77 Summer Street, Boston, Mass. 02110, (617) 542-1944. ■

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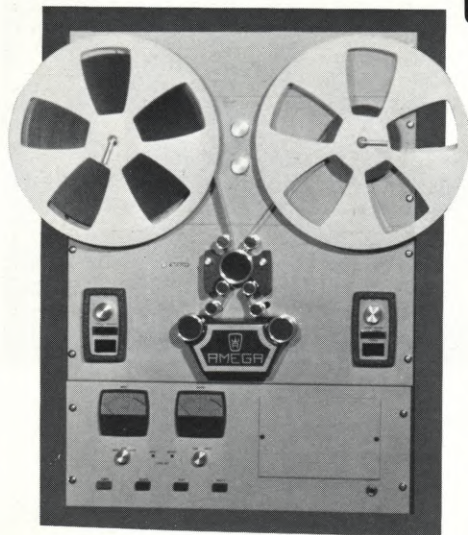
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"DAYS OF DESTRUCTION"

Continued from Page 44

while I drew up the dubbing cue sheets and the next day we were on the scheduled flight to London. Sound mix and neg cutting were done at record speed and we had our answer print in one week.

The film at once aroused interest and I thought it worthwhile to send a print to the Atlanta International Film Festival. I, of course, knew much about the festival after reading the good coverage on last year's festival in the *American Cinematographer* and now I spotted an ad in the same magazine and the date was well in advance this time. Most of the time, we get each issue just after the entry date is past. Unfortunately, we find it too costly to have the journal sent by air, but it is of immense value to us as the means to keep us in phase with the film world. The rest of the Atlanta story is like a dream. Our film, "DAYS OF DESTRUCTION", brought the first major film award to Iceland and we are extremely proud to be the team to do just that. As these lines are written a letter arrives from Mannheim, Germany, announcing the film as an award-winner there, as well.

We carry on filming the story of today's Pompeii. People are moving back and life is again as normal as circumstances permit. Eruption has stopped and millions of tons of ash have been removed from the town but it will take the great mass of lava a good 20 years to cool and white steam and sulphurous fumes linger in the lava field. There is no more hot ash to rain down upon us as we arrive and we thought it safe to bring more expensive equipment in, like the CP-16. Filming a few interviews and, of course, the first dance on Heimaey, since the eruption began, we started to set up lights while the band shook the house with its few hundred watts of electronics. Carefully placing the CP-16 on a table in an empty corner, I went to help Páll with one of the stands. Crashing to the floor came the CP-16, lens first, pushed aside by a youth who needed the table for himself. Well, who is sober at a great ball like this? Least of all a Vestman-islander. First inspection revealed a broken haze filter, kept on to protect the front element from the salty air. The lens worked; the camera ran as smoothly as ever and if the processed film and future use reveal no further damage, the CP-16 is a damn good camera and the Angenieux 12-120 strong as a Coke bottle.

Who said that it is no longer dangerous to film on Heimaey? ■

SMPTE AWARDS

Continued from Page 45

ment of new techniques or equipment which have contributed to the improvement of the engineering phases of television, including theatre television.

The David Sarnoff Gold Medal Award is presented to Arch C. Luther, Jr., for major contributions to the field of magnetic video recording including development of the broadcasting industry's first quadruplex video tape cartridge recording system, and for contributions to the national and international standardization of quadruplex recording.

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The Samuel L. Warner Memorial Award is presented to Loren L. Ryder in recognition of his long and continued interest in the improvement of sound-recording techniques and, in particular, for his pioneering encouragement of the use of high-quality lightweight equipment.

New Fellows of the Society, announced at the 114th SMPTE Conference, included: Chester E. Beachell, Senior Research Officer, National Film Board of Canada; James D. Caron, Vice-President and General Manager, Capital Film Laboratories, Inc.; Edmund M. DiGiulio, President, Cinema Products Corp.; Robert Fehrmann, Chief Engineer, Studio Hamburg Atelierbetriebsgesellschaft m.b.H; Maurice L. French, Supervisor of Technical Film Operations, Canadian Broadcasting Corp.; Karl-Erik Gondesén, Head, Film and Magnetic Tape Department, Institut für Rundfunktechnik, Munich; Robert E. Johnson, Vice-President and Technical Director, Byron Motion Pictures, Inc.; Edward J. Messina, Jr.; Charles W. Rhodes, Manager TV Products Engineering, Communications Div.; Yasuo Saeki, President, Yokohama Cinema Laboratories, Inc.; Judith A. Schwan, Director, Emulsion Research Division, Kodak Research Laboratories; John H. Seide, Public Relations, CCTV Engineering, Mountain Bell; Murray H. Stevenson, Engineering Consultant, Federation of Australian Commercial TV Stations; J. Carl Treise, President, Treise Engineering, Inc.; and Tsuneo Utsumi, Executive Managing Director, Far East Laboratories, Ltd. ■

