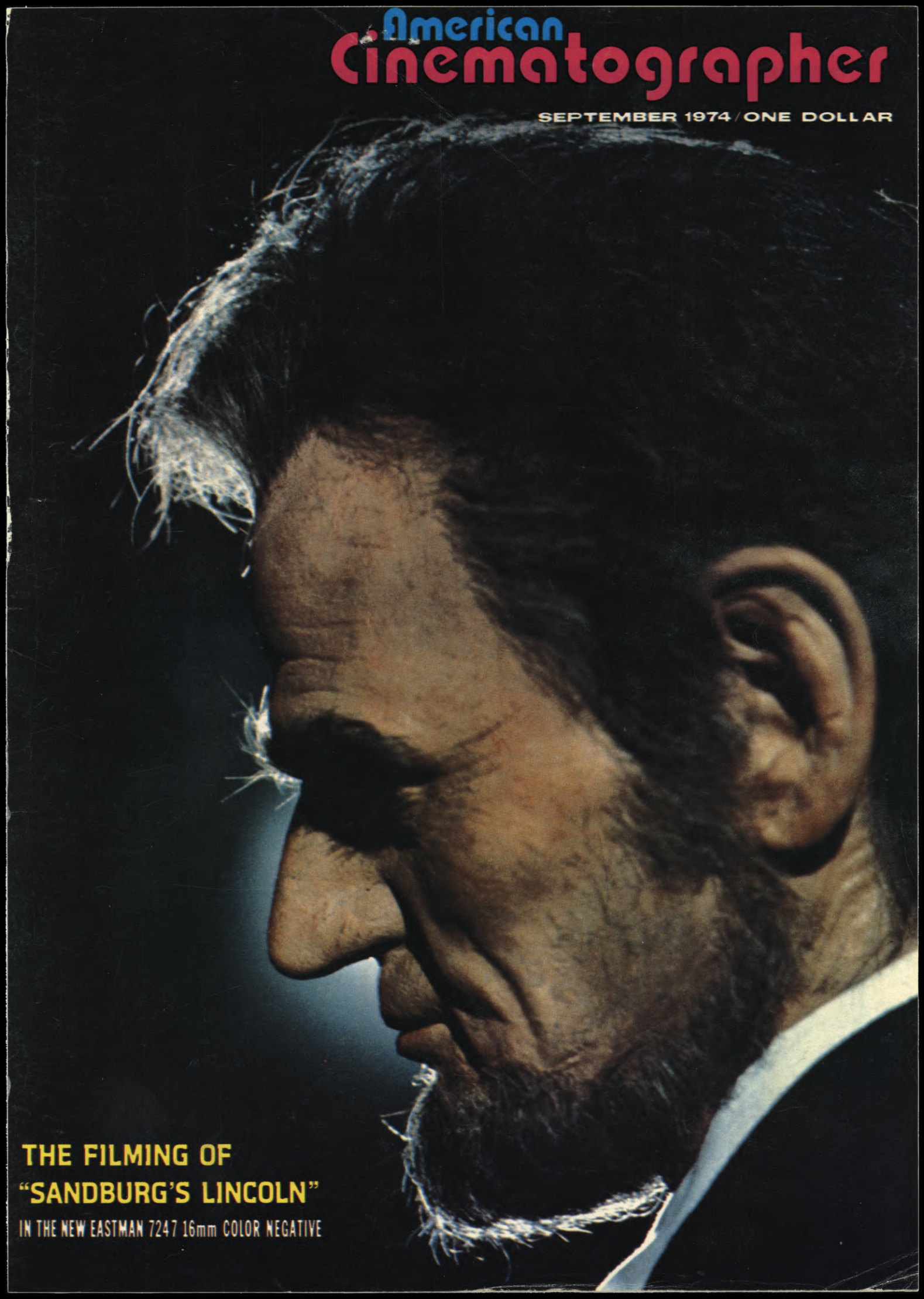


# American Cinematographer

SEPTEMBER 1974 / ONE DOLLAR



**THE FILMING OF  
"SANDBURG'S LINCOLN"**

IN THE NEW EASTMAN 7247 16mm COLOR NEGATIVE

# Phone (800) 223-5829 toll free.

## And put \$6,000,000 worth of motion picture equipment at your fingertips.

F&B/CECO does all it can to make the rental of motion picture equipment as convenient for you as possible.

Take our hot line for instance. Just dial us toll free and get instant estimates. Instant information on our cameras, lighting equipment, mobile units, whatever.

We'll tell you what's available, help you choose the right gear and deliver anywhere in the United States.

And look what we've got on hand.

Over 150 Arriflex cameras, 50 Eclairs, 27 BNC Reflexes. And all the other leading cameras, lenses and accessories. In every size; for every need.

We've got over 5,000,000 watts of lighting. A million feet of cable.

Our fleet of Cecomobiles are the newest, most economical and efficient mobile units in the country.

And it's all yours. With one call.

Our new hot line, the first in the motion picture equipment rental field, is just one more reason why F&B/CECO is tops in rentals. Call us today, toll free, at (800) 223-5829. In New York State phone collect at (212) 586-1420.

### We want you to come back.



SALES - SOS DIVISION

315 West 43 St., New York, N.Y. 10036 / (212) 586-1420  
7051 Santa Monica Blvd., Hollywood, Calif. 90038 / (213) 466-9361

Phone Toll Free (800) 223-5829. In New York State Phone Collect (212) 586-1420

**WE MAY ALREADY HAVE THE  
SOLUTION TO A PROBLEM YOU DON'T  
EVEN KNOW YOU HAVE YET...**



We run into so many unusual situations when we rent equipment, that we can now offer you a selection of solutions to other people's problems.

We've modified, adapted, and in some cases, designed individual equipment for specific jobs.

With a complete selection of 16mm and 35mm cameras and lighting equipment, we have just about everything you might need- (including three modern stages).

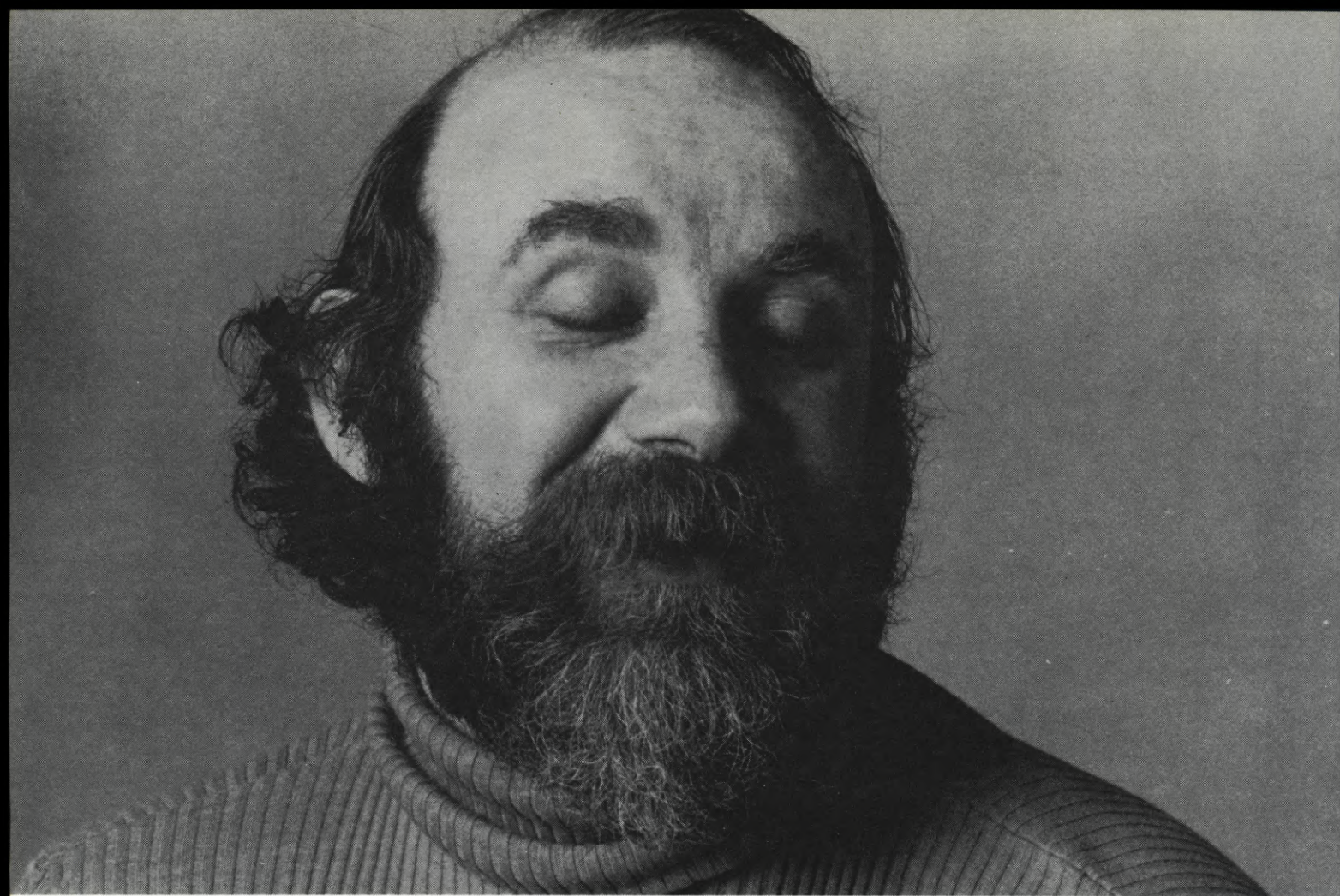
And a staff of professionals who are ready to help you anytime, anywhere.

So, if you've got a problem, call us.

We may already have the answer.

**general  
camera  
corporation** **gc**

471 Eleventh Avenue,  
New York, N.Y. 10018  
(212) 594-8700



# "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

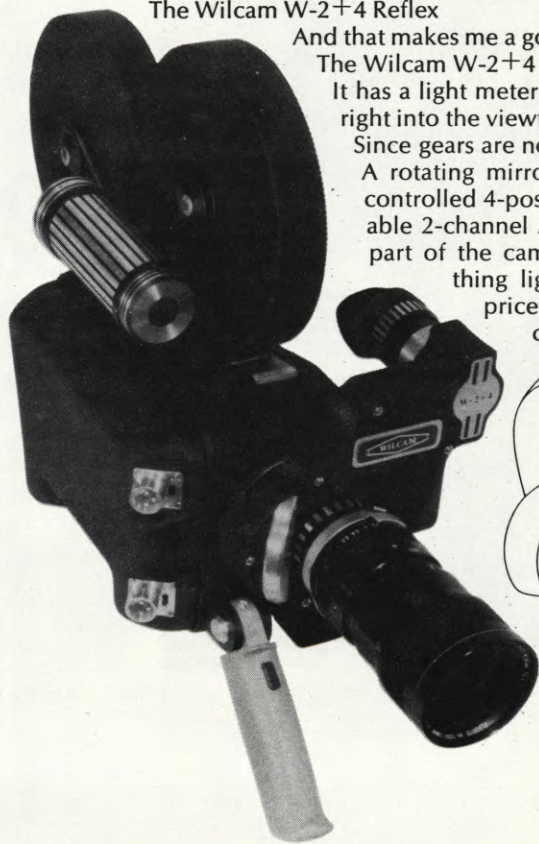
And that makes me a good guy to know.

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.

**MOBIUS** CINE LTD.  
565 Fifth Avenue, New York, N.Y.  
(212) 697-8620



# American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

The American Society of Cinematographers is not a labor union nor a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initials 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.

SEPTEMBER, 1974

VOL. 55, NO. 9

**Herb A. Lightman**  
editor

**Three Tyler**  
editorial assistant

**Barry Day**  
production control

**Pat Hopper**  
advertising

**Barbara Prevedel**  
accounting

**Jay Klapperman**  
layout assembly

**Mary Fleming**  
circulation

**Polly Rich**  
research

**Editorial Advisory Board**  
Charles Clarke, Chairman  
Stanley Cortez  
Lee Garmes  
Winton Hoch  
Walter Streng

**Editorial—Advertising—  
Business Offices**  
1782 North Orange Drive  
Hollywood, Calif. 90028  
(213) 876-5080

## • FEATURE ARTICLES

- 1042 The Filming of "SANDBURG'S LINCOLN"
- 1046 George Schaefer Talks About "LINCOLN"
- 1052 Behind the Camera on the "LINCOLN" Series
- 1058 The CP-16R Camera Makes Its Studio Debut
- 1059 The Eleventh-hour Delivery of Two Modified CP-16R Cameras
- 1060 And Then the Phone Rang . . .
- 1064 Film Crew Travels 60,000 Miles to Shoot Anthropology Film
- 1074 How the New Color Negative Film Will Stimulate More Production
- 1077 A Case in Which Film Proved to be Preferable to Tape
- 1078 Filming the Agony and the Ecstasy of a Football Tournament
- 1080 Photographing the 1974 World Cup Soccer Series
- 1082 Solving the Cinematographer's Problems with Light Control Media

## • DEPARTMENTS

- 1008 What's New
- 1012 Questions & Answers
- 1016 Cinema Workshop
- 1020 The Bookshelf
- 1024 Profile: A.S.C.
- 1090 Industry Activities

ON THE COVER: Actor Hal Holbrook in elaborate makeup for his starring role in "SANDBURG'S LINCOLN", a series of six one-hour films on the life of Abraham Lincoln, produced by David L. Wolper Productions for showing on the NBC television network. Makeup by CHARLES SCHRAM. Photograph by BOB FULL.

AMERICAN CINEMATOGRAPHER, established 1920, in 55th year of publication, is published monthly in Hollywood by ASC Holding Corp., 1782 North Orange Drive, Hollywood, California 90028, U.S.A. **SUBSCRIPTIONS:** U.S. \$9.00; Canada, foreign, including Pan-American Union, \$10.00 a year (remit International Money Order or other exchange payable in U.S.). **ADVERTISING:** rate card on request to Hollywood office. **CHANGE OF ADDRESS:** notify Hollywood office promptly. Copyright 1974 ASC Holding Corp. Second-class postage paid at Los Angeles, California.

# What the pros say about the Bolex 16 Pro.

On the drawing board the Bolex 16 Pro out-performs every 16mm camera we can think of. Of course, the only test that really counts doesn't happen on the drawing board. It happens on location. Here's how the Bolex Pro did there.



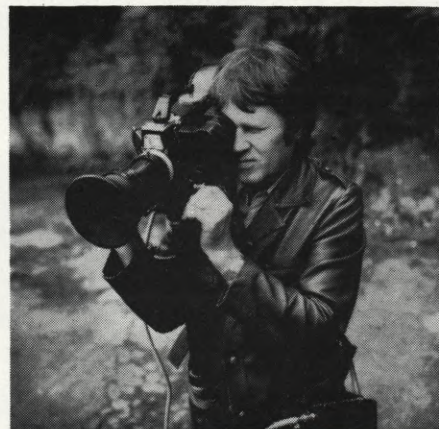
"We made an educational documentary about the Hindu Festival Thaipusam in Malaysia...the participants go into trance and are able to shut out any awareness of pain as they are pierced with small and large needles and hooks. Our shooting ratio during these tense moments...was one to one with only the head and tail frame getting lost in the splicing process matching original to work print...I must attribute these exciting moments in our films mainly to the uncanny abilities of the Pro to accept a new magazine, to thread itself and to film again in a fraction of the time usually needed with other cameras. This allowed me to roll nearly continuously at the most crucial moments..."

**Gunter Pfaff, Filmmaker**  
Michigan State University



"...One year and 250,000 feet of film later...this camera has performed faultlessly. From the Peruvian Andes to the Arctic Circle, the ease of loading and the speed of operation afforded by the power systems have proven a tremendous boon. The automatic iris and the instant start and stop, without losing a single frame, are invaluable where lighting conditions cannot be controlled and time will not permit conventional editing. The self loading is so amazing that after more than six hundred magazines I occasionally peek into the take-up side, and sure enough—it worked."

**Tom McEnry, Staff Cameraman CBS News**



"It is the first time I had a camera which I did not have to bring in for repairs during such a long period... Of special advantage to me are... motorized zoom and motorized follow focus... On my job in Alaska... where I had to work without assistance, I first discovered the advantages of the motorized focus. It was like having an extra hand. I also relied on many occasions on the automatic iris which is built in the camera and it worked more than satisfactorily..."

... in Rochester Heights Hospital I appreciated the quick changes of the magazine and automatic threading of the camera, which enabled me to film surgical operations without loss of any phase.... Many times I have occasion to use the camera handheld ... and find that the well balanced design of the camera enables me to work freely and relatively tireless in these confined areas."

**Rudy Herrmann, Documatic Films, Inc.**



I am interested in a demonstration of the Bolex 16 PRO camera with its: Instant 400' magazine interchangeability, automatic threading from core to core in three seconds, electronically controlled instant start and stop motor (so quiet that no blimping is required), crystal control for wireless sound, variable speeds coupled to automatic exposure system, handgrip controls (power focus, start stop and powerzoom), 20X mirror reflex viewing, VF (can be rotated) with both ground glass or clear glass and no shutter black-out, outstanding zoom optics, and many more.

Name	Affiliation
Street	City
State	Zip
Paillard Incorporated, 1900 Lower Road, Linden, New Jersey 07036	

**BOLEX**  
PAILLARD

# Now, your location lighting problems are no bigger than this.



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.

With Tota-Light, a room is more than just an area to be lit: it becomes part of the lighting system.

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.

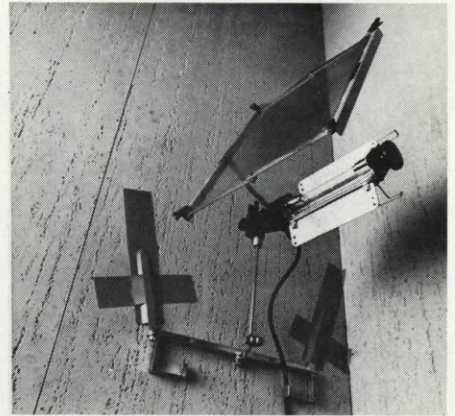


Locks atop doors, open or closed: flags control light precisely.

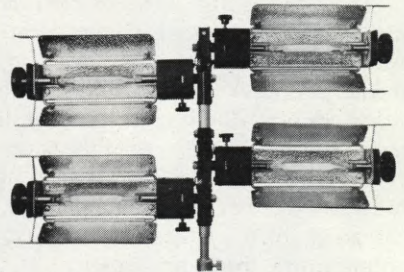
Bright, soft umbrella locks into light without accessories.

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.



Stacks on stand or clamp.

mounted atop open or closed doors, fastened to virtually any surface...and closed compactly to fit a kit or canvas pouch that loops over the belt.

To find out more about how we've cut location lighting problems down to size, see your Lowel dealer or send for our brochure.

\*TM Pat. Pend.

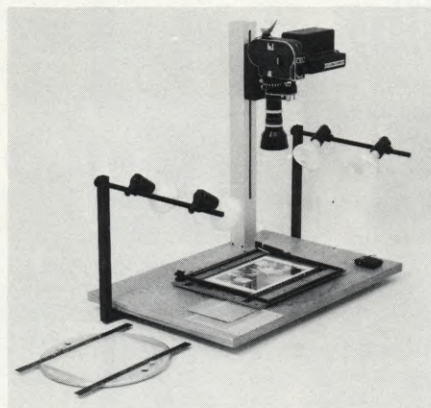


  
**lowel**

421 West 54th Street, New York 10019 (212) 245-6744

# WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE



## OXBERRY INTRODUCES A LOW PRICED MULTI-MEDIA SYSTEM DESIGNED FOR THE EDUCATIONAL AND INDUSTRIAL FILM MAKER

The OXBERRY MEDIA-PRO is a highly versatile visual communication system designed for the low budget media producer who requires professional results. Similar in concept but much broader in scope than the successful OXBERRY ANIMATOR 8 the MEDIA-PRO has been designed to fit the needs of the educational, industrial and scientific media producers.

Faced with spiraling production costs and constant pressure for fresh ideas these media producers are moving towards "in-plant" production and direct idea to software techniques. The OXBERRY MEDIA-PRO combines the standard animators registration and control devices with unique new features making possible filmography and other shortcut means to quality visual communication. A MEDIA-PRO owner has the capability of shooting single-frame or real-time animation in Super 8 and 16mm film or video disc.

Techniques such as backlighting, pans, zooms, compound moves, pantograph tracing, multi-cel and multi-plane photography, dissolves, superimpositions, fades, spins and opticals can be achieved with professional control.

Static images such as photographs, transparencies, printed reproductions, original art, cels and puppets will be converted through the magic of animation and filmography into "moving communication". With suitable processing and viewing equipment the results can be screened or aired the same day it's created.

MEDIA-PRO boasts a collection of features unique to the field of media production:

—the patented viscous-damped compound movement making possible ease-ins, ease-outs and constant rate panning at real-time film making speeds.

—the vertically adjustable, ball-bearing camera carriage capable of filming artwork from below 35mm to 11" x 14" in size.

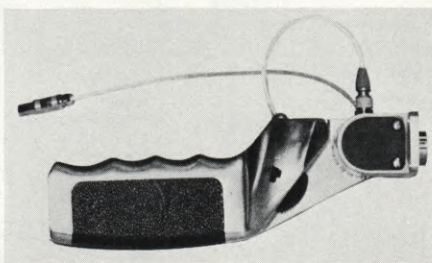
—the backlighting stage with moving peg bars, for a variety of transparent artwork including cel pencil testing, and photo-transparencies.

—the field guide registration system consisting in part of the unique mylar pantograph guide for quick tracing and filming of complex animation moves.

—the heavy-duty aluminum table top with two moving peg bars, 360 degrees of viscous-damped rotation and spring loaded glass platen capable of flattening artwork of varying thickness.

This basic unit is available as a Super-8mm, 16mm, video-tape and video-disc system, or with suitable adaptor brackets as a superior slide, filmstrip, copy, micro, macro photographic system.

For specific information write to: James Aneshansley/Mkt. Mgr.; OXBERRY Division of Richmark Camera Inc.; 516 Timpson Place; Bronx, New York 10455.



## J-5 ZOOM CONTROL AVAILABLE FOR CP-16 CAMERAS

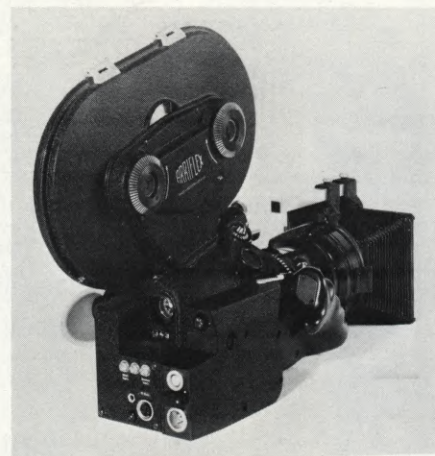
Cinema Products Corporation announces the availability of the *handgrip-packaged* J-5 Zoom Control for CP-16 reflex and non-reflex cameras.

The entire J-5 servo-feedback system circuitry plus the thumb activated *direction/proportional speed* control are packaged in the special CP-16 camera handgrip.

J-5 Zoom Control *lens brackets* are available from stock for all 16mm zoom lenses.

The J-5 Zoom Control (including motor) is priced at \$675.00. J-5 zoom lens brackets, depending on specific lens, are priced from \$75.00.

For further information, please write to Cinema Products Corporation, 2037 Granville Avenue, Los Angeles, California 90025.



## NEW ARRIFLEX ALL-IN-ONE CRYSTAL-REGULATED MOTOR AND VIEWFINDER CONTROL

A new combination Crystal-Regulated Motor and Viewfinder Control has been introduced by the Arriflex Company of America for Arriflex 16BL cameras. The system is unique in that the motor, viewfinder control and complete electronics are all contained in a single, slender subassembly. Once installed, the new system becomes an integral part of the 16BL as the illustration shows.

Drive features include: a special all-purpose motor permanently built-in together with all essential electronics. Sync speed regulation is near perfect, within  $\pm\frac{1}{2}$  frame per 400 feet (16,000 frames) rated from  $-13^{\circ}$  to  $+130^{\circ}$ F. Framing rates of 6, 12, 24 and 48 fps may be selected and a separate convenience switch allows the cameraman to change over instantly from 24fps to another preselected non-sync speed. An auxiliary outlet provides for external sync signals, remote control or bench testing of key circuits without requiring any disassembly of the camera or motor. In case of need, provision is also made for bypassing the electronic circuitry and powering the camera motor directly from the battery.

Viewfinder Control: the same basic system includes all solid state electronics for control of the camera mirror-shutter for uninterrupted viewing, so that the camera is crystal-regulated when running and the shutter is always in viewing position when the camera is

Continued on Page 1100



# The MP-30

## Portable 35mm Sound Projector

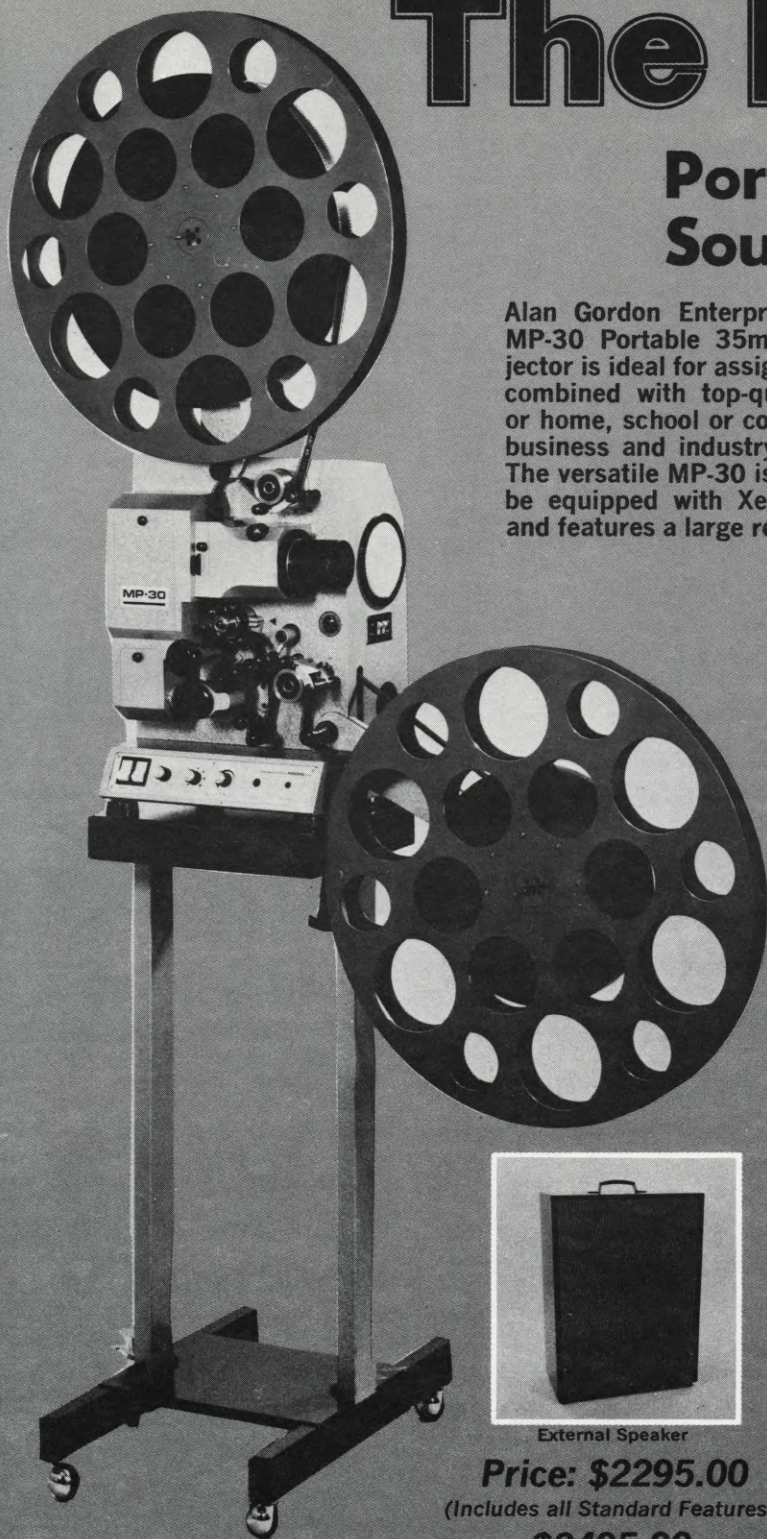
Alan Gordon Enterprises Inc. is pleased to introduce the new MP-30 Portable 35mm Sound Projector. This outstanding projector is ideal for assignments that require portability of equipment combined with top-quality performance. It can serve the office or home, school or college, screening room or advertising agency, business and industry as well as mini or standard-size theaters. The versatile MP-30 is precision engineered throughout, can easily be equipped with Xenon lamphouse for long projection throws, and features a large reel capacity.

### Standard Features:

- Heavy-duty Geneva star and cam intermittent
- Interchangeable apertures
- Constant speed  $\frac{1}{4}$  HP motor, 125V AC, 60 Hz
- 1000 watt quartz Halogen lamp, 3200°K high light transmission efficiency
- Pre-focus exciter lamp, 6V, 5A
- Solid state built-in amplifier, 30 watts, with tone controls
- 8 ohm output
- Coated lenses, your choice, 60-180mm
- Solar cell
- Built-in speaker
- 6000' reel capacity
- Microphone input

### Optional Features:

- Xenon lamphouse and power supply
- Anamorphic and super series lenses and brackets
- Magnetic interlock (track and picture)
- Power driven takeup (6000' reels)
- Projection stand
- Automation
- 12" dynamic speaker
- 50 Hz motor
- Automatic changeovers



External Speaker

**Price: \$2295.00**

(Includes all Standard Features)

**\$2495.00**

(With stand and external speaker)

SERVING THE WORLD

**alan gordon enterprises inc.**



1430 N. Cahuenga Blvd., Hollywood, Calif. 90028

Sales (213) 985-5500 · Rentals (213) 466-3561

TWX: 910-321-4526 · Cable: GORDENT

# In-depth Local TV News is High Rating News.

In their constant battles for higher ratings, the television networks have come to recognize that *network* news gets higher ratings when backed by strong *local* news coverage. One of the major TV networks has even loaned out their research director to several affiliate stations to advise them on how to improve their local news operation. As far as the network is concerned, the local news operation is key!



Indeed, as many of the smaller independent stations and local affiliates have come to realize, on their own, ratings are generally up when TV stations present in-depth local news coverage, backed by mini-documentaries and public service reports that are geared to the needs, concerns and interests of the viewers in that local area.

## Making it in the ratings.

Certainly television news is one area where being big or small doesn't count for much. Making it in the ratings really depends on a dedicated staff with sharp TV-journalistic perceptions, and a determination to make ambitious and imaginative use of the best available equipment. Within the limits of the usual budget restrictions.

And the best equipment on the market today, at competitive prices, is Cinema Products' line of CP-16 reflex and non-reflex sound cameras. Ideally suited for small crews and/or one-man-band operation!

## Imaginative use of equipment.

Whatever your particular production needs — reflex or non-reflex, or both — the CP-16 and CP-16R are so versatile they lend themselves to the most daring and creative use your news cameramen can think of. You get all the freedom of movement you need . . . silent, dependable, no-nonsense "work-horse" kind of performance . . . plus all the features you would expect on 16mm cameras costing many thousands of dollars more. Without compromising quality.