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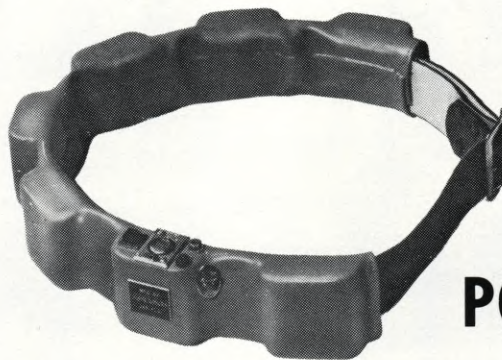
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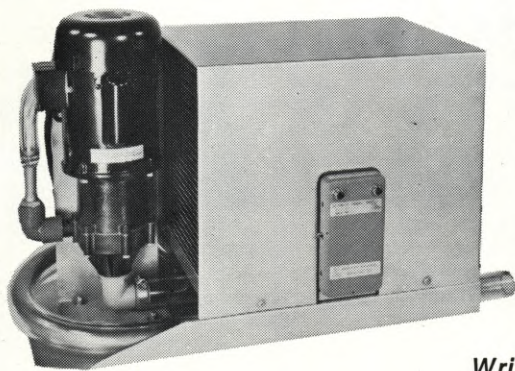
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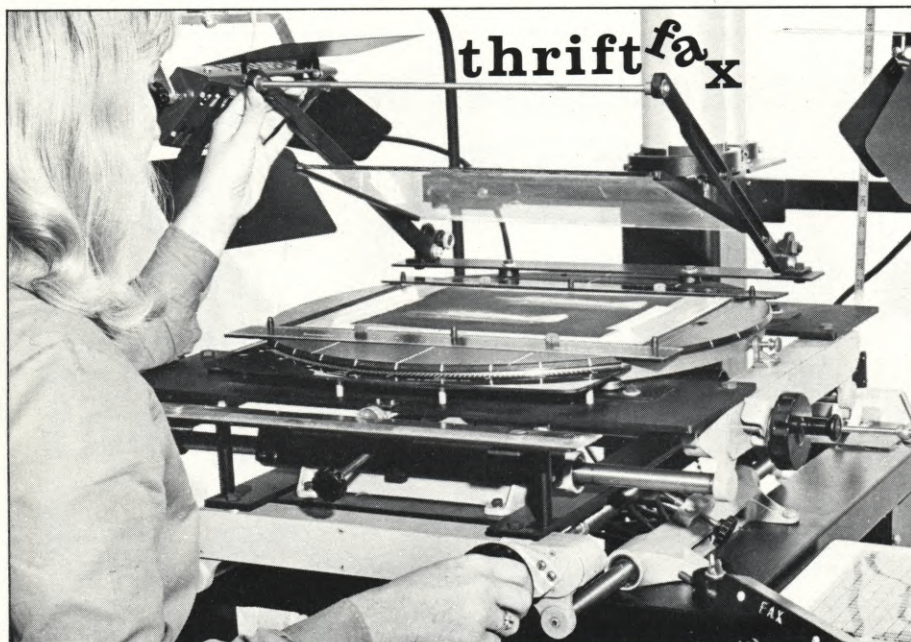
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FILMING "JOURNEY TO THE OUTER LIMITS"

Continued from Page 41

fore had only been covered in a master (if you will).

"Detail. Give me detail. I want to smell them," Grasshoff coached.

I ventured, "Yeah, yeah . . . the subjective . . . POV's . . . movement . . ."

"No, no, no. What does a shot of spinning trees mean? Detail . . . detail. People . . . what is at stake? . . . what are the vital elements? Answer these questions with your camera and you will have it."

Yeah.

The first object of this new approach was to be the Colorado Outward Bound School. The subject matter covered at this unusual school includes: Organizing street gangs into mountain climbing teams, and vice versa; Ice fields as a means of preventing juvenile crime and How to get potentially homicidal cases to try kayaking. Their method runs parallel to Camp Pendleton's hell week, only O.B. does it at 10,000 feet. "Most of the kids are great," boasted burly Chief Instructor Matt Wells.

We were instructed what to do if hit by a bicycle chain and then left on our own.

Our stars ranged in age from 16 to 19 and from ghetto to suburb. We were not to interfere with their schooling in any way, simply because this would negate the course's training. This would, of course, defeat our own ultimate goal which was to climb an 18,000-footer in Peru.

For this unusual shoot Peter Brown, who seemed to have more than total recall, authored a list of equipment that would pique the imagination of any cameraman with a fascination hitherto reserved for a catalogue of Hong Kong honeymoon accessories. We had the usual, two of everything out of the F. & B. Ceco catalogue, plus trunks of the latest space-age plastic fantastic. Dyamite Generators (only 15 pounds but nobody really thought that through), 14 pounds of pocket warmers, 27 pounds of fuel for the pocket warmers, ointment for pocket burns, three flavors of lip balm, two colors of insect repellent, and an ACL. The stories of the Eclair ACL's performance in cold weather were negative, so we backed it up with an NPR, an Arri S, another NPR (ya never know) and an old Bolex borrowed from Bruce Brown.

But Brown's (not Bruce, Peter Brown's) secret weapon was Pilafian. You see, what Brown had failed to take, Pilafian could fabricate. No kidding. At 16,000 feet in Peru, Pilafian produced

from a box (which we were all sure contained a complete set of the Encyclopedia Britannica) the Budapest String Quartet. Not crudely bound and gagged but cleverly reproduced on Maxell UD recording tape and magnified over what came to be affectionately known as "the Sony TC 126."

But all this is a digression from our story.

At the Denver airport in the relative comfort of the concourse, we all watched Pilafian's Halliburton out on the runway failing to bear up under the weight of a small Kenworth tractor. Tim Wawrzeniak (First Assistant Everything) immediately pounced on the nearest Frontier Airline's official, threatening to break his face and body down in its basic geometric forms if he didn't do something. Picking through the Vegas, Pilafian pinpointed the highlights of the truck's destruction. "Looks like the inside of a Shake-n'-Bake bag to me," the Frontier man added and then quickly promised that it would never happen again.

Alex Grasshoff's ferocious film-making, which can only be described as *canine*, started downtown. He is a tenacious genius (one day some form of therapy will bear me out) who thinks only in terms of film and story. Our first set-up was a one-way street which was going the wrong direction for our master. Alex simply reversed the traffic and began filming the bus-loading sequence. Soon the police were there and an officer asked if Alex knew it was a one-way street. Alex explained with the patiently slow enunciation of one addressing a shell-shocked infantryman that the traffic was only going one way. The officer countered with, "But it's the wrong way." Alex feigned some sort of lapse of memory until we'd finished shooting at which time traffic was restored and we were off to Lake City with the students. On the bus we shot all of the twenty students at length. As the film progressed, we would focus in on the three or four kids of interest whom we would cover in detail.

Dumped off about two miles from the ranch, the students forded a river (uneventful, except that Brown lost his only pair of glasses) and then ran to their first training camp. Somehow we kept up with the NPR but the thought of having an ACL began to occupy my free thinking. Twelve pounds as against twenty-two pounds. Perhaps the stories of ACL's being unreliable were unreliable.