## The price is right!

So, whatever your budget, and whatever local news operation you have — network-owned, affiliate, or independent — Cinema Products gives you the choice of the most outstanding TV-newsfilm/documentary sound cameras. Reflex and non-reflex. *And the price is right!*

For further information,  
please write to:



2037 Granville Avenue, Los Angeles, California 90025  
Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

**When You Win  
Five First Place  
Associated Press Awards  
For News You Must  
Be Doing Something Right!**

**NEWSCOPE 8  
at 10:00 p.m.**

WQAD  
TELEVISION

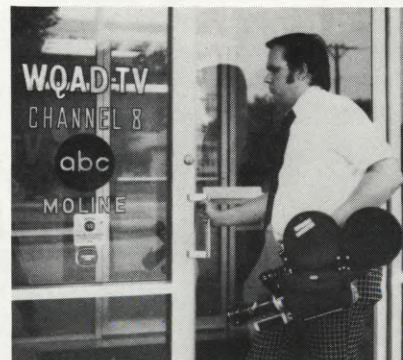
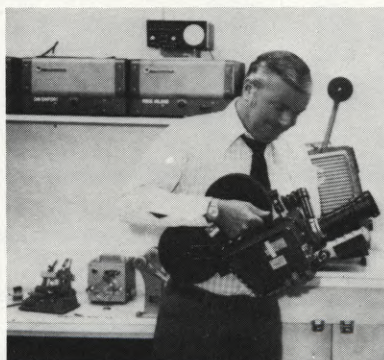
Advertisement placed by WQAD-TV  
in Moline's Daily Dispatch (May 20, 1974).

WQAD-TV, serving the Quad Cities (including Moline, Illinois), is typical of local affiliate stations, whose serious and imaginative treatment of local news has been rewarded by appreciably higher ratings.

At a recent semi-annual Illinois News Broadcasters Association convention, WQAD-TV picked up five Associated Press *first place* awards for TV-newsfilm coverage, all shot with the CP-16/A. Included in WQAD's award sweep was the Feature Photography award. On two other award categories there was an added notation: "Judges were moved to comment on excellent cinematography."

Also shot with the CP-16/A is WQAD's special on open heart surgery facilities in the Quad Cities — a documentary currently up for a National Heart Association award. Management at WQAD-TV is so pleased with the capabilities of the CP-16/A camera that it is planning to buy another one.

Shown below are two members of WQAD-TV's award-winning news team: News Director Jim King (left) and TV-Journalist/Cameraman Bob Wilford.



# Prestige

Our only explanation for MPL having such a high prestige throughout the 16mm industry is that we consistently live up to what our clients need and want: prints of high quality, genuinely personalized service, and the speed with which we get their work done. We can give you the same high



quality on your 8 mm prints. Planes arriving and departing the Memphis International Airport every hour of the day and night, bring every city from coast to coast within quick and easy reach of MPL. Send your film to the *complete* 16mm laboratory—Motion Picture Laboratories, Inc.

CINE-CRAFT LABORATORIES, 8764 Beverly Boulevard,  
West Hollywood, California 90048

MOTION PICTURE LABORATORIES, INC., Piedmont Division,  
2517 South Boulevard, Charlotte, North Carolina 28203

# osco says

## 3200° Kelvin to "Daylight" conversion ...by the roll

The conversion of 3200° Kelvin light has been accomplished by filtering for many years. Originally done with blue glass, which produced a "daylight" at about 6000° Kelvin, this is still the preferred conversion for many cameramen today. The light loss with this filter was 1½ stops.

Location filming, and the use of small lighting instruments, lead to the use of filtering to produce approximately 5000° Kelvin "daylight" for fill lighting, with a loss of only 1 stop. Dichroic types have dominated this field. Eventually, light bulbs were produced with integral dichroic coating, i.e. "FAY" types.

The dichroic filter is fragile, expensive, generally lacks uniformity and tends to produce a "daylight" that is too green. In addition, the FAY lamps start to change as soon as they are turned on, and continuously degrade during the life of the bulb. This has caused serious problems for unsuspecting cameramen. Also, on a 9-light fixture the operating cost for FAY bulbs can be as high as \$10.00 per hour (3200° Kelvin clear types, i.e. "DWE," have an equivalent cost of about \$1.00 per hour).

The Rosco Cinegel family offers the most flexible and economical way to convert to "daylight" by the use of either of two tough, heat-resistant, polyester materials:

- (1) TOUGH TD-25: Converts 3200° to 6000° Kelvin, for the cooler look. The light loss is 1½ stops.
- (2) TOUGH BLUE 50: Converts 3200° to 5000° Kelvin. This is the work-horse material for daylight fill applications. The light loss is 1 stop.

These materials are supplied in rolls 52" and 26" wide (134 and 66 cm.). Further demonstration of Rosco's policy of supplying materials for the real needs of cameramen.

# rosco

New York: 36 Bush Ave.  
Port Chester, N.Y. 10573 ♦ Tel. (914) 937-1300  
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** How can a correct exposure be determined when photographing rear projection on a ground glass, and when photographing aerial image animation?

**A** To my knowledge there is no set formula whereby correct exposure or balance can be determined in these instances. Rather, it is a visual concept that is gained through experience. However, the density of the print that is projected on the background screen is of vital importance in the results of the finished scene. This applies to black-and-white as well as color.

**Q** What do studio special effects men add to ordinary water to make it appear like sea water?

**A** At most camera angles a pool of water reflects the color of the sky or of a sky backing, making it unnecessary to use dyes to color the water for miniature sea shots. Where shallow tanks or pools are used, however, the water may have to be dyed so the light reflected from the bottom will not overpower the sky reflection from the top surface. Blue Aniline dye powder is used in very small proportions, such as a pound to 250,000 gallons of water.

**Q** 1) Can 16mm color film be satisfactorily blown up to 35mm for wide-screen exhibition? If so, what is the maximum size to which it can be projected? 2) If 16mm film can be enlarged to wide-screen proportions, would you recommend closeups from 3 to 30 feet as more satisfactory than distant shots?

**A** 1) Generally, blowups of 16mm footage have been used where there was no alternative—such as photography that could not be done with bulkier 35mm cameras, or when 16mm footage not planned for theatre use comprised such novel or interesting subject matter that any lack of sharpness might be tolerated by theatre patrons. I would not consider a 16mm color original to be satisfactorily sharp under any circumstances for really wide-screen projection where the magnification would be in the order of 1000 times, as for large outdoor drive-in theatre screens. I would consider a screen wider

than 25 ft., regardless of the aspect ratio employed, unable to yield a satisfactorily sharp picture from a 16mm blowup.

2) In general, where a 16mm film must be blown up for wide-screen presentation, the closer the action can be kept to the camera during filming, the sharper the photography will appear on the screen. I would avoid shooting as far away as 30 feet.

**Q** The action in my home movie films is sometimes very "jumpy" and at other times too slow. What is the reason for this?

**A** There could be any number of reasons for your trouble. If you mean the action of the people within a scene is rather stilted it is possible that you shot your scenes at one speed, then projected them at a faster speed. In other words, if you shot at 8 fps or 16 fps, then project at 24 fps, your screen action will be too fast and the action "jumpy".

Keep your camera speed and your projection speed the same for best screen results.

**Q** The lenses on my 35mm camera are slow, of inferior type, and uncoated. Is it possible to have them coated? Would it pay to do so?

**A** Your lenses can be coated. However, optimum quality cannot be achieved with inferior type lenses. I suggest coating one lens and comparing results with that obtained from the uncoated lenses.

**Q** What is the color temperature of matchlight? What color gelatin filter placed over a lamp rated at 3200° Kelvin will simulate the effect of matchlight? Will an MT-2 or similar filter panel used over a window convert the daylight coming through to 3200°K to give a satisfactory matchlight effect?

**A** The color temperature of matchlight ranges between 1700° and 1800°K. The MT-2 filter will convert sunlight (6000°K) to 3200°K. Two thicknesses of the MT-2 filter gelatin, therefore, will almost exactly reduce the color temperature of the window light to that of matchlight. ■

U.S. Patent #3,204,031 to be exact. It's our revolutionary "two-way" cardioid dynamic microphone. Only we have it. And it's available especially for the cinematographer as the AKG D-202E.

Before our "two-way" development, whenever one end of the frequency range was expanded the other end lost. And there was often trouble in-between.

The solution our people came up with was so simple it was beautiful. Build two microphone elements in the same housing. One for highs. One for lows. Phase them together with an integral crossover network and you've expanded your range without any strain—anywhere. Sound familiar? It's the same principle behind a modern speaker system—only backwards.

On the sound stage or out on location, you have the

range you need. Plus a completely flat response over the entire audio spectrum and natural reproduction up to 90° of the microphone axis. Plus no "booming" proximity effect and virtually no feedback problem.

There are other AKG "two-way" mikes, plus boom mounts, stands and adaptors. And a full line of other AKG mikes including dynamic and condenser shotguns. And an entire range of accessories. AKG mikes make every word uttered on your set easily sound even truer to life.

Speak to your professional equipment supplier. Or write to us for complete details.

**AKG MICROPHONES • HEADPHONES**  
Distributed by  
NORTH AMERICAN PHILIPS CORPORATION  
100 East 42 St., New York, N.Y. 10017



**We patented a way to make your  
cinema sound a little more verité.**



# At school or on the job, Scoopic is at home.



Sound Scoopic 200SE

Scoopic 16M

C10x12

Whether the footage you're shooting is for industrial or educational use, there are certain requirements your equipment must meet.

Portability, so you can move about freely and unhampered. Versatility, so no matter what the assignment, you can handle it. Dependability, so you can count on it to work every time.

Three of the many reasons why Scoopic cameras and lenses from Canon should be your choice in 16mm movie equipment.

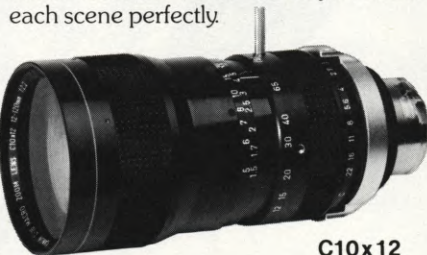
Take the Scoopic 16M camera. Compact and quiet, it comes with a built-in 6:1 high speed zoom lens that's capable of focusing on objects as close as  $3\frac{1}{2}$ " from its front component. In its bright viewfinder you get all the information you need to shoot by, including TV frameline, T-stop scale and over/under exposure warning marks.

Film speeds go from 16 to 64fps plus single frame. And the self-contained battery of the 16M powers up to 1600' of film in a single charge—and recharges completely in under three hours.

If you're into sound, check out the Sound Scoopic 200SE. This single system sound camera features automatic gain control so there's never any volume overload. Automatic or manual exposure

control. And reflex viewing through a unique rotating mirror shutter.

The bright built-in 6X zoom lens comes with an external filter slot for fast changing. Registration pin plus the TV reticle cut in the viewfinder let you frame each scene perfectly.



If you already have a camera but need a zoom lens, see our C10x12 Macro Zoom. And see what exciting new effects you'll be able to produce.

With the macro ring you can focus as close as 1mm from the front of the lens. You can create multi-point focus effects by combining macro, zoom and focus abilities. And manipulate foreground and background to achieve effects that until now could only be produced in a lab.

Because this 12-120mm lens incorporates manmade fluorite, chromatic aberration is practically eliminated.

You can be assured of the quality and dependability of all Scoopic products because they're backed by our 37 years of experience in the manufacture, research and development of precision optical equipment. And our rigorous quality control methods.

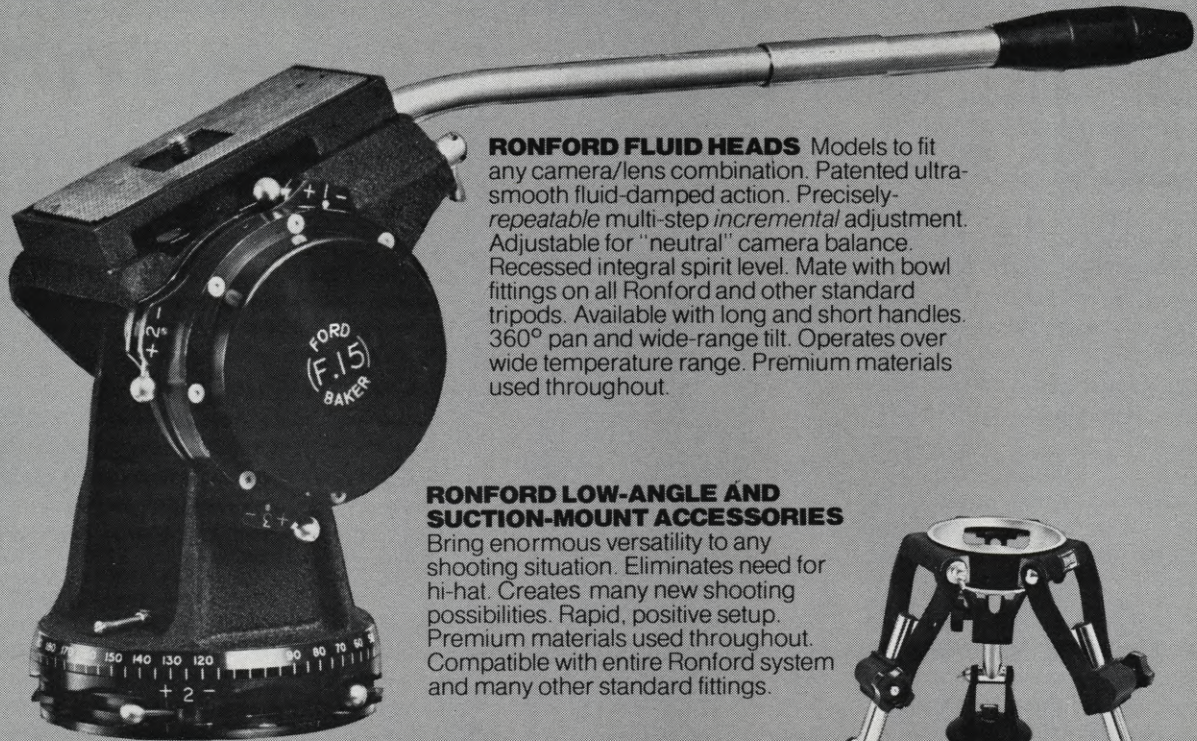
For more information on the Scoopic 16M, the Sound Scoopic 200SE or the C10x12 Macro Zoom lens, see your Canon dealer. Or write us.

## Canon®

Scoopic Division

Canon USA, Inc., 10 Nevada Drive, Lake Success, New York 11040  
 Canon USA, Inc., 123 East Paularino Avenue, Costa Mesa, California 92626  
 Canon Optics & Business Machines Canada, Ltd., Mississauga, Ontario

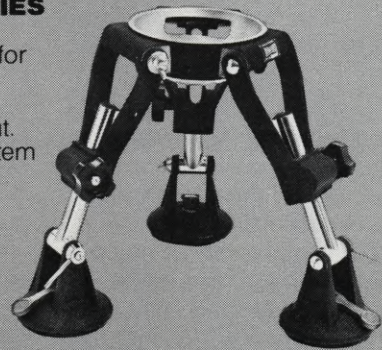
# RONFORD HEADS, \$520-1630. SUCTION ATTACHMENTS, \$260 AND UP. TRIPODS, \$265-495. INFLATION? NO. PERFECTION.



**RONFORD FLUID HEADS** Models to fit any camera/lens combination. Patented ultra-smooth fluid-damped action. Precisely-repeatable multi-step *incremental* adjustment. Adjustable for "neutral" camera balance. Recessed integral spirit level. Mate with bowl fittings on all Ronford and other standard tripods. Available with long and short handles. 360° pan and wide-range tilt. Operates over wide temperature range. Premium materials used throughout.

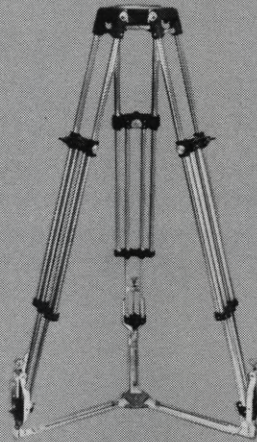
## RONFORD LOW-ANGLE AND SUCTION-MOUNT ACCESSORIES

Bring enormous versatility to any shooting situation. Eliminates need for hi-hat. Creates many new shooting possibilities. Rapid, positive setup. Premium materials used throughout. Compatible with entire Ronford system and many other standard fittings.



Working with a Ronford is like getting behind the wheel of a Rolls: the machine responds precisely and unvaryingly to your directions. Thanks to the way it is designed and built. With many refinements, large and small. Lavish use of costly materials. Precise, prideful fabrication and finishing. And an inordinate attention to detail.

"Designed to last indefinitely," is not a Ronford salesman's boast, but a case of British understatement. You owe it to your reputation to find out more about the Ronford line. Or better yet, trying their products for yourself.