The next few days were routine until we came to the now famous "rope course." At 10,000 feet the air is substantially thinner than at sea level

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and it follows, of course, that air particle light absorption is also much less than at sea level. This simply means that you sunburn more quickly (Brown had Ultra-Block, Sea and Ski, and some kind of red mud) and, secondarily, you *must* have fill light as there is negligible sky light. This is fine if you can make your subjects stand around giving you time to hit them with reflectors or car bumpers or anything. But they wouldn't wait. So . . .

Two days later we got what was to become a nightly call from Nick in L.A. At first he would lament, "65% unusable due to unacceptably high contrast." Then as the days passed and we and he got used to it, he would calmly pronounce, "65% unusable due to unacceptably high contrast." Rick Robertson and myself (making up what was later referred to as "the photographic brain trust?") continued to fail to solve the problem.

Enter Dave Meyers. In documentaries he is a legend in his own time, dating back to before the beginning (pre-Woodstock—where he was temporarily struck down by setting up a slow zoom in front of a Jimi Hendrix amplifier), he can do it all. In the film world he's known as one of the last true triple-threats and not a bad cook to boot.

Upon meeting him I knew why. He immediately launched into a pet theory on how leftist factions in Eastman Kodak had been able to introduce 7241 to the public in order to subvert the youthful film-makers of America. It was very interesting and obviously a truly despicable stock. "Push 42, push 52, but never, never do battle with the ridiculous gamma of 41 . . ." He then seemed to grow morose. I tried to change the subject, "I understand egg futures are up," feigning the insouciance of a man who merged corporations as a sideline. Mr. Meyers would have no part of the shabby camaraderie of a duped youth. "7241 makes me sick." With that he turned and locked himself in his room. Of course the bulk of our shooting had been on trusty ECO, but to this day it remains a mystery how the 7241 was authorized. I suspect it was Eastman.

Later that evening we had a meeting to decide who would carry what on the "Basic Expedition". This was to be a trial run for the students and for us in preparation for Peru.

"I don't want any of the crew carrying anything," Alex opened. "You can't cover with a pack on. It's impossible." So Pilafian and I were to carry nothing and cover the Basic Expedition the way Arnold Palmer covers the ol' eighteen. When we came upon a shot

somebody would hand us the right implement and we'd shoot. It was going to be just swell. But as we got into the logistics of tents, food, tripods, changing film, etc., it became apparent that we'd have to carry at least camera and recorder and then be supported by "Sherpas" (carriers). These Sherpas would carry additional equipment and stock while an advance group of Sherpas would carry our living supplies, tents, food, stoves, etc. Remember now that each Sherpa has to carry his own living supplies plus our supplies and equipment. This meant for the three of us (Hoover, Pilafian, and Wright, the still photographer) we needed seven Sherpas.

After this marathon meeting I went back to face a growing menace, the guy learning the recorder next door. Tensions being what they are, I didn't know nor did I want to know who it was. He started with "Yankee Doodle" and, as the nights passed, progressed rapidly to the Brandenburg Concertos. In Peru, where they caught him, he began to regress back to "Yankee Doodle". In spite of this, that evening I embarked on a series of low-temperature experiments on the ACL which I someday hope to publish in the SMPTE Journal. The manufacturer's claim of, "Oh about zero degrees easy" was not convincing. The NPR is good down to zero, so I had to know if we could count on the ACL making it to the summit in Peru. So into my small ice box, which measured a plus-5 degrees Fahrenheit, went the ACL, film and all.

"It's frozen solid," Tom Boyce (my assistant) quivered. "Not so loud," I whispered. "We're in this together unless you want to carry the NPR." Tom set up the back-up NPR to cover the start of the Basic Expedition and then began to massage the ACL, hoping to have it softened up in time for the start.

"Where's your toy?" queried Dave Meyers. Dave's NPR had been personalized and was a joy to use—but there's no way around it. It weighs twenty-two pounds.

By the time we reached the end of the road and the start of the hike, Tom had the ACL moving. So I ditched the NPR and grabbed the ACL with a 9.5-57, two 200-foot mags, a 12-120 zoom in one pocket and a 5.9mm Angenieux in the other.

Tom carried another mag, a 300mm Kilfit, a lightweight tripod (Bolex legs with a Miller head) and 15 200-foot daylight loads of 7252, and a Bolex for back-up with 10 hundred-footers.

Pilafian went with his Nagra SN coupled with his own prototype mixer (the "Pilafian") and a 815. Truly remarkable. Four inputs, one output, with

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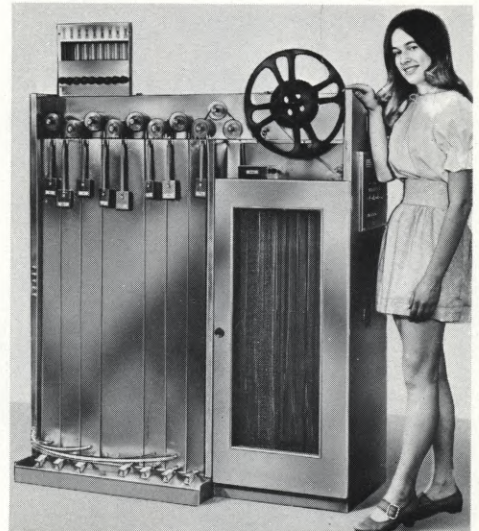
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equalization, modulator, phantom powering for mikes, total weight (SN, mixer and case) four and a half pounds! A Nagra IV comes in at about seventeen pounds. And performance is better than a Nagra III. Pilafian worked out the complicated low-temperature schematics in Los Angeles but actually assembled it in his motel room in Lake City. Anyhow . . .

The students were in poor shape and we could literally run around them to set up shots. Peter and I stayed close most of the time hoping to catch their negative response to this "death march". We were there when they threatened to mutiny and both felt pretty happy about what we were getting. Tom, carrying about 80 pounds (camera stuff plus living supplies), ran right along with us.

Alex and Dave, meantime, were poring through dailies looking for weak areas and finding many. When we got back (three days out) Pilafian went on with Meyers and Alex to get more of the students' reaction to the "death march". The next two days Tom and I started preparing for the rock-climbing sequence. Since Meyer's arrival, Nick seemed pleased with the footage.

The night before the rock-climb I noted in my diary that we finally seem to be on top of it. Except for the ACL. No matter what I did it was frozen solid every morning. Tonight I taped two of the Bull Magnum Paul Bunyon Pocket Warmers to the motor, threw it into the ice box and finally jumped into the shower.

The phone rang and I bolted naked from the tub. Seizing the telephone with one wet hand, while attempting to turn off the radio with the other, I ricocheted off the ceiling, while the lights dimmed for miles around. My second orbit around I cascaded off the dresser luckily breaking my fall with my teeth.

It was Alex and he wanted to see me now.

With all the sensitivity of the Berlin Wall, he began, "I have just spent the better part of a week sorting out the miasma of film known as your *cinema verité*. Well-intended, concise, containing all the elements that would appear to make up what passes among certain reference groups as a communicative effect, yet tinged throughout by what Jean-Paul Sartre is so fond of referring to as 'nothingness'."

I began having visions of life back in L.A., having to skimp on meals in order to save money for food.

Then like a torrential belch, I heard him say it again. "Detail. Detail. What are they feeling? How are they chang-

ing? Try and get in sync with them, okay?"

In the morning, as usual, the ACL was frozen solid and Tom (now an expert) put it in the oven. 225° for ten minutes will suffice, but be sure to remove the film because it gets gooey. I set up the NPR—just in case. Dave Meyers was quick to notice the change. "You seem to like the NPR in the morning." "Yeah, helps me wake up." And Tom added, "We like to bring a couple NPR's along in the back of the truck. Gives us better traction."

Up on the mountain, Meyers (manning his NPR and 9.5-57) worked with Alex and Tim Wawrzeniak covering the students' reactions at the bottom and top of the rock climb. Rick Robertson handled the long stuff while Tom and I covered the middle sections. Pilafian, as usual, was all over the place with his SN and "Pilafian mixer", 815, and two Vegas. We had to work from ropes, so I carried only the ACL with 9.5-95, an Anton-Bauer battery, and Sekonic meter. (I wear my Spectra for show but the Sekonic for work. It's smaller, faster and much more rugged.)

We tried the ACL with 400-foot loads, but it's worse than the NPR. So we stuck with the 200-foot mags and covered the rock face pretty well. Even though the 9.5-95 weighs over a pound more (3 pounds) than the 9.5-57 (1 pound 13 oz.), the telephoto is usable on the wall because it's so easy to brace on the vertical rock surface.

The last sequence was a 300-foot rappell of which over 150 feet were free. That is, not touching the rock. I covered each principal from top to bottom on a parallel rope while Meyers worked from the chopper.

After all the students were down Tom, Franz (Pilafian's assistant) and myself started to clean up the mass of ropes. Tom and Franz rappelled off and I was to drop them the ropes and then hike down with the cameras. Tom hung up about 200 feet down the rope, and so I rappelled down, carrying the cameras to give him a hand. Somehow his rather long hair had snagged in the brake bar and he was hanging immobile with pain. I came down alongside with my Swiss Army knife ready for a haircut. Franz had climbed up to a ledge fifteen feet below us and I decided to drop my 70-pound pack to him in order to cut better, as it was hard to distinguish his hair from the rope.

I guess Franz, standing on a two-foot ledge, couldn't really be expected to catch the pack and he didn't. As I cut Tom mumbled, "Wait till Meyers hears about this."

Although nothing really splattered, it

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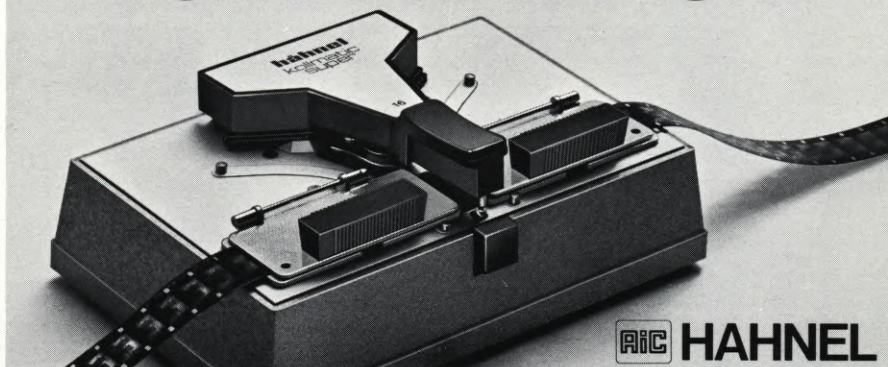
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all had to be replaced: ACL, three mags, two zooms, 5.9mm, and walkie-talkies. I went directly to Cass Paley (Unit Manager) who could get anything at half price. Intense type—a mind with hospital corners. He called Mobius Cine in New York and talked to our savior, Cy Cane. We'd heard nobody could get a replacement ACL set up for radio bloop and an extra motor. Cy had a new ACL, 9.5-57, 9.5-95, extra motor, radio bloop and cables to us in Lake City, Colorado the next day! Cass put it plainly, "It's not what you know. It's who you know." This place (Mobius) is by far the best 16mm (they only handle 16mm) rental house I know of. Fast, have all of the latest and, most important, all their stuff is completely checked out, which nobody else seems to bother to do anymore. Thank you, Mr. Cane.

The next morning we shot the final sequence before Peru. The students had to run 13 miles on a dirt road cross-country course at an altitude well above 10,000 feet. We had rehearsed this three times and all four camera teams were ready. The plan was to shoot passbys, jump in the truck and race ahead and set up for another passby. We had three teams covering this way and a helicopter at the finish. Other than some mild cases of carbon monoxide poisoning during dolly shots, it was perfect. That was it for Colorado.