## RONFORD STANDARD LEGS

Available in light, medium and heavy duty models. Absolutely rigid in all positions. Positive, quick-action lock. Exclusive "no-stoop" height adjustment. High strength/weight ratio. Premium materials. Fully guaranteed.

In the East:

### THE CAMERA MART INC.

456 West 55th Street, New York 10019  
(212) 757-6977

In the Midwest:

### VICTOR DUNCAN, INC.

11043 Gratiot, Detroit, Michigan 48213 • (313) 371-4920  
155 East Ohio, Chicago, Illinois 60611 • (312) 321-9406  
2659 Fondren, Dallas, Texas 75206 • (214) 369-1165

In the West:

### ALAN GORDON ENTERPRISES, INC.

1430 N. Cahuenga Blvd., Hollywood, California 90028  
Sales: (213) 985-5500 • Rentals: (213) 466-3561

Prices subject to change without notice.

# CINEMA WORKSHOP



By ANTON WILSON

## FLASHING II

Last month we analyzed the theory of flashing. Basically, film is re-exposed to a small amount of white light which brings up shadow details and even some latent images in previously black areas. The flashing process has virtually no effect on mid-range or upper light values. Practically speaking, flashing has several interesting applications for the cinematographer.

In certain circumstances the cinematographer may encounter a luminance ratio wider than that of the film stock he is using. For example, filming outside, the cameraman may measure a difference of seven stops between the brightest object in the sun and the darkest object in the shade. The film has a maximum exposure range of six stops (64:1). The obvious solution would be to use some fill light in the shadows or some diffusers on the direct sunlight or both. On some documentary or low-budget productions this may be impractical or impossible. A reasonable solution would involve shooting the scene without fill light and post-flashing the film. The exposure should be set so that the darkest area will actually be slightly below the toe of the film's exposure range; yet, the brightest areas will not exceed the shoulder of the curve. In practice this could be accomplished by taking a reflected reading from the brightest object in direct sunlight, or the skylight, if that is the brightest area in the scene. Using this reading, open the iris an amount equal to one-half the exposure range of the film stock. In our example, the film stock had a range of six stops. Thus, we would open up three stops. If the brightest object indicated an f/11 (reflective) then the iris would be set at f/4. Thus, we ensure that the brightest object will not exceed the range of the film and "burn out." If some dark areas fall below the film's range, the post-flashing will bring out these details. I recently used this technique in a film on camping safely. Filming in the woods, the entire location consisted of areas of deep shade and large shafts of direct sunlight. There was a five-stop difference between the sunlit areas and the shade. I chose an

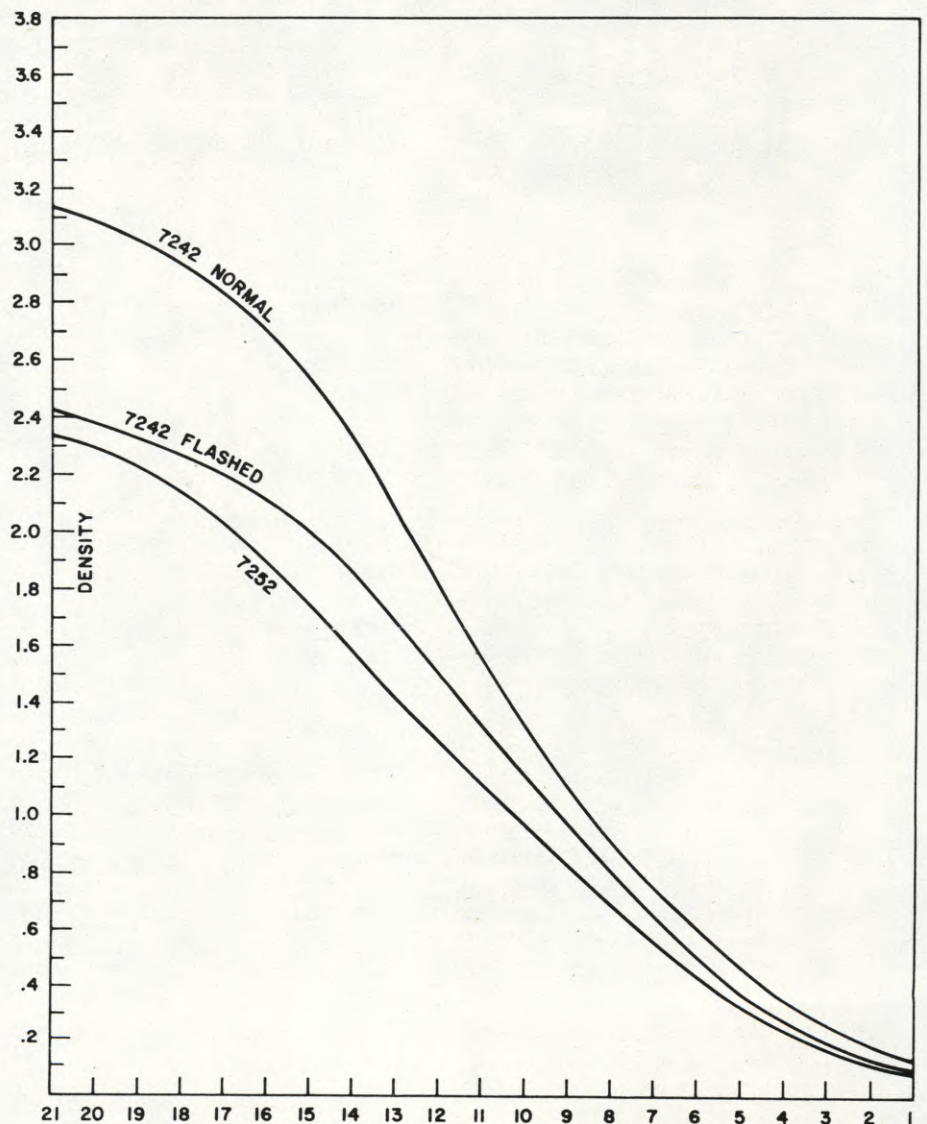
exposure that favored the bright areas, so that these bright areas would not over-expose. Normally the shadow details in the shade would be lost. However, post-flashing brought out enough of these details to make the film acceptable. The client was very pleased. This technique is so effective that I now flash almost all of my documentary 7242-41 footage. It is also a fairly inexpensive process, costing between two and three cents a foot.

A more esoteric use of flashing concerns tinting a scene for a particular effect. By using colored light in lieu of

"white" light for the flashing process, the shadow details and darker objects in the scene will take on a tint of the color employed for flashing; yet, the mid tones (skin tones) and upper tones will remain unaffected and render in their natural color balance. Different colors can be used to establish different moods or effects or time periods. This is an extremely interesting use of the flashing technique and the results are very effective, yet subtle. Many creative cinematographers are experimenting with this process.

Continued on Page 1099

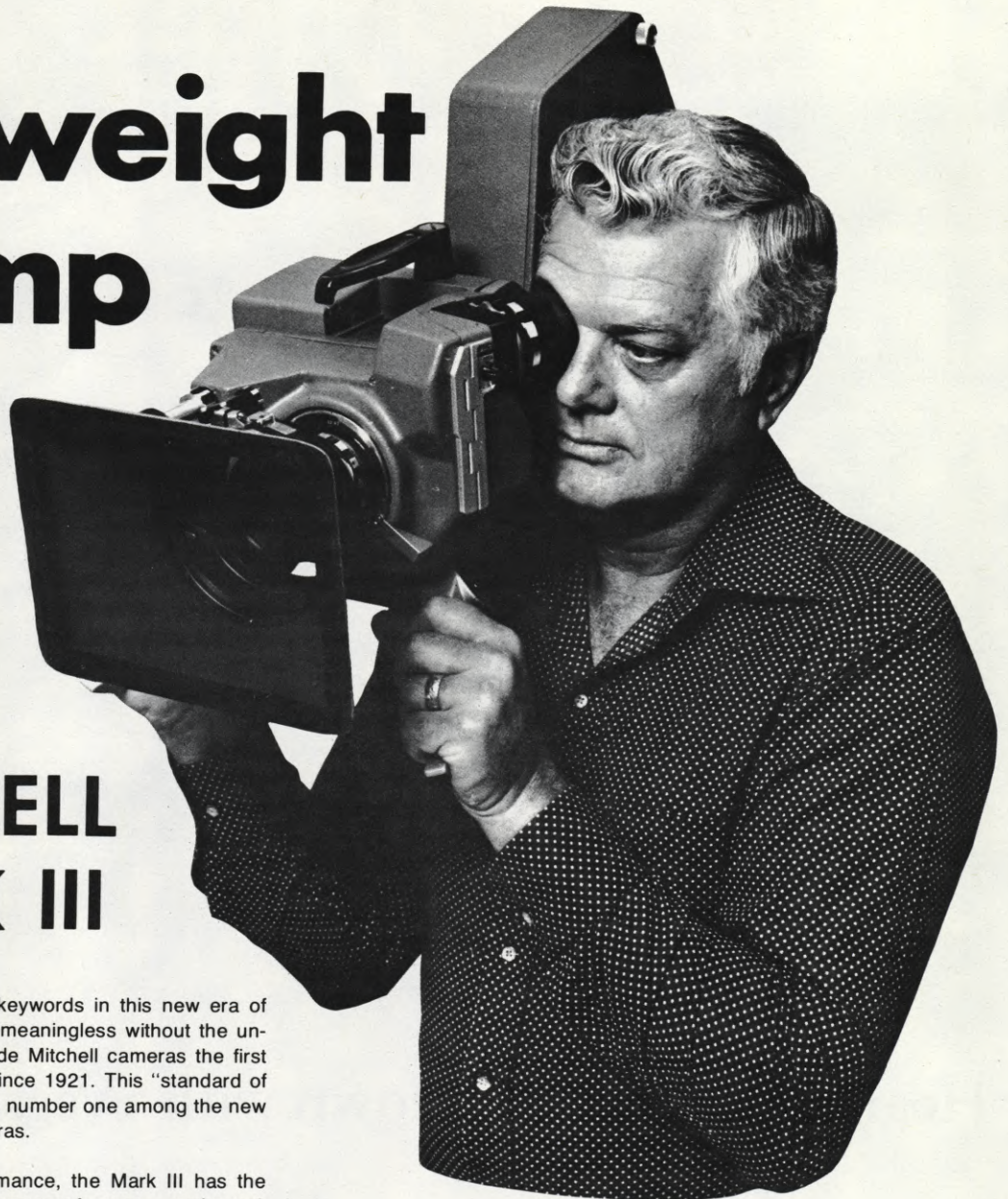
FIGURE 1





# The Lightweight Champ

## MITCHELL MARK III



Compactness and mobility are the keywords in this new era of cinematography, but both would be meaningless without the unparalleled performance that has made Mitchell cameras the first choice of professional film makers since 1921. This "standard of quality" is why the Mitchell Mark III is number one among the new 35mm professional "shoulder" cameras.

Light in weight but heavy in performance, the Mark III has the distinctive features that made its predecessors famous — and more!

**LIGHT WEIGHT** — Magnesium castings are used to keep the weight of the camera to 25 pounds without sacrificing Mitchell quality.

**SILENT** — New design techniques insure that the camera output sound level is in the low 30 DB range.

**FILM TRANSPORT** — The world famous Mitchell intermittent movement used in the Mark III has been proven over many years in predecessor cameras for all types of filming. Dual register pins with dual pulldown claws assure absolute film control.

**CRYSTAL CONTROL** — The DC motor is crystal controlled to assure plus or minus 15 parts per million accuracy for precision sound synchronization. The same accuracy is maintained at all variable speeds of 8-16-24-25-28-32 fps. 50 and 60 Hz sync pulse output for cabled sound recording. Automatic out-of-sync light is visible in the viewing system. The automatic slate system fogs film in the gate and sends a signal to the tape recorder.

**REFLEX VIEWING** — Rotary mirror reflex shutter with brilliant F2.2 — 6.0 power viewing optics. Generous 6mm diameter exit pupil provides maximum eye comfort.

**LENS MOUNT** — BNCR lens mount; accepts any zoom or prime lenses mounted for BNCR cameras.

**MAGAZINE** — 400 and 1000 foot capacities.

For further details contact your nearest Mitchell representative:

*Australia & New Zealand — Filmtronics, Pty. Ltd.*

*Hong Kong — Salon Films, Ltd.*

*India — Central Camera Private, Ltd.*

*Italy — Equipaggiamento Cinematografico Europeo s.r.l.*

*Japan — NAC Incorporated.*

**MITCHELL**  
CAMERA CORPORATION



666 W. Harvard Street, Glendale, California 90209 (213) 245-1085.



## Hear him all the way down with a Vega cordless mike

"We're on the jump run. I'm climbing out on the wing strut. OK, I'm ready. Cut the engine! Now I drop . . . belly down. I can almost touch the mountains! Want a slow roll? Watch. Now a dive . . . 120 mph! I'm a bird! I'm flying! The roof tops and big plowed circle are coming up fast! Time to pull the cord. Ahhhh. Chute's open and I'm gliding . . . gliding . . . home."

Vega lets you capture sight and sound together . . . whether you're shooting dancers, runners, car drivers or sky divers.

The tiny Vega mike clips on like a tie pin. The Vega transmitter hides in a pocket. The solid state receiver

is perfectly compatible with all mixers, tape recorders, or P.A. systems.

When you want sound with full fidelity and without booms, stands or trailing wires . . . or where wires couldn't go . . . you want a Vega Cordless Mike. You can choose from four models, including a hand-held mike, described in our beautiful four-color brochure. Write for it now. Vega Electronics, 9900

Baldwin Place, El Monte, California 91731. Or call John Beaman at (714) 540-0222.



# VEGA

# ONE HAND BAND

*Gordon Yoder, Inc.*

2840 REWARD LANE  
DALLAS, TEXAS 75220  
(214) 357-3045 or 357-2725

NEWS AND DOCUMENTARY  
FILM CAMERA  
FOR SINGLE AND  
DOUBLE SYSTEM

EXCLUSIVE  
THUMB VOLUME  
CONTROL

IMMEDIATE DELIVERY

## YODER CRYSTAL 16

- FEATURING NEW EXCLUSIVE THUMB VOLUME CONTROL
- Genuine Bach Auricon Movement
- Lightweight Magnesium Body
- One Hour Per Battery Charge



## DIRECTORS AND CAMERAMEN

When an articulate and sensitive director opens up to three informed and inquisitive writers, an exceptional book like *BERGMAN ON BERGMAN* results. The Swedish filmmaker responds at length to a free-wheeling probe by movie experts Björkman, Mannes and Sima, and speaks with considerable candor and perceptiveness about his life and career, and notably the contribution of Sven Nykvist, his director of photography since 1962. (Simon & Schuster \$9.95)

A pictorial survey of unusual iconographic quality, *THE COMPLETE FILMS OF EISENSTEIN* offers a carefully selected and tastefully presented collection of stills from the Soviet director's classical movies. Useful filmo-, bio- and bibliographies are appended, as well as an unpublished Eisenstein essay on the close-up where the cameraman's artistry is justly extolled. (Dutton \$8.95)

## THE DEVIL IN MOVIELAND

As a spin-off from William Friedkin's phenomenally successful movie, William Peter Blatty offers *THE EXORCIST: FROM NOVEL TO FILM* in which he comments on his profitable excursion into demonology. This paperback also carries Blatty's original screenplay, an explanation of the changes it underwent, and the film's final shooting script. (Bantam \$1.95)

A real live musical demon is the subject of Tony Scudato's *MICK JAGGER: EVERYBODY'S LUCIFER*. It is a lively and stimulating biography of the Rolling Stones' superstar, stressing his compulsive lifestyle, his frenetic bisexual groupies, his riotous concerts and his two films, *Ned Kelly* and *Performance*. (McKay \$8.95)

In *HAUNTED HOLLYWOOD*, "psychic investigator" Hans Holzer leads a tour of the spirit-inhabited mansions of Jean Harlow, Carole Lombard, Marilyn Monroe and one Gaye Spiegelman, a topless dancer and mother of eight. Assorted possessions, apparitions and other puzzling phenomena are recounted in entertaining fashion with a sharp eye to current fads. (Bobbs Merrill \$6.95)

## GOSSIP—THEN AND NOW

With the tolerant wisdom of her sprightly 81 years, Anita Loos evokes, in *KISS HOLLYWOOD GOOD-BY*, the world of the movies from the vantage point of a 30-year career as a top woman scriptwriter, starting in 1912 with *The New York Hat* for D. W.