Cass was in his room (always on the phone) when we said goodbye. "We'll see you in Lima," and with that Alex departed leaving Cass with his blessings and a check that read like a tab for an aircraft carrier.

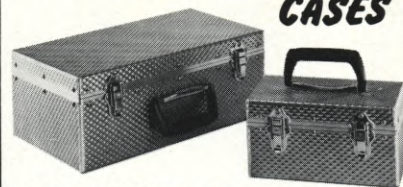
I mothered the equipment as far as Lima and all the carriers (United, America, Braniff) were incredibly rough, except for Delta. I'd heard that they were the best (from a United pilot) but had never had the chance to see the difference. Delta really seems to care. They made sure that I okayed everything before they would move anything. Really impressive.

Within two days we were back above 10,000 feet in order to maintain our acclimatization.

It took about two days to establish base camp at 15,000 feet. Then Tom Boyce and one of the Sherpas from Colorado made the first carry through the ice fall and up to the supply dump.

Not being used to the altitude, they were understandably beat. The Sherpa then came down with a sudden case of vertigo. He could eat, talk, stay up late but got dizzy when it was time to carry up the mountain or do the dishes. Dave Meyers told me later that he was the first to spot the irregularities of the disease. During a discussion of the treat-

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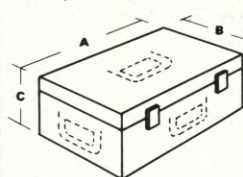
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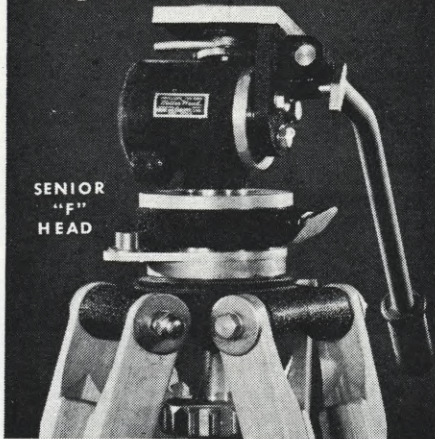
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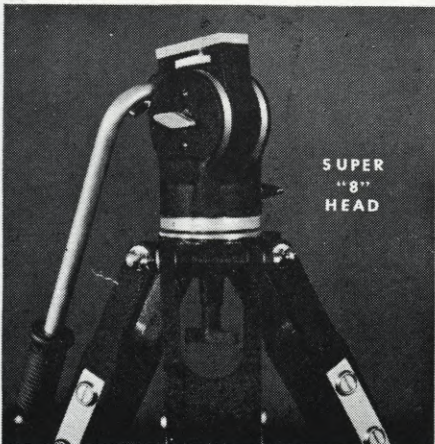
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ment of the Navajos by the Federal government the Sherpa became incensed and jumped up and began doing what looked like the Charleston without the slightest sign of dizziness. Dave was on to him.

Then we all got sick and it started to snow. For days we were immobile. Two of the backup climbers (in logistics) went out with pulmonary edema (a gradual buildup of fluid in the lungs due to the high altitude switch in partial pressures). Everybody had diarrhea, which is, of course, particularly rough in a snow storm. But none of the kids were sick.

As the weather continued bad, morale continually dropped. I spent most of my time dozing and trying to get the two little BB's into the eyes of the bear. My diary writing had dropped from two pages a day to an occasional seafood recipe and a series of commas.

In the next tent they talked for hours, "What can we know? Is knowledge knowable? And if not, how do we know that?" Then one night the guy with the recorder started in. "Yankee Doodle." It was somehow reassuring to hear it again. But he only lasted about an hour. Then the all-time low. A group of the less musically inclined took him behind a rock and threatened to force-feed him his recorder if he didn't quit.

The dizzy Sherpa tried to make up with Meyers, "Art, all art, is merely an expression of something. Don't you think?" "Leave me alone. I'm eating." Totally broken, the Sherpa took to saving string until his miraculous recovery.

Then the weather cracked. Tom Boyce and Franz Frolicher, carrying unbelievably heavy loads, raced through the ice fall and on to establish Camp One. The following day they pushed a route up to Camp Two, only a thousand feet below the summit.

Dave Meyers with Tim Wawrzeniak covered the Outward Bound Base Camp and shot long telephotos of the climbing. Tom Frost and Charles Groesbeck had come to Peru in advance of our group as the climbing specialists, as well as cameramen. These two old pros kept our climbing in perspective. "There are old climbers and there are bold climbers. But there are no old, bold climbers." They handled the scenics (Arri S with 12-120, 300mm Kilfit, and a Bolex) and any technical climbing problems.

Pilafian and I stuck with the kids. Our crew was logistically totally independent from Outward Bound, so they set the pace. We wanted to try and stay a day ahead of them so we wouldn't be caught out of position. This was accom-

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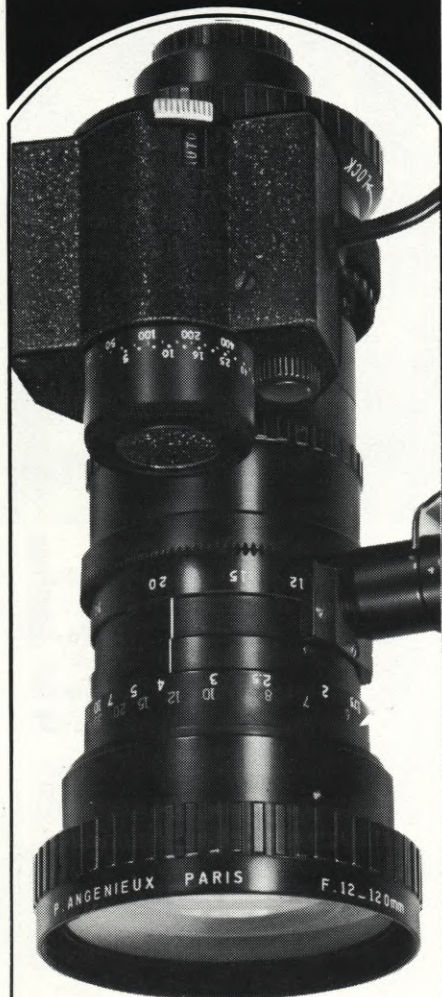
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plished only through the superhuman efforts of Tom Boyce and Franz Frolicher sometimes carrying two double loads (the work of four men). We hadn't planned on it this way, but everyone else was sick. So Tom and Franz continually pulled us through.

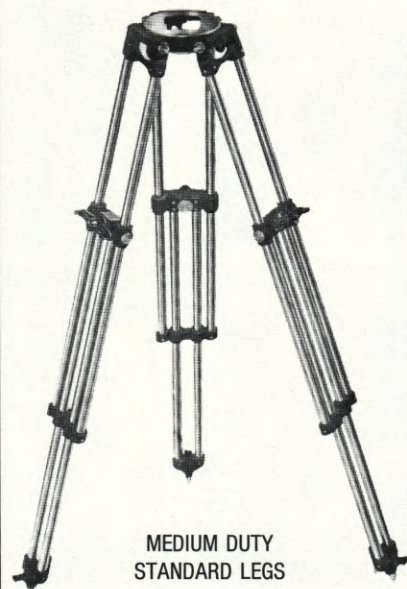
Because of our manpower shortage I was committed to going with the twelve-and-a-half-pound ACL. It would be too slow to use an NPR working out of a pack. So I hung the ACL around my neck and started out. Apparently at low temperatures the transistors in the motor fail as their conductivity decreases. These can be replaced by more expensive transistors and IC's, but my test indicated that this had not been done in any of our ACL motors.

We easily covered the Outward Bound advance group through to Camp One when it began to get cold—maybe down to a plus-5. The camera easily tucked under my jacket when I wasn't using it. So far so good.

Since we elected not to use the generators (because Ni-Cads won't take a charge below 50 degrees—meaning pocket warmers that rarely work, extra fuel, noise, smell, weight, etc.), we went with the Anton-Bauer batteries, probably the most reliable item we had. You can't break them—they're welded into a modular configuration with no wires. Each Ni-Cad cell slides into a Lexan plastic (used in crash helmets) carrier where it makes contact and that's it. They'll run any camera without changing anything (8, 12, 16, or 32 volts) and will shoot conservatively 3,000 feet through an ACL. That's a battery that weighs under two pounds ready to shoot (it figures to be the most juice for the weight by almost 2:1)! So we carried up about ten of these (BP-2's) that we'd charged in Colorado and would leave them frozen. They hold their charge better this way, anyway. Then we'd sleep with a day's supply of them at night (and of course the ACL) and be ready first thing in the morning. Keeping them warm while shooting (Ni-Cads won't operate below 60 degrees) was no problem. They're so small that Tom would wear one under his shirt and I'd wear another. When we'd shot 3,000 feet, he'd give me his and then put on a cold one to warm up. No problems at all.

In the morning we got a good start on the students as we moved on towards Camp Two. My eyes felt like the bottom of a bird cage from having to shoot the previous day without glasses. Dark contacts would be perfect for filming in the snow. We waited for them about a half mile through the second glacier. And waited. Tom Frost and Charles

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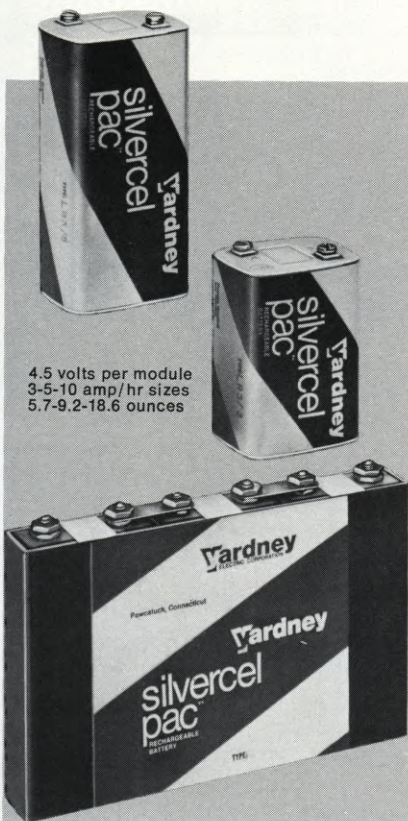
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Groesbeek somehow knew that they'd come. I began to feel that it was only a question of time before we'd starve to death.

Then we saw them. They were coming frightfully fast. Worse yet, they were right in our tracks, making a full shot of the "advance group" look like a lie. I was sorry we hadn't used all this time to circle around the glacier so that our full shot for the O.B. advance group would be on untrodden snow.

By the time they got to us the kids were a little burnt out, having set a fast pace. This gave us more time to set up and made our coverage somewhat easier. The technique was still to race ahead and shoot as they passed by. Hand-holding this way you *have* to hold your breath. At this altitude a ten-second shot after running in crampons is about maximum. Even then, after counting to six, your eyes start to water, the back element fogs from eye warmth, and it's a little rough to pull focus. Then if you do make ten seconds, you're dizzy and Pilafian is asking why you didn't finger tail-slate. It's different.

The next morning was cold and clear. Perfect for the summit. The route was straight up the east ridge which gradually steepened as the snow turned rotten. Not particularly difficult climbing but climbing and filming it would be. The summit camera crew was made up of: Tom Frost and Charles Groesbeek for top shots, with Rich Onitus carrying; Hoover and Pilafian in for the detail, with Tom and Franz carrying; and Jonathan Wright covering the stills. Although we never took a vote on whether to rope up, it was obvious that we could never cover the climb if we were confined to a rather messy rope-belayor system. So we didn't bother with it. Looking back, it worked beautifully but then luck always enters into such decisions. "There are no old, bold cameramen."