# THE BOOKSHELF

By GEORGE L. GEORGE

Griffith before switching in 1932 to MGM-Hollywood. This is a unique book, both for the pure delight of its sparkling and breezy style and for its intimate views on the private lives of show biz biggies. (Viking \$7.95)

Rona Barrett, who dispenses Hollywood news and rumors nightly on television, proves in her autobiography, *MISS RONA*, that there is no way a determined female can be stopped from reaching what she sees as "the top." One may admire her pluck and enterprise, and her racy style, but the purpose and result of her frantic activity leaves one bemused. (Nash \$7.95)

Another look into the romantic past of the movies, *THE RISE AND FALL OF THE MATINEE IDOL* (Anthony Curtis, ed.) assembles selected essays about the cult that surrounded the gods and goddesses of stage and screen. The literary quality of the writing does not offset the book's obsolete vapidness. (St. Martin's \$9.95)

## FOR FUN AND REFERENCE

Prof. George P. Rehrauer's addition to his invaluable bibliography of motion picture literature, *CINEMA BOOK-LIST: SUPPLEMENT ONE*, maintains the high standards of the original tome. Some 900 titles of the 1971-73 period are included with a concise and expert evaluation of each. Screenplays and souvenir books are cross-indexed, and an overall index combines the earlier volume and this supplement. An indispensable and comprehensive research tool. (Scarecrow \$10.)

The series "From Fiction to Film" has added two significant literary works, D. H. Lawrence's *THE ROCKING HORSE WINNER* and Ambrose Bierce's *AN OCCURRENCE AT OWL CREEK*. Expertly edited by Profs. Gerald R. Barrett and Thomas L. Erskine, the texts provide excellent case studies of the skills and techniques needed for an intelligent and faithful transfer from the written to the visual medium. (Dickenson \$2. ea.)

An inveterate collector of film data, Leslie Halliwell has assembled a stimulating collection of generally clever, occasionally poignant and always revealing remarks made by the industry's great, *THE FILMGOER'S BOOK OF QUOTES*. Some 700 such sayings, carefully fitted into categories, provide a rich source of mirth and amazement. (Arlington \$6.95)

The 1974 edition of the *WEST COAT THEATRICAL DIRECTORY* carries a thoroughgoing cross-indexed listing of firms providing goods and/or services to the entertainment industry in the Western U.S. and Canada, Mexico, and Brazil. A practical and useful guide. (Gousha \$6.95)

International aspects of the screen industries pervade West Germany's comprehensive yearbook, *FILMBIBLIOPHISCHES JAHRBUCH DER BRD*, edited by Hans Wolfgang Jurgan. Its German is fairly easily understandable, as it offers full data on theatrical and tv film releases, a cross-index of original titles with cast-and-credits, and a worldwide bibliography. (Filmdokumentation, 6201 Wiesbaden-Brechenheim, Mittelstrasse 9, Germany, \$28)

## WHISTLE WHILE YOU WORK

Contemporary—not necessarily avant-garde—forms of music are discussed by Alan Douglas in *ELECTRONIC MUSIC PRODUCTION*, a practical guide to a medium that has already had considerable influence on composers, performers and audiences everywhere. Three principal methods of synthesizing music electronically are expertly described, as well as the electronic properties of conventional music instruments. (TABooks, Blue Ridge Summit, PA 17214, \$7.95/3.95)

A faithful and entertaining biography, *IRVING BERLIN* by Michael Freedland reviews the fairy tale life of a poor immigrant boy who married a rich heiress and became one of the world's most famous songwriters. Despite the familiar facts and the stereotyped theme, readers will respond warmly to this honestly uplifting success story. (Stein & Day \$8.95)

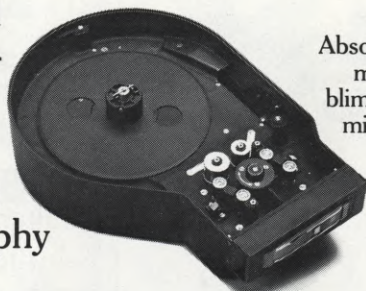
Howard Dietz, who combined the career of a popular lyricist and chief of MGM's publicity dept., has authored a delightful autobiography appropriately named *DANCING IN THE DARK*. Celebrities of stage, screen and society make innumerable guest appearances in this easy-going memoir, an engaging and often moving panorama of the life among the gifted, the beautiful and the rich. (Quadrangle \$10.)

In *THE GREAT AMERICAN POPULAR SINGERS*, Henry Pleasants vividly discusses celebrated vocalists, from Al Jolson to Barbra Streisand, who made American pop songs the folk music of the Western world. (Simon & Schuster \$9.95)

# An engineer's camera.

"You don't have to be an engineer to understand the basic engineering concepts behind the ACL." The speaker is Eric Falkenberg, Technical Executive, Eclair Corporation of America.

"Take simplicity. More than any single principle, it typifies the design philosophy of the Eclair ACL.



camera, simplicity yields many more benefits. A simpler camera is a more rugged camera. Fewer parts to

Absolute minimum of parts in ACL magazine provides silent, blimpless operation, even when microphone is placed close to camera.



"From your first impression of the camera, you understand, almost instinctively, a simpler design means a more compact design. Lighter weight. Faster shooting.

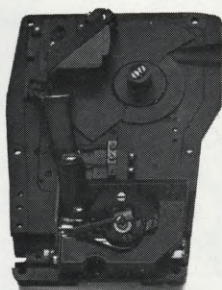
wear, fewer parts to cause trouble.

"In theory, a simpler design means less noise. Fewer parts mean fewer noise sources. Using modern noise-suppressing materials and techniques, ACL has bridged the gap between theory and practice! Simplicity even affects power consumption. With a film path that produces less friction—requiring less power to drive a length of film.

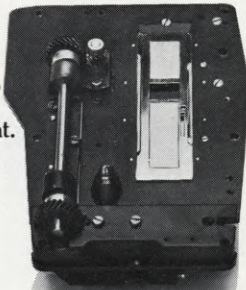
"There are many more advantages ACL's simplicity provides. But the best way to evaluate them is to try one. Then, you'll simply sell yourself!"

Crystal-controlled Hall-effect brushless motor requires only 0.8 amperes.

For the name of your nearest Eclair dealer, or a copy of our fact-filled brochure, write or call Eclair Corporation of America, 62 West 45th Street, New York 10036 (212) 869-0490 or 7262 Melrose Avenue, Los Angeles, California 90046 (213) 933-7182.



Front and rear of ACL aperture plate, with entire camera movement. Extreme simplicity provides maximum efficiency, quiet and reliability.



"But that's just the start. Inside the ACL

**eclair corporation of america**

# A cameraman's camera.

# What kind of nut would buy a brand new camera from a rental specialist?

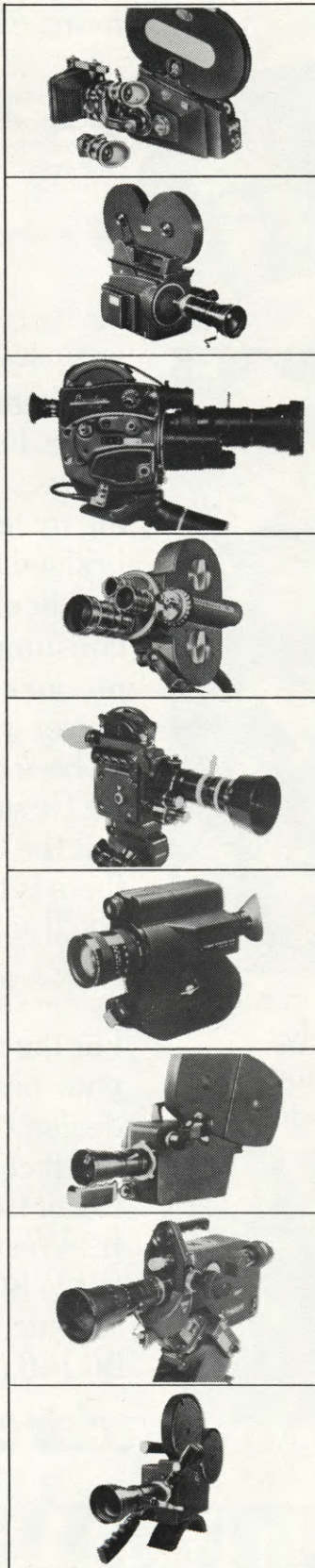
A very smart nut. Because a rental specialist can save you money — and do things for you — that ordinary dealers can't.

## Look at the facts.

F&B/Ceco is the largest rental house in the motion picture industry. So we must buy cameras and other gear in huge quantities. As a result, we get special discounts from certain manufacturers. Prices that are below normal dealer cost. And it pays us to pass the savings on when you buy a camera from us. Because while we may not make a big profit, you'll want to come back to rent or buy other equipment from us.

## You get the widest choice, too.

We have to keep a rental inventory in excess of \$6,000,000 on hand. At all times. That means we order continuously from every important manufacturer in the industry. Cameras alone include names like Arriflex, Auricon, Beaulieu, Bell & Howell, Bolex, Canon, CP-16 Reflex, Eclair, Frezzolini and many others.



## You get a double guarantee.

It's the best in the business. Any new camera you buy from us is guaranteed by the manufacturer and by us. If you're not satisfied with the maker's service or you can't wait for their service, F&B/Ceco will take care of the problem for you. With one of the biggest, best-equipped, best-trained team of technicians you'll find anywhere.

## What it all adds up to is:

you must be pleased with your purchase. Pleased with the savings, with the service and with F&B/Ceco. Because we want your repeat business. We want you to come back.

Make us prove it.

Shop around and call us last.  
Phone Toll Free  
(800) 223-5829 and ask for  
Ron Groen.

**We want you to come back.**



SALES — SOS DIVISION

315 West 43rd St., New York, N.Y. 10036  
Phone: (212) 586-1420

7051 Santa Monica Blvd., Hollywood, Calif. 90038  
(213) 466-9361

Phone Toll Free (800) 223-5829.

In New York State Phone Collect (212) 586-1420

# What's newer than Eastman's 7247 & 5247 color negative?

## The equipment to process it.

**DuArt would like to introduce  
you to its new negative processor  
by DEVELOPING AND PRINTING  
YOUR TEST FOOTAGE FREE.**

Eastman's new ECN2 negative stock ushers in a new era in film making with substantial improvements in quality. It requires new chemistry and new equipment. A very substantial investment on the part of any lab who wants to properly process this new negative stock.

We, and other labs, had to make a choice. Take an old piece of equipment, modify it and/or rebuild it or buy a very expensive piece of new equipment and get everything the new negative is capable of delivering.

To help you evaluate the advantages of this new negative stock and our new processor, we will screen the free workprint with you. By testing and comparing, you'll get a first hand opportunity to see the different and better results. Call Bob Smith at DuArt for complete information.



Now in our 52nd Year.

Du Art Film Building 245 W. 55th St., New York, N.Y. 10019 (212) PL 7-4580

# PROFILE: A.S.C.

By JOHN ORMOND

*(Editor's Note: This is the first in a monthly series of articles profiling distinguished members of the American Society of Cinematographers.)*

## FRED MANDL, ASC

The setting was Madrid, in the late fall of 1936. Franco's army was closing in on Spain's capital city, and members of the foreign colony were being ordered by the nationalist government to get out as fast as possible.

Fred Mandl, A.S.C., was working then as a newsreel cameraman for Movietone News. He had been hired by Movietone in Madrid, when his job with a Spanish film company, SIFESA, was rudely interrupted by the civil war.

As the Heinkel III's of Hitler's vaunted Condor Legion roared over the panic-stricken Spanish city, bombing indiscriminately in support of the Franco forces, Mandl received the order to get out or be left to fend for himself.

The nationalists allowed him to fly out from Madrid on a commercial plane, taking his wife and child—and \$30. They told him that was all the money they'd permit him to take with him. In early December, the Mandls flew away from the war, to Vienna, his birthplace.

The very next day, a German bomb destroyed his home in Madrid, and with it, all his belongings.

Looking back on that dark day in December, 1936, Mandl realizes now that it was the event that changed his life—for the better. It eventually brought him to the United States and to a career as a noted cinematographer in

the motion picture and television fields.

"Every cloud has the proverbial silver lining," he says now, with a smile. "We thought that our lives had been ruined, but as a result of the Spanish civil war, I wound up with many new, exciting and lucrative assignments."

At the time, though, the future for the Mandls had appeared exceedingly bleak. Yet, they remained in Vienna only a week.

Mandl's American-born wife cabled her parents in New York, and the first glimmer in the dark cloud came about when they cabled right back, sending funds to pay for the Mandls to leave immediately for America by boat.

The trio arrived in New York on Christmas Eve, 1936. Even though Mandl was married to an American, he hadn't learned much English up till that time. Suddenly, he was forced to learn the new language—if he wanted to work and earn a living!

Fred Mandl learned English fast. He never went to a language school, but he recalls that he watched many motion pictures and read hundreds of newspapers.

"I don't think anybody could have learned English faster than I did," he says, grinning. "I already could speak some French and Spanish, in addition to my German, but I stopped speaking all other languages. I only spoke English from the time I arrived in New York!"

In the meantime, though, he received another call from SIFESA, which had transferred its operational headquarters to Mexico City. They wanted Mandl to photograph Spanish-language films. Since it was the first job offered him, he went to Mexico City.

During the following three years, Mandl worked primarily for the Mexico-based company. But every six months, he came back to the U.S. to renew his visa.

"I'd made up my mind I wanted to become an American citizen," he says. "It was the one thing I wanted more than anything else, and I was determined to get my citizenship."

His determination finally paid off, and in late 1940, he took the oath of allegiance as a citizen of the United States of America. Soon after, he joined the U.S. Army Reserve.

When America was attacked by Japan in December, 1941, Mandl was

among the first to be activated. He was sent to training camp in Louisiana.

But again, Fate stepped in. The former chief of Movietone News was now in the U.S. Army, too, and he called on Mandl to join him, as an instructor in combat photography.

Mandl was attached to the 28th Infantry Division, worked his way up to Master Sergeant, and soon after was shipped out to England.

Fred Mandl later accompanied the division when it was dispatched to France in 1944, following the invasion of Normandy. He served with the 28th "all the way"—from France, into Belgium and Holland and on into Germany.

"I got a chance to repay the Germans for what they did to me in Madrid," he comments.

Three years after he left the U.S. with the Army, he returned, this time to Los Angeles. His marriage had gone on the rocks, and he filed for divorce.

It was then that Hollywood—and two prominent A.S.C. members—played a key part in his life.

First, he became a camera operator for Harry Stradling at Goldwyn studios, an assignment he held off and on during the ensuing five years. He also received several camera jobs with the much-esteemed James Wong Howe.

Eventually, Fred Mandl finally got his initial stint as a first cameraman, at Columbia. It was about this time that Mandl achieved another goal in his career—he was admitted to membership in the A.S.C., long regarded as the ultimate in a cameraman's career.

In 1956, Mandl was retained by MGM as first cameraman on the highly-successful television series, "Twilight Zone." He also continued to take such assignments as flying with the famed Blue Angels, doing aerial photography.

His most recent motion picture credit was "The Seven Minutes," a feature he photographed for 20th Century-Fox. He's also done numerous TV series and specials, including "F.B.I.," "A Man Called Shenandoah," "Tom Sawyer" and "Trapped," a movie of the week which won him an Emmy nomination this year.

Fred Mandl is happy now. He has remarried, and he and his new wife reside in Culver City. He's still very active in the film and TV business, and he says he really doesn't want to retire. He enjoys his work too much.

This, then, is Fred Mandl, a man who started out his career with a series of major setbacks, but eventually returned to become a leader in his profession—and a highly-regarded member of the American Society of Cinematographers.