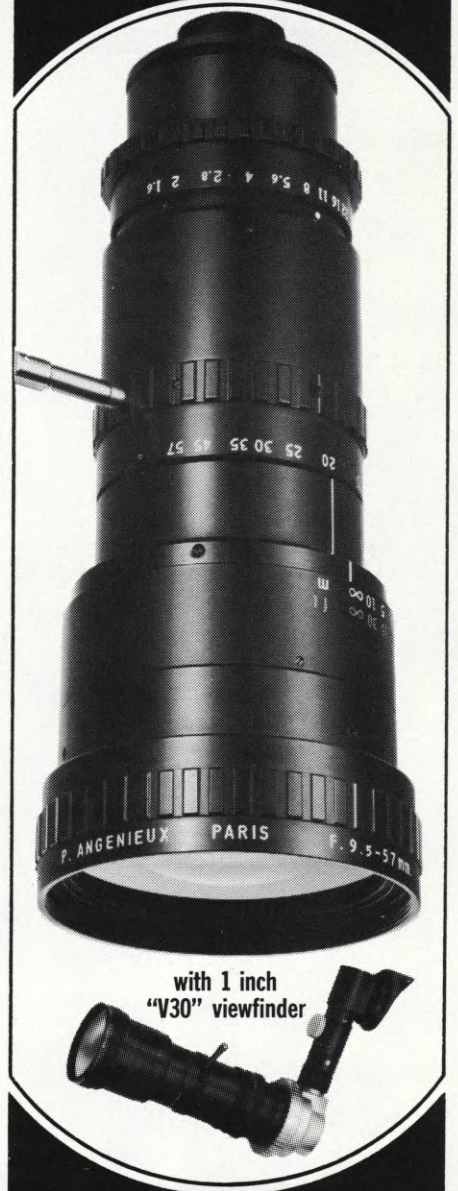
Most of the eight students (all men) were tense, as there was only one O.B. instructor with them. They seemed relieved to have us along, if only to talk to. As we climbed they asked: "How's it look?" "Do you think we'll make it?" "My toes are very cold, do you think I might have frost-bite?" Then we stopped.

With only two hundred feet to go, Groesbeek signaled me that it looked bad. The students picked up on this and became very quiet and almost apathetic. The problem was very steep rotten snow. It's like climbing on air mixed with a little ice. Once you start to fall there's little or nothing to stop you.

Matt Wells, the O.B. instructor took over and it was agreed that he would go

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up and explore it. If it wouldn't go, we would retreat down to Camp Two and try to figure out an alternative route. Matt carefully worked his way up and disappeared around the ridge. His rope kept moving up slowly. The students didn't like this at all. Too serious. Finally he yelled, "It's easy from here. Come on up." He left a fixed line which the students went up while we filmed.

Now within a hundred feet of the summit, things fell apart. The students wanted to run the rest of the way up and then get the hell down. And that's what they did. We ran after them and were able to catch and stop them long enough to get set up. Then the ACL quit. "Please wait." Tom massaged it and got it going with a fresh warm battery. Mine had apparently gotten cold from leaning against the snow wall below.

We turned them loose and it went perfectly, really no differently than if we were at sea level. Except we were 18,715 feet up with eight kids who, five weeks before, had never climbed anything. Pretty good feeling.

On the way down we met the dizzy Sherpa who had recovered sufficiently to climb from Base Camp past Camp One and Two. Then, using our fixed ropes, on to the summit and finally all the way back to Base Camp. All in one day. As we began to pack up Fat City for the carry-out, Meyers asked the Sherpa how he felt. "Shouldn't have done that climb. The dizziness is back."

"Remarkable!" ■

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Soundman

When Nick Clapp called and asked me to work on a mountaineering and outdoor survival show for National Geographic, I knew that the job would be feasible only with extra-lightweight gear. This conviction was based in part on an experience earlier in the year in Idaho, where I found that, after struggling up and down the icy slopes of the Big Creek Wilderness Area in pursuit of Wild Cougar, with the standard Eclair NPR/Nagra IV documentary gear, the cameraman and I would frequently arrive at the moment the action was starting, but find ourselves too out-of-breath to make the shot. Consequently I decided to find a way to use Kudelski's tiny Nagra SN recorder as an over-the-shoulder production machine.

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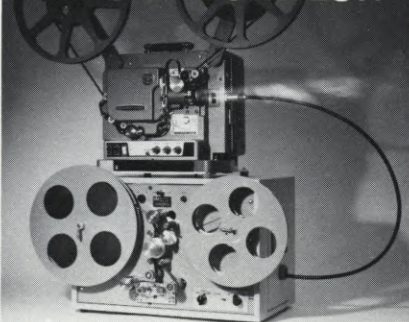
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815 shotgun mike through its power supply directly into the microphone input of the SN. This arrangement was barely satisfactory, for the following reasons: 1. There is no meter on the SN to indicate recording level; 2. There is no manual gain control, and the low dialogue level demanded more gain than the SN has; 3. Only one microphone at a time can be used; 4. Headphone monitoring level is low and has a long delay due to the 3¾ ips tape speed.

Despite these and other functional shortcomings, the system enabled me to move with great ease over the rocky, icy, and treacherous terrain. Weight was reduced from more than 17 lbs. to less than 1½ lbs!

To occupy the long, cold winter evenings in an Idaho hunting lodge, the packers would sit around telling stories that made Paul Bunyan look silly. But being of a more practical mind, I started designing a mixer which would enable me to make maximum use of the SN recorder. I was convinced that if normal plus-4dbm (OVU) peaks were maintained at the level of maximum allowable distortion on the tape, the signal-to-noise ratio (my biggest apparent problem) and the frequency response would both be more than adequate for any motion picture recording situation. It was also apparent to me that the SN could be fully controlled by external switches, due to Kudelski's ingenious use of flat, multi-pin sockets along one end of the recorder. So I drew up a list of requirements and made a layout of controls, and decided that as soon as I could find an excuse, I would build a prototype and test the concept.