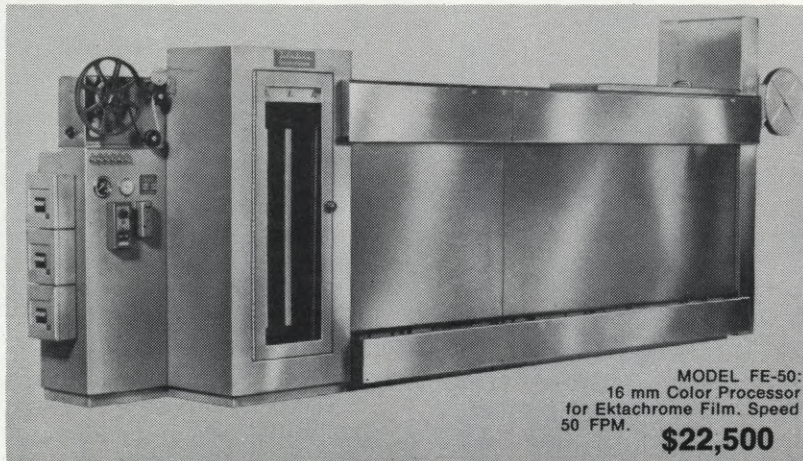
# The Money-Makers

## FILMLINE'S professional color film processors for motion picture laboratories.

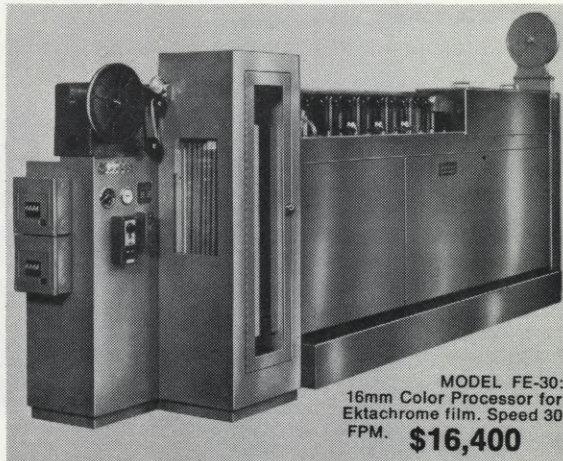
The Filmline Models FE-30 and FE-50 are fast, foolproof, troublefree and long-lasting. They turn out consistently superior work. The design is backed by Filmline's reputation as the world's leading manufacturer of film processors for the motion picture laboratory industry.

Now enjoy the benefits of professional equipment incorporating exclusive Filmline features that have paced the state-of-the-art in commercial, industrial and defense installations at a cost lower than processors offering less.

Check the exclusive Filmline features below:



MODEL FE-50:  
16 mm Color Processor  
for Ektachrome Film. Speed  
50 FPM. **\$22,500**



MODEL FE-30:  
16mm Color Processor for  
Ektachrome film. Speed 30  
FPM. **\$16,400**

● **"FILMLINE OVERDRIVE FILM TRANSPORT SYSTEM"**

This marvel of engineering completely eliminates film breakage, pulled perforations, scratches and operator error. The film can be deliberately stalled in the machine without film breakage or significant change of film footage in solutions. The heart of any film processor is the drive system. No other film drive system such as sprocket drive, bottom drive or simple clutch drives with floating lower assemblies can give you the performance capability of the unique Filmline Overdrive Film Transport System.

● **"TORQUE MOTOR TAKE-UP"** gives you constant film take-up and does not impose any stress or strain on the film itself. Completely independent of the film transport system. This FILMLINE feature is usually found in professional commercial processors but is incorporated on the FE-30 and

FE-50 models as standard equipment. Don't settle for less!

● **"TEMP-GUARD"** positive temperature control system. Completely transistorized circuitry insures temperature control to well within processing tolerances. Temp-Guard controls temperatures accurately and without the problems of other systems of lesser sophistication.

● **"TURBO-FLOW"** impingement dryer. Shortens dry-to-dry time, improves film results, and carefully controls humidity content of your valuable (and sometimes rare) originals. Immediate projection capability is assured because the film dries flat without the usual curl associated with other film processors.

● **"ZERO DOWN TIME"** The reputation of any film processor is only as good as its reliability. The

combination of the exclusive and special added Filmline features guarantees trouble-free operation with absolute minimum down-time and without continual operator adjustments. Recapture your original investment in 2 years on maintenance savings alone. Filmline's "Push the button and walk-away processing" allows inexperienced operators to turn out highest quality film.

● **"MATERIALS, CONSTRUCTION AND DESIGN"** All Filmline machines are constructed entirely of metal and tanks are type 316 stainless steel, heliarc welded to government specifications. The finest components available are used and rigid quality control standards are maintained. Compare Filmline features to other processors costing more money. Feature-by-feature, a careful evaluation will convince you that Filmline offers you more for your investment.

### Additional Features included in price of machine (Not as extras).

Magazine load, daylight operation ■ Feed-in time delay elevator (completely accessible) ■ Take-up time delay elevator (completely accessible) ■ Red brass bleach tank, shafts, etc. Prehardener solution filter ■ Precision Filmline Venturi air squeegee prior to drybox entry ■ Air vent on prehardener ■ Solid state variable speed D.C. drive main motor ■ Bottom drains and valves on all tanks ■ Extended development time up to two additional camera stops at 50 FPM ■ Pump recirculation of all eight solutions thru spray bars ■ Temperature is sensed in the recirculation line ■ All solutions temperature controlled, no chilled water required ■ Built-in air compressor ■ Captive bottom assemblies assure you constant footage in each solution ■ Change over from standard developing to extended developing can be accomplished in a matter of seconds ■ Impingement dryer allows shorter put through time.

Partial listing of Filmline users: Film Laboratories; Technicolor, Byron Motion Pictures, TVC Labs, Precision, Reela Film, Bellevue-Pathe, Filmhouse, Ltd., Deluxe General, Capital Film, Movie Lab, Radiant, Guffanti Film, National Film Board of Canada, Alexander Films, Canadian Defense Medical Center.

TV Networks and Stations: NBC, CBS, ABC, WMAL, WXYZ, WWL, WJXT, WTOP, WCKT, WTVI, WNEW, WPIX, WOR, WNAC.

Other: NASA, General Electric, IBM, General Dynamics, United Aircraft, General Motors, Eastman Kodak Company, Bell Telephone Labs, E. I. DuPont Co.

Governments: Canada, Mexico, Thailand, United States, Israel, Qatar, United National.

All prices F.O.B. MILFORD, CONN.

AC-9



Send for Literature.

Time & Lease Plans Available.

**"When you buy quality Filmline Costs Less"**  
(203) TR 8-2433


**THERE'S ALWAYS  
SOMETHING NEW  
AND EXCITING  
AT SAMUELSONS**

# REFLECTIONS

## on the filtering of windows


**SAMUELSON  
FILM SERVICE  
LIMITED**

303/315 Cricklewood Broadway,  
London NW2 6PQ, ENGLAND.  
Tel: (01) 452 8090. Telex: 21430  
Cables: Samcine London.


**SAMUELSON  
ALGA-CINEMA  
SARL**

24/26 Rue Jean Moulin,  
94 Vincennes, Nr. Paris, FRANCE.  
Tel: 328 58 30. Telex: 67260 F  
Cables: Samcine Paris.


**SAMUELSON  
FILM SERVICE  
AUSTRALIA  
(Pty) LIMITED**

166 Willoughby Road, Sydney,  
N.S.W. 2065, AUSTRALIA.  
Tel: 43 3243. Telex: 71 21588  
Cables: Samsmeal Sydney.


**SAMUELSON  
INTERNATIONAL  
BV**


Oosteinderweg 261, Aalsmeer,  
Nr. Amsterdam, HOLLAND.  
Tel: 02977 27701. Telex: 14613  
Cables: Samcine Amsterdam.


**SAM-MOBILE**

303/315 Cricklewood Broadway,  
London NW2 6PQ, ENGLAND.  
Tel: (01) 452 8090. Telex: 14613  
Cables: Samcine London.


**SAMFREIGHT**

Room 65, Cargo Agent's Building,  
London (Heathrow) Airport, ENGLAND  
Tel: (01) 759 9969/70. Telex: 22197  
Cables: Samfreight London.


**SAMUELSON  
GENOP  
(Pty) LIMITED**

Genop House, 15 Hulbert Road,  
New Centre, Johannesburg,  
SOUTH AFRICA.  
Tel: 836 4275. Telex: 43 0057  
Cables: Genop Johannesburg.


**SAMCINE  
SALES  
LIMITED**

303/315 Cricklewood Broadway,  
London NW2 6PQ, ENGLAND.  
Tel: (01) 452 8090. Telex: 21430  
Cables: Samcine London.


**T.A. McGUINNNESS & CO. LTD.**

Temple House, Temple Road,  
London NW2 6PQ, ENGLAND.  
Tel: (01) 450 4659 (2 lines)



When Samuelsons first introduced SAMCINE RIGID ACRYLIC WINDOW FILTER in 1967 it caused quite a revolution in location film making technique. It was available in the same types as old-fashioned window gel but was easy to rig even outside existing window frames (where it would stay put without being affected by the weather) or could easily be cut to shape and fitted in place of glass panes. On one occasion a complete railway carriage was pre-rigged in this way.

**MOST IMPORTANTLY**, however, it had the advantage that it gave only one additional reflection from awkwardly placed lights instead of the multiple headaches associated with gel.

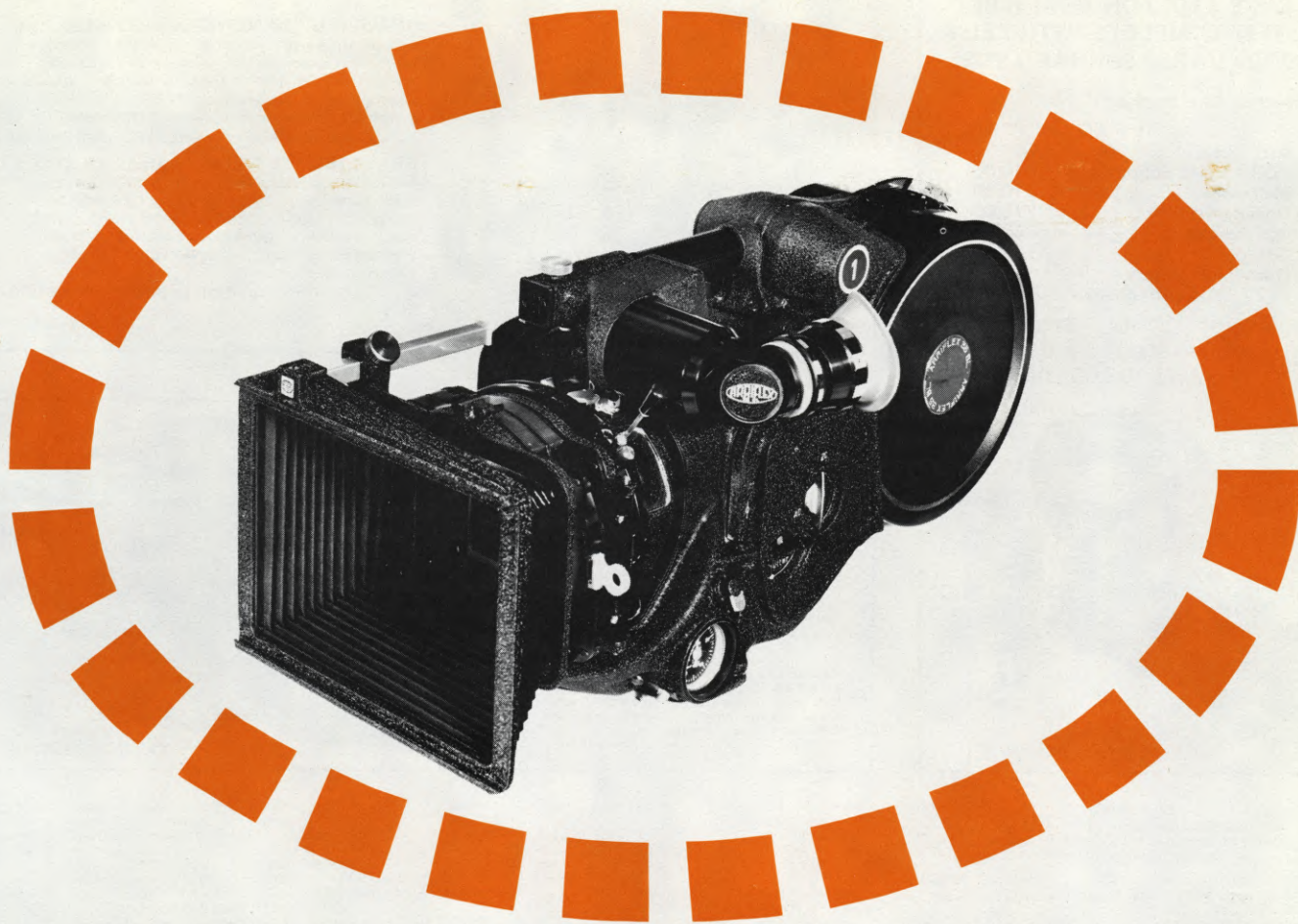
Ever since we've been working out how to avoid even this one reflection, and after years of painstaking research we've discovered the secret which we would now like to reveal publicly at absolutely no extra charge.

### TIP IT UP A BIT!

Yes, that's all you need do to eliminate reflections entirely. If the sheets of SAMCINE ACRYLIC WINDOW FILTER ( which can be used singly or in combination) are moved from the vertical to an angle of about 20°, the old lights-in-the-window problem can become a thing of the past.

SAMCINE ACRYLIC WINDOW FILTERS TYPES 85, ND 0.3, ND 0.6, and ND 0.9 are available ex-stock in sheets 8 x 4 ft.

EUROPEAN MANAGING ASSOCIATES FOR **PANAVISION**®



# **The First and Only Arri 35BL in Florida**

*...and it's a clean, quiet one!*

Available for Rental...anywhere



**Image Devices Incorporated**

811 NW 111 STREET • MIAMI, FLORIDA 33168 USA

Telex 51-9348 • Cable IMAGEMAMI • TWX 810/848-9999

Phone 305/751-1818

**RENTALS SALES & SERVICE WORLDWIDE**

**SAVE \$3,053 ON ARRI 16BL  
OUTFIT COMPLETE WITH ZEISS  
10-100 VARIO SONNAR LENS!**

**Here's the package!**

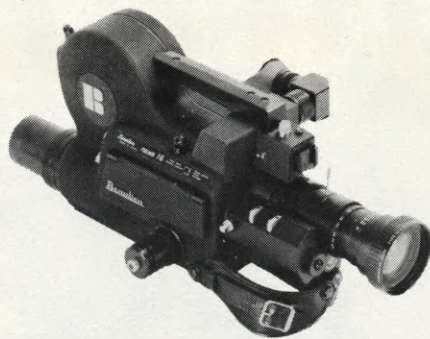
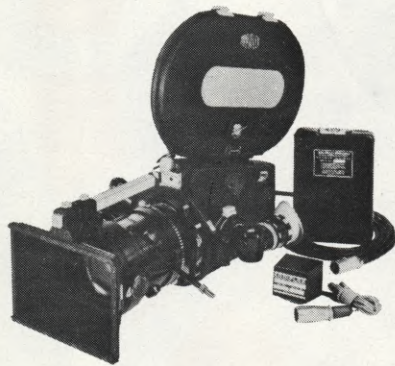
SUGGESTED LIST PRICE

- Arri 16BL w/100
- Zeiss Vario Sonnar . . . \$11,040.00
- Matte box . . . . . 210.00
- Universal motor . . . . . 775.00
- 400' magazine . . . . . 760.00
- 6-ft. power cable . . . . . 68.00
- Duro-Pack battery—  
12V/2AH with charger . . . . . 196.00

Total \$13,049.00

SPECIAL PRICE \$ 9,996.00

**YOU SAVE \$3,053.00.**



**BEAULIEU "16 NEWS"** with 12 x 120 Ang. self-blipped auto exposure, power zoom, 200' film loads automatically in body (no magazines), quick-charge battery and quick charger with double-system module and synch pulse generator, large fitted case . . . . . like new — complete outfit \$4,995.00

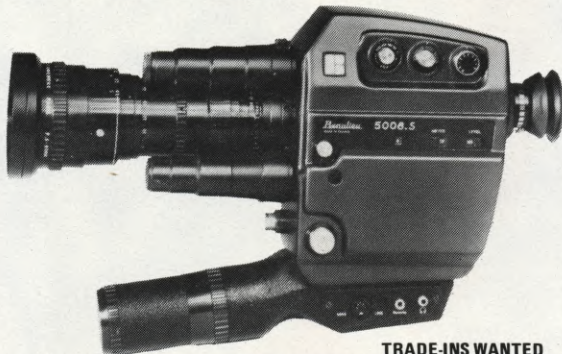
**BEAULIEU "16 NEWS"** with 12 x 120 Ang. self-blipped auto exposure, power zoom, 200' film loads automatically in body (no magazine), quick-charge battery and quick charger with single-system sound module and amplifier for magnetic sound on film, fitted case. . . . . like new — complete outfit \$5,499.00

**NOW AVAILABLE — New Beaulieu "5008S" Single-System & Double-System Sound Super-8 Camera.** The Beaulieu "5008S" will accept . . . both the new "Ektasound" Super-8 sound cartridge as well as the standard ("silent") Super-8 cartridge. . . the NEW Beaulieu "5008S" features "XL" (Existing Light) Filming Capability and is equipped with a NEW Angenieux 6-80mm (f1.2) zoom lens (13.3-to-1 ratio). This brand new zoom lens from Angenieux incorporates a "Special Locking Device" which limits zooming from 6 to 40mm.