The chance came sooner than I expected, and I gave myself what I thought was plenty of time, even turning down jobs to keep my days free. First on the program was determining that the SN itself would meet acceptable performance standards. Investigation revealed that Mr. Kudelski's one-pound, one-ounce *tour-de-force* of miniaturization was capable, even at its 3¾ ips tape speed, of an astonishing 60db signal-to-noise ratio, and a phenomenal frequency response of ±2db to 14,000 hz. This was impressive, but I decided that I could improve the characteristics even further by using the best 1/8th-inch tape on the market. After more sleuthing, I discovered that Maxell UD tape had the highest overall output, and that it would improve noise and frequency performance with its rather radical rise in high-end playback level.

The next problem was to construct a mixer which would have maximum operational flexibility, draw a ridiculously low amount of current (so as to



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conserve batteries), and weigh as close to nothing as possible. It should also be extremely rugged and able to withstand below-zero temperatures. Several appealing solutions, such as op-amp integrated circuits, were rejected simply because there wasn't sufficient time for the inevitably lengthy testing and breadboarding process. It was also important to keep the voltage down and avoid non-standard batteries. So the simplest and most trouble-free solution made use of the proven, tried-and-true Nagra IV plug-in modules. These circuits are remarkably simple and remarkably clean. They are compactly mounted, rugged, and operate in a wide climatic range. A Motorola integrated circuit voltage regulator provided an extremely stable 10 volts. For power I decided to use 12 AA cells, held by two easily replaceable plastic battery packs. This means that starting with 18 volts total, and drawing only 30 or 40 milliamperes, battery life should be very comfortable, indeed.

One life-saver in terms of weight was the new plastic chassis-mount XLR connectors, which look like Revell Toys model car parts, but in daily use they hold up fine, and weigh maybe an eighth of what the metal ones weigh.

As the date for our departure to the mountains drew uncomfortably close, my large supply of special vitamins and condensed high energy protein rations enabled me to actually eliminate the need for sleep (well, almost), but to no avail. Sunday morning found me furiously packing boxes of resistors, soldering irons, schematic diagrams, and emergency telephone numbers along with my pitons, crampons, caribiners, and ice axe. Surely, I told myself, a couple more late nights in the hotel room breathing solder smoke should finish it off.

Needless to say, it was down to the wire, but the day before our first actual high-altitude climbing sequence in Colorado, I managed to eliminate the last nagging buzz and solve the mystery of the Reluctant Relay (for putting a bloop on the SN tape), so that all that was left was to spend seven hours at the Outward Bound Ranch wrestling with an industrial sewing machine to make a strong, waterproof carrying case for the little monster. Meanwhile, my friendly crew-mates would occasionally wander in to offer encouragement, but they always left shaking their heads.

Testing in the local 5-degree Fahrenheit mini-refrigerator indicated that there was no problem whatsoever down to that temperature in either the SN recorder, the Pilafian mixer, the Vega radio mikes, or the world's greatest



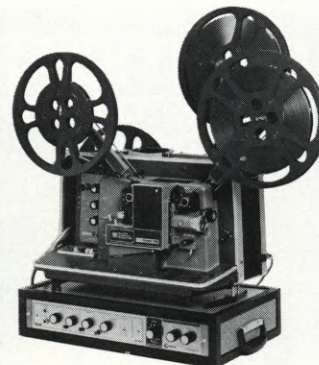
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dialogue mike, a Schoeps 441. Functionally, the mixer was able to do everything I had hoped it would. The one exception was that I never quite had enough time to iron the bugs out of the limiter circuit, so there was no protection against those sudden, unexpected yells that used to reduce documentary soundmen to nervous, oversensitized paranoids before the advent of the Nagra IV.

In its final state, then, the Pilafian Minitex mixer/Nagra SN combination weighs only 4½ pounds; has four low-impedance microphone inputs, with powering for Sennheiser condenser microphones on channel one; has the equalization curves from the Nagra 4.2L; a peak-reading modulometer; headphone monitoring either before or after recording; crystal-sync; special bloop tone circuit; battery level indicator; runs ½-hour on one roll of 1/8th-inch tape; and sounds as good or better than a Nagra III.

Extensive field use under the most adverse conditions—rain, snow, severe cold, difficult climbing—resulted in no downtime, except for changing batteries. The unit was designed to accommodate three Vega wireless microphones and one hand mike (usually the Schoeps), with all controls grouped closely together for one-hand mixing. The compact Vega receivers were carried in a small backpack, with a single antenna for all three. Mike Hoover's trusty Eclair ACL had to be re-wired in the snow at our 15,000-foot base camp to enable the use of a radio bloop system. This, we hoped, would help preserve our editor's sanity, since it's difficult to use finger-numbered microphone taps with expedition-type down mittens on.

The superiority of this lightweight mixer-recorder package for rugged outdoor documentary conditions is so impressive, that I have refined the design even further, to reduce the size and weight, and add a smooth but effective limiter. Before long, I will have a small number of these mixers on the market for the benefit of those few soundmen who aren't actually in Olympic training.

"Journey to the Outer Limits" Credits

Executive Producer	Nick Clapp
Producer-Director	Alex Grasshoff
Associate Producer	Peter Brown
Unit Manager	Cass Paley
Director of Photography	Dave Meyers
Cameramen	Mike Hoover
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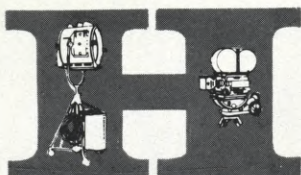
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Continued from Page 51

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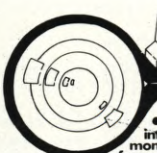
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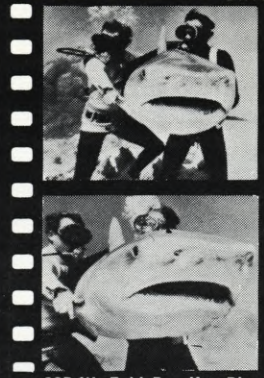
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