Features of the Beaulieu "5008S" include:

- Built-in Sound Amplifier • Unlimited Lens Interchangeability • Automatic Exposure Control (with manual override)
- New Beaulieu Reflexmatic Motor (governors exposure accuracy) • Plus many additional features and "Creative Filming" Beaulieu "5008S" accessories.

Price . . . . . \$1,448.00



**TRADE-INS WANTED**

**BEAULIEU**

All our Beaulieu cameras are sold with one-year unconditional warranty against mechanical and optical defects.

- Beaulieu 16 electric body only . . . . . used \$ 650.00
- Beaulieu 16 auto w/12 x 120 Angenieux auto. elec. grip, 1000 ma battery, charger, Halliburton alum. case . . like new \$1,699.00
- Beaulieu 16 auto w/12 x 120 Angenieux power zoom with electric grip, 1000 ma battery, charger, Halliburton alum. case . . . . . like new, demo \$1,999.00
- Beaulieu 16 auto w/12.5 x 75 Angenieux power zoom with electric grip, 1000 ma battery, charger, Halliburton alum. case . new, discontinued \$1,499.00
- Beaulieu 16ES w/12 x 100 Berthoit zoom w/1000 ma battery, charger, electric grip, Halliburton alum. case . . . like new \$1,399.00
- Beaulieu 2008 w/8 x 64 Ang. . . . . used \$ 299.00
- Beaulieu 4008 ZM w/8 x 64 Ang. . . . . used \$ 499.00
- Beaulieu 4008 ZM II w/6 x 66 Ang. . . . . used \$ 639.00
- Beaulieu Mar 8G, w/6.5 x 52 Ang. . . . . used \$ 199.00
- Beaulieu 200'/16mm magazine . . . . . used \$ 199.00
- Beaulieu electric grip . . . . . used \$ 59.00
- Beaulieu 500 ma battery . . . . . used \$ 89.00
- Beaulieu 1000 ma battery . . . . . used \$ 29.00
- Beaulieu 90 ma charger . . . . . used \$ 35.00
- Beaulieu 60-cycle synch pulse generator for 16 cameras . . . . . used \$ 169.00
- Beaulieu 60-cycle synch pulse generator for Super-8 cameras . . . . . used \$ 169.00
- Beaulieu AC adapter—can be used for Super-8 and 16 cameras. . . . . used \$ 75.00
- Beaulieu slide/title holder for 8 x 64 . . . . . used \$ 29.00
- Beaulieu slide/title holder for 6 x 66 . . . . . used \$ 35.00
- Century Blimp for Beaulieu 16 w/200' mag. operation, focus and diaphragm controls . . . . . like new \$ 490.00

**BOLEX**

- Bolex EBM Camera, complete w/power grip, battery, charger . . . . . new \$1,289.00
- Bolex H16 SUM body . . . . . new \$ 669.00
- Bolex H16 Rex 5 body . . . . . new \$ 699.00
- Bolex H16 M body . . . . . new \$ 289.00
- Bolex ESM motor . . . . . new \$ 459.00
- Bolex grip w/battery, compt. . . . . new \$ 179.00
- Bolex 12-volt battery . . . . . new \$ 72.00
- Bolex battery charger . . . . . new \$ 45.00
- Bolex 400' Mag . . . . . new \$ 115.00
- Bolex torque motor . . . . . new \$ 45.00
- Bolex large alum. case, holds camera, motor, 400' Mags, etc. . . . . like new \$ 149.00
- Bolex MST motor w/rechargeable battery pack . . . . . like new \$ 279.00

- Bolex MST motor . . . . . new \$ 239.00
- Bolex rechargeable power pack . . . . . new \$ 173.00
- Bolex Unimotor . . . . . used \$ 60.00
- Bolex Super Titler w/accessories. . . like new \$ 389.00
- Bolex Rex-O-Fader . . . . . used \$ 39.00
- Bolex 16 body . . . . . from \$ 49.00
- Bolex H8 Rex-4 w/Vario-Switar 8 x 36 . . . . . \$ 589.00
- Bolex H8 Rx w/6.5 x 52 Ang. lens converted to Super-8 . . . . . \$ 589.00
- Bolex H8 Rx w/3 lenses, 12.5 Switar 36 Switar, 75 Yvar . . . . . like new \$ 449.00

**LIGHT METERS**

- Weston Master 6 . . . . . new \$ 39.95
- Spectra Combi-500 . . . . . used \$ 89.00
- Spectra Combi-500 . . . . . new \$ 130.00
- Spectra Professional . . . . . new \$ 105.00
- Gossen Luna Pro . . . . . used \$ 55.00
- Gossen Luna Pro . . . . . new \$ 89.00
- Minolta Autometer Professional . . . . . new \$ 105.00
- Minolta Auto Spot 1" . . . . . new \$ 110.00
- Honeywell Pentax 1 1/2 Spotmeter . . . . . new \$ 146.00
- Sekonic Studio deluxe . . . . . new \$ 49.95

All above complete with leather case.

**LIGHTING**

- Colortran Mini-Pro Kit (alum. case) . . . . . new \$ 360.00
- Colortran Minilite 6 . . . . . new \$ 45.00
- Colortran Minilite 10 . . . . . new \$ 48.00
- Colortran Multi-6 . . . . . new \$ 66.00
- Colortran Multi-10 . . . . . new \$ 73.00
- Hervic #6 lighting kit . . . . . like new \$ 249.00
- Cinema Products Aero kit . . . . . new \$ 299.00
- GE DYN lamp . . . . . each \$ 9.00
- Sylvania SG77 Rech. sun-gun . . . . . like new \$ 99.00

**ARRIFLEX**

- Arriflex 16 s/B w/12 x 120 Angenieux (Steel Bay, Mount), variable-speed motor, rech. battery, cable . . . like new \$3,999.00
- Arri AC synch. motor, 24 FPS w/AC power pack . . . . . used \$ 450.00
- Arri Governor-Controlled Motor. . . . . used \$ 299.00
- Arri Periscope Finder . . . . . used \$ 299.00
- Arri 400' Magazine (for 16S) . . . . . new \$ 269.00
- Arri 400' Torque Motor (for 16S) . . . . . new \$ 289.00
- Arri 16 BL 400' Magazine . . . . . used \$ 299.00
- Arri 16 BL Universal Lens Housing . . . . . used \$ 299.00

**LENSES**

- 9.5 x 57 F1.6 Angenieux C mount . . . . . new \$1,389.00
- 12 x 120 Angenieux C mount . . . . . new \$ 959.00
- 12 x 120 Angenieux Arri Mount. . . . . new \$1,059.00
- 9.5 x 95 Angenieux C mount w/Cine-60 Power Zoom Motor . . . . . like new \$ 139.00
- 75mm Macro Schneider C mount . . . . . new \$ 349.00
- 5.7 mm Kinoptik C mount . . . . . used \$ 349.00
- 5.7 mm Kinoptik Arri mount . . . . . used \$ 349.00
- 10mm Schneider C mount . . . . . \$ 159.00
- 16mm Schneider C mount . . . . . \$ 69.00
- 50mm F2 Schneider C mount . . . . . \$ 200.00

- 150mm F2.7 Angenieux C mount . . . . . used \$ 189.00
- 50mm F1.5 Angenieux C mount. . . . . used \$ 189.00
- 17 x 68 Angenieux Zoom w/finder . . like new \$ 589.00
- 17 x 85 F2 w/finder. . . . . new \$ 499.00
- 13 x 100 F2.0 Pan Cinor Zoom . . . . . new \$ 369.00
- 16 x 130 F2.7 Pan Cinor Zoom . . . . . new \$ 369.00
- 400mm Kilfitt w/C mount and T mount used \$ 189.00

**PROJECTORS**

- Bell & Howell 1535B 16mm sound . . . . . new \$ 435.00
- Bell & Howell 1535B 16mm sound . . . . . used \$ 369.00
- Bolex 421 w/zoom opt. mag. . . . . new \$1,600.00
- Bauer P6 Marc 300 . . . . . new \$ 899.00
- Bauer P6 Synchron . . . . . new \$1,199.00
- Sonorex 16/16 interlock projector . . . . . demo \$3,200.00
- Sonorex 16/16 interlock projector . . . . . new \$3,700.00
- Eiki 16mm sound, auto thread. . . . . never used \$ 499.00
- RCA Mod. 1600, 16mm sound . . . . . like new \$ 289.00
- Bell & Howell 16mm silent "Statesman" used \$ 189.00
- Heurtier 16mm sound opt. mag. . . . . like new \$ 689.00
- Heurtier P6-24 w/sound base . . . . . used \$ 389.00
- Bell & Howell Jan 16 w/extra speaker. . . . . used \$ 489.00
- RCA 16mm sound (green) . . . . . used \$ 189.00
- Siemens 16/16 interlock projector w/synchronous motor and case . like new \$2,900.00

**BELL & HOWELL**

- Bell & Howell 16mm 70 DL w/3 lenses . . . \$ 279.00
- Bell & Howell 16mm HR. . . . . never used \$ 489.00
- Bell & Howell 16mm DR w/lens and grip. . . . . like new \$ 289.00
- Bell & Howell 70 HR w/25mm F1.9 w/large original case, holds motors and 400' mags. . . . . like new \$ 389.00

**FIBERBILT ADAPT-A-CASES**

- Most complete line of sizes and styles of "hard"-type cases. Exclusive tongue-and-groove movable partitions covered with 1/2" polyurethane foam interlock with each other and the padded side walls of the case in slots 1" apart. Can be easily rearranged. Fully insulated against heat, cold, dust, and shock. Heavy-duty steel locks, hinges, and unbreakable handles. Cases sold with partitions. Extra partitions available as listed. Choice of vulcanized fiber, aluminum, or ABS plastic construction. All sizes shown are in inches.
- 12 x 12 x 5 . . . . . \$ 27.00
  - 18 x 14 x 5 . . . . . \$ 36.00
  - 22 x 16 x 5 . . . . . \$ 45.00
  - 16 x 10 x 10 . . . . . \$ 36.00
  - 20 x 10 x 13 . . . . . \$ 46.00
  - 18 x 14 x 8 . . . . . \$ 39.00
  - 22 x 16 x 10 . . . . . \$ 45.00

**HALLIBURTON CASES**

- |   | Regular  | Sale    |
|---|----------|---------|
| 21 x 17 x 7 1/2 (silver only) 106 Special   | \$139.95 | \$75.00 |
| 18 x 13 x 6 (silver or black) 103 Special   | \$ 94.95 | \$56.00 |
| 21 x 13 x 8.5 (silver or black) 105 Special | \$119.95 | \$66.00 |
| 26 x 18 x 0 (silver or black) 110 Special   | \$159.95 | \$88.00 |
| 24 x 18 x 7 (silver or black) 111 Special   | \$149.95 | \$84.00 |

**belair**  
camera & hi-fi

927 WESTWOOD BOULEVARD  
LOS ANGELES, CALIF. 90024  
(213) 477-9569—(213) 879-9616

**MAIL & PHONE ORDERS PROMPTLY FILLED**

• Payments: We accept Certified Checks or Money Orders. Personal checks cause delay. To use your Bank Americard or Mastercharge, send card number and expiration date. 20% deposit required for all C.O.D.'s. • Shipping Charges: extra. Please send est. chgs. Excess will be refunded. All shpg. chgs. not paid will be billed COD. Min. \$3.00 shpg. chg. • Prices are valid when submitted for publication but may change without notice. Quantities are limited.

# CINE 60 INTRODUCES THE "QUICKIE" FULL CHARGE IN JUST 1 HOUR!

Now you can enjoy all the advantages that have made Cine 60's Power Belt the world's most popular professional motion picture power source — *with built-in fast charging*. In just one hour (less if the belt is partially charged to begin with), the new Cine 60 "Quickie" Belt charges quickly, surely and safely to its full ampere-hour capacity. Giving you a number of important advantages you never had before.

**The Full-Charge Lunch Break.** After a morning of shooting, the Quickie Belt recharges its batteries while you recharge yours. Full capacity in 60 minutes or less; half-capacity in half the time.

**Throw Away Your Crystal Ball.** Worry no more about how much your batteries are discharged. You don't have to keep a log or check with the guy who used the belt last. Just a short hour's charge and you're sure. (No chance of over-charging, either!)

**Double-Indemnity Peace of Mind.** The Quickie Belt is engineered with the world's most advanced fast-charge system, for safety. It's quick-charge system utilizes both timer and thermal cutoff to protect batteries against overcharging and heat buildup. As long as the Quickie's charging light remains on, it's taking a fast, safe charge—as soon as the battery's fully charged, the light goes off, regardless of how soon the belt's charged. So you can often start shooting in far less than an hour.

**One More Good Thing.** While we're at it, we've added another little feature you'll notice. A new housing design that's even more flexible and durable. (Which makes a good thing even better.)

**All the Things You Take for Granted.** Of course, all the heavy-duty features built into the Quickie Belt and its detachable fast-charge module, don't change the

features you've always relied on us for. Like superior comfort. Premium materials. Reliability. Durability. And a variety of belts engineered to match every professional camera and "sun gun."

**Quick Information.** For more information about the Quickie Belt, as well as the latest on our wide range of useful motion-picture accessories, please write or call us. We'll be quick to respond.



**CINE 60**  
INCORPORATED

Film Center Building, 630 Ninth Avenue, New York 10036 Telephone (212) 586-8782

# The Camera That Shot Lincoln

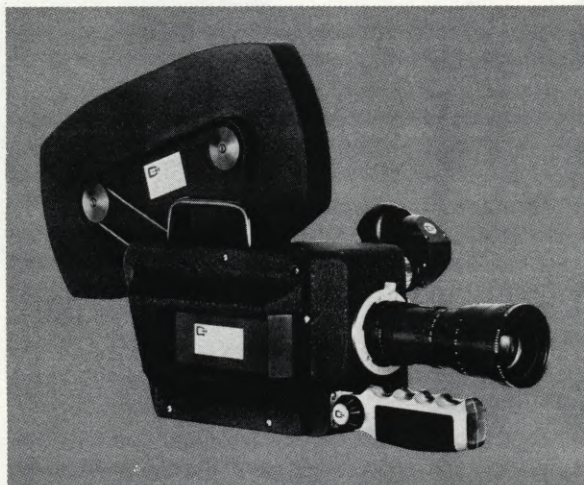
Not once, but 400,000 times, if you count frames. With the filming of "Sandburg's Lincoln" by David L. Wolper Productions, the CP-16 has been established as a legitimate feature production camera. The entire "Lincoln" series of six 1-hour specials has been filmed in 16mm with the CP-16 Reflex, using EK color negative 7247.

You can be sure the CP-16R was not chosen for this innovation in filmmaking until it had passed a series of rigorous and demanding tests made by top professionals in the motion picture industry. And, you can be

sure that the CP-16R passed these tests with outstanding credentials. We consider this another great "first" for the little news camera that *makes* news.

What does this all mean to you? It means that if you're in the market for a TV news, documentary or feature production camera, no matter where you are in the U.S., you owe it to yourself to investigate the CP-16.

We're not saying that it's the world's most versatile camera, but we are saying that if it isn't, it comes mighty close!



See the results for yourself. The first episode of Hal Holbrook as "Sandburg's Lincoln," entitled "Mrs. Lincoln's Husband," airs on NBC-TV, Friday, September 6. "Sandburg's Lincoln" was produced by David L. Wolper Productions. George Schaefer, producer-director. James Prideaux, writer. Howard Schwartz, A.S.C., director of photography. American Banking Association and Eli Lilly and Co., sponsors.

CP-16 cameras  
are manufactured by:

**cinema**  
 Technology in the  
Service of Creativity  
**products**  
CORPORATION

**THE  
CAMERA MART, INC.**

456 W. 55th Street  
New York, N.Y. 10019  
(212) 757-6977

Available from:

**VICTOR DUNCAN, INC.**

11043 Gratiot, Detroit, Mich. 48213 (313) 371-4920  
676 N. St. Clair, Chicago, Ill. 60611 (312) 321-9406  
2659 Fondren, Dallas, Texas 75206 (214) 369-1165

**ALAN GORDON  
ENTERPRISES INC.**

1430 N. Cahuenga Blvd.  
Hollywood, Calif. 90028  
(213) 466-3561 / (213) 985-5500

pre-owned equipment sale

**Comquip**<sup>®</sup>

<b>16MM CAMERA OUTFITS</b>	
Arri BL 10-100 Zeiss, APEC.....	\$9,450.
Arri BL 12-120 Angenieux.....	6,900.
Arri S/GS, 12-120 Angenieux.....	3,250.
Arri S, 35-140 Angenieux.....	3,900.
Auricon Super 1200, opt. sound.....	1,695.
Auricon 600, 12-120, mag sound.....	2,650.
Auricon 200, optical sound.....	695.
Auricon 200, takes 400' mags.....	595.
Auricon Cvsn, 12-120 Angenieux.....	2,995.
Auricon Cvsn, complete body.....	795.
Auricon Cvsn, shell no guts.....	249.
Auricon Cine Voice, opt. sound.....	895.
Beaulieu R168, 12-120 Angenieux.....	1,795.
Beaulieu R168, 17-68 Angenieux.....	1,395.
Beaulieu R168, 20-80 Angenieux.....	1,195.
B&H 70DR, 17-68 Angenieux.....	895.
B&H 70 Hispeed, 128 fps motor.....	349.
B&H 70 Hispeed w/o motor.....	249.
Bolex SBM, 16-100 POE zoom.....	1,549.
Bolex EBM 400' outfit w/o lens.....	1,295.
Bolex Rex 5 body.....	769.
Bolex Rex 4, 17-85 Pan Cinor.....	795.
Bolex Rex 4 with 3 Switars.....	775.
Bolex H-16 Reflex, turret mdl.....	295.
Bolex non reflex, turret mdl.....	189.
Bolex non reflex, sgl-lens mdl.....	229.
CP 16 outfit, 8 months old.....	4,900.
CP 16 body, 400' mag, battery.....	3,150.
Eclair NPR, 12-120 Angenieux.....	5,450.
Eclair NPR outfit w/o motor.....	5,150.
Eclair CM3, 16/35mm outfit.....	2,250.
Cine Special II, 100' mag.....	295.
Cine Special I, 25mm lens.....	249.
Cine Kodak B, 16 fps 100' cap.....	49.
Kodak AC Hispeed, 1000 fps.....	195.
Reverse, 50' mag load, 5 speeds.....	35.
GSAP, 50' mag load, 24v motor.....	35.
Miniature GSAP for experiments.....	19.
<b>16MM CAMERA ACCESSORIES</b>	
<b>ZOOM LENSES</b>	
12-120mm Angen. C mt. 10' finder.....	1,150.
12-120mm Angen. C mt. 7' finder.....	1,150.
12-120mm Angen. Rx mt. no finder.....	895.
12-120mm Angen. Arri mount.....	795.
12-120mm Angen. Eclair mount.....	749.
20-80mm Angen. C mt. no finder.....	249.
17-68mm Angen. C mt. 7' finder.....	495.
25-100mm Cinor S mt. 7' finder.....	295.
17-85mm Cinor C mt. 7' finder.....	395.
20-60mm Cinor C mt. 3' finder.....	149.
8-26mm Monital f/1.6 C mt.....	New
12.5-75mm Zeiss, Arri mount.....	349.
<b>ARRI FIXED LENSES</b>	
12.5mm f/2 Cooke Kinetak.....	329.
11.5mm f/1.9 Schneider.....	329.
16mm f/1.9 Schneider.....	149.
25mm f/1.5 Schneider.....	149.
50mm f/2.0 Schneider.....	149.
<b>C MOUNT FIXED LENSES</b>	
10mm f/1.6 Rx Switar.....	149.
10mm f/1.6 Switar.....	139.
10mm f/1.8 Soligor.....	69.
16mm f/1.8 Rx Switar.....	129.
25mm f/1.95 Angenieux.....	225.
75mm f/1.9 Switar.....	169.
150mm f/3.3 Switar.....	169.
300mm f/4.5 Century.....	169.
Anamorphic camera-projector lens.....	95.
Many more lens bargains in stock.....	Ask
<b>MAGAZINES</b>	
Arri BL 1200 ft. magazine.....	795.
Eclair NPR 400'.....	650.
Mitchell 1200' to NPR adapter.....	1,450.
Eclair 400' for CM3 cameras.....	250.
Mitchell 1200'.....	Like new
Mitchell 400' for conversions.....	125.
<b>OTHER 16MM ACCESSORIES</b>	
Arri BL 110v sync motor w/gear.....	350.
Arri BL heater Barney, repairs.....	75.
Arri 16S offset finder.....	375.
Bolex MST motor, used \$200.....	New 259.
Bolex 12v rechargeable battery.....	189.
Bolex 110v sync motor, fwd-rev.....	125.
Bolex 400' mag, used \$165.....	New 195.
Bolex takeup motor \$95.....	New 129.
Bolex crystal sync unit.....	New 239.
Cine Special animation motor.....	250.
Cine Special time lapse control.....	175.
Pathe' 16 accessories.....	Like new Ask

<b>35MM CAMERA OUTFITS</b>	
Arri IIC/T custom blimped outfit.....	\$7,950.
Arri IIC blimped zoom outfit.....	8,750.
B&H 2709 w/2 movements, access.....	1,900.
Eclair CM3 Aquaflex outfit.....	3,750.
Eclair CM3 16/35mm outfit.....	2,250.
Eclair CM3 35mm body, motor.....	1,150.
Eclair CM3 Cinemascope outfit.....	3,650.
Spider Eyemo complete outfit.....	575.
Turret Eyemo late mdl. w/2" lens.....	375.
Sgl-lens Eyemo w/magazine back.....	125.
Wall 35, modified for filmstrip.....	1,200.
Acme 35 animation camera w/motor.....	1,900.
<b>35MM CAMERA ACCESSORIES</b>	
35-140mm Angen. Arri mt., motor.....	1,500.
50mm f/2 Kinoptic lens, Arri mt. ...	125.
Super Baltars in R35 mounts.....each	350.
B&H 1000' Bipack magazine.....	375.
Eclair 400' Aquaflex magazine.....	500.
Arri 16v governor motor.....	350.
Arri bellows matte box.....	250.
Eyemo 110v or 12v motors.....each	90.
Sync 110v motor for Eclair CM3.....	275.
Wild 110v motor for Eclair CM3.....	175.
Slow speed 110v motor for CM3.....	375.
B&H 2709 animation motor.....	475.
<b>TRIPODS, MOUNTING EQUIPMENT</b>	
Cartoni hvy. duty Gyro tripod.....	350.
Ceco hvy. duty geared tripod.....	450.
Ceco Pro Jr. friction tripod.....	125.
Miller fluid tripod w/case.....	375.
Mitchell geared tripod.....	225.
O'Connor hvy. duty friction tripod.....	650.
RCA all metal friction tripod.....	250.
<b>POWER SUPPLY EQUIPMENT</b>	
Arri 8-16v battery w/charger.....	200.
Cine-60 8-12-16v power belt.....	225.
Frezzi 1000DX crystal inverter.....	475.
Frezzi 100D AC inverter, rebuilt.....	350.
Frezzi 100D inverter w/o battery.....	75.
FMC inverter in shoulder case.....	75.
Magna Tech 16v to 110v inverter.....	325.
<b>LIGHTING EQUIPMENT</b>	
Frezzi 1/2 Hr. portable light.....	295.
Frezzi 1/2 Hr. light pack, rebuilt.....	250.
1000w Sun Gun head w/lamp.....	40.
1000w handheld Sun Gun w/lamp.....	50.
Assorted cables, spiders, boxes.....	Ask
<b>SOUND EQUIPMENT</b>	
Magnasync-602 16mm recorder.....	1,600.
Magnasync-15 16mm recorder.....	1,200.
Magnasync-X400 16mm recorder.....	750.
2 16mm Magnasync dubbars w/rack	1,950.
3 35mm Magnasync dubbars w/rack	2,950.
Magnasync 4 channel mic mixer.....	250.
Ampex 351 1/2" recorder in rack.....	990.
Stancil Hofman 16mm recorder.....	2,300.
Magnecord 1/4" stereo recorder.....	375.
Minifon 1/4" cassette recorder.....	50.
ED1 1/4" reel-reel pocket recorder.....	50.
Nagra III with crystal and case.....	1,600.
<b>SOUND ACCESSORIES</b>	
Auricon 16mm optical recorder.....	395.
Auricon Modulite S galvo.....	275.
Auricon T70 variable area galvo.....	50.
Auricon NR25 recording amplifier.....	195.
Auricon RA31 recording amplifier.....	50.
3-input Xtr. amplif. for Auricon.....	275.
16mm x 1200' recording tape...New	15.
35mm x 1000' recording tape...New	15.
E-V 660 mic, stand, cable.....	New 75.
E-V 654 handheld dynamic mic.....	35.
E-V 630 Auricon E6 microphone.....	35.
Western Electric 639A microphone.....	100.
Sennheiser wireless mic system.....	350.
RCA KV3A boom microphone.....	250.
Major Mood library on 220 discs.....	300.
<b>PRODUCTION ACCESSORIES</b>	
COMQUIP Animation Compound...New Item	
Features: 13x15x5" size, full 12	
fields, N-S E-W movement, 1/20"	
scales, 2 peg bars, glass platen	
and backing, all metal. New price:	895.
Bolex deluxe title stand, case.....	295.
Honeywell spot meter w/case.....	125.
Luna Six light meter w/case.....	45.
Spectra Combi 500 meter w/case.....	75.
Photospot attachment for Combi.....	75.
34x44" double lined changing bag.....	15.
11x14" clapstick slate.....	New 12.

<b>EDITING EQUIPMENT</b>	
Moviola 35/35mm upright editor.....	\$2,450.
Moviola 16/16mm upright editor.....	2,250.
B&H 16mm viewer, old but good.....	65.
Bia 16mm viewer, old, works.....	25.
Camart 16mm opt. reader w/amp.....	150.
Precision 16mm opt. reader-amp.....	100.
Moviola 1-input squawk box.....	45.
Precision 1-input squawk box.....	45.
Synchronizers: 1/16mm w/counter.....	75.
3/35mm \$110. 4/35mm.....	130.
1/16mm plus 3/35mm.....	195.
Guillotine 35mm splicer.....	150.
Guillotine 16mm splicer.....	New 185.
Hollywood 35mm tape splicer.....	90.
RJwas 16mm tape splicer.....	100.
Hahnel dual 8mm motor splicer.....	45.
Griswold 35mm hot splicer.....	50.
Presto 35mm butt weld splicer.....	250.
Presto 16mm butt weld splicer.....	490.
2 Moviola differential rewinds.....	100.
2 35mm 1-reel rewinds.....	40.
2 16mm 4-reel rewinds compl.....	New 85.
Formica edit bench, no light box.....	79.
Adjustable edit bench light.....	30.
Split reels: 16mm x 1200'.....each	10.
Steel reels & cans, all sizes.....	Ask
<b>PROJECTORS</b>	
Century 35mm interlock projector.....	2,450.
Simplex E7 35mm intdk. projector.....	2,450.
Siemens 16/16mm intdk. w/sync.....	1,850.
Sonorex 16/16mm intdk. w/sync.New	2,950.
L&W Analyst 16mm w/still frame.....	450.
B&H 302 16mm magnetic-optical.....	575.
B&H 1552 16mm opt. autoloader.....	495.
B&H 399 16mm optical Specialist.....	325.
B&H 385 16mm optical, 1-case.....	295.
B&H 285 16mm optical, 2-case.....	275.
B&H 185 16mm optical, 1-case.....	195.
B&H 25 watt amplifier-speaker.....	95.
Bauer Super-8 magnetic.....	New 229.
B&H reg. 8mm autoloader w/case.....	49.
Ektagraphics B2 slide projector.....	139.
Pair Kodak Carousels, as is.....	75.
<b>VIDEO EQUIPMENT</b>	
Ampex 5100 blk-wht. recorder, mint	950.
Pix monitors: 25" \$195.....	295.
27".....	27"
Packard Bell CCTV camera w/lens.....	250.
IBC viewfinder camera w/lens.....	350.
3 on 1 CCTV system w/switcher.....	300.
1 on 1 CCTV system w/intercom.....	250.
Hitachi camera and 9" monitor.....	275.
Dry switcher, 5 video-audio inputs.....	150.
6x8" video screen, frame, case.....	125.
Empty 1 Hr. 2" video tape reels.....	5.
<b>STILL CAMERA EQUIPMENT</b>	
Nikon Photomic w/4 lenses, motor.....	975.
Hasselblads & access., new & used.....	Ask
Super 4x5 Graphic, many access.....	500.
Crown 4x5 Graphic w/accessories.....	250.
New Telesar SLR lenses.....	Ask
<b>TOO LATE TO CLASSIFY</b>	
1000' studio blimp for CM3 camera.....	3,500.
400' Aquaflex hsg. for CM3 camera.....	995.
Beaulieu 4008ZM2 Super-8 camera.....	575.
Fastax 8mm Hispeed camera.....	75.
Tandberg sync recorder w/resolver.....	850.
Arri s-s module w/amp for BL.....	2,150.
Auricon MAIL mag sound system.....	850.
ALC module for any Nagra.....	New 150.
2 University 150w sound columns.....	250.
10' finder for Angenieux 12-120.....	125.
Realist 2 1/4x2 1/4 slide projector.....	65.
Trim bin with rack, liner.....	35.
Pro Sr. 3 wheel tripod dolly.....	85.
Steenbeck 16mm edge track head.....	50.
Auricon EIF20 paralax finder.....	40.
Sennheiser 404 mic w/accessories.....	350.
Entire contents of a sound studio.....	Ask
Scopic M sync gen, installed.....	New 395.
400' motion picture 16mm printer.....	150.
Xtd. 24 fps motor for ACL.....	Demo 1,100.
Xtd. 24 fps motor for ACL.....	Used 950.
Bolex Pro cameras and accessories.....	Ask
<b>RENTALS</b>	
Most items in this listing are available for	
rental. Ask for Free rental catalog.	
<b>WANTED</b>	
Wanted, all kinds of good equipment. We	
pay top dealer prices, top trade in values.	

Comquip Inc. 366 S Maple Ave., Glen Rock, N.J. 07452 (201) 444-3800

All items used unless otherwise indicated . . . All items subject to prior sale . . . Much more available at big savings Call or write for quotes . . . Your money refunded in 10 days if not satisfied . . . Trades accepted . . . Shipping charges additional . . . Prices subject to change without notice . . . BankAmericard and Master Charge honored . . . Open Saturdays

THE **BACH Auricon** LINE  
OF 16MM PROFESSIONAL  
CAMERAS



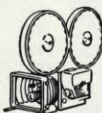
CINE-VOICE II  
100 FT. RUNS 2-3/4 MIN.



AURICON "PRO-600 SPECIAL"  
400 FT. RUNS 11 MIN.



AURICON "PRO-600"  
600 FT. RUNS 16-1/2 MIN.



AURICON "SUPER-1200"  
1200 FT. RUNS 33 MIN.

### GUARANTEE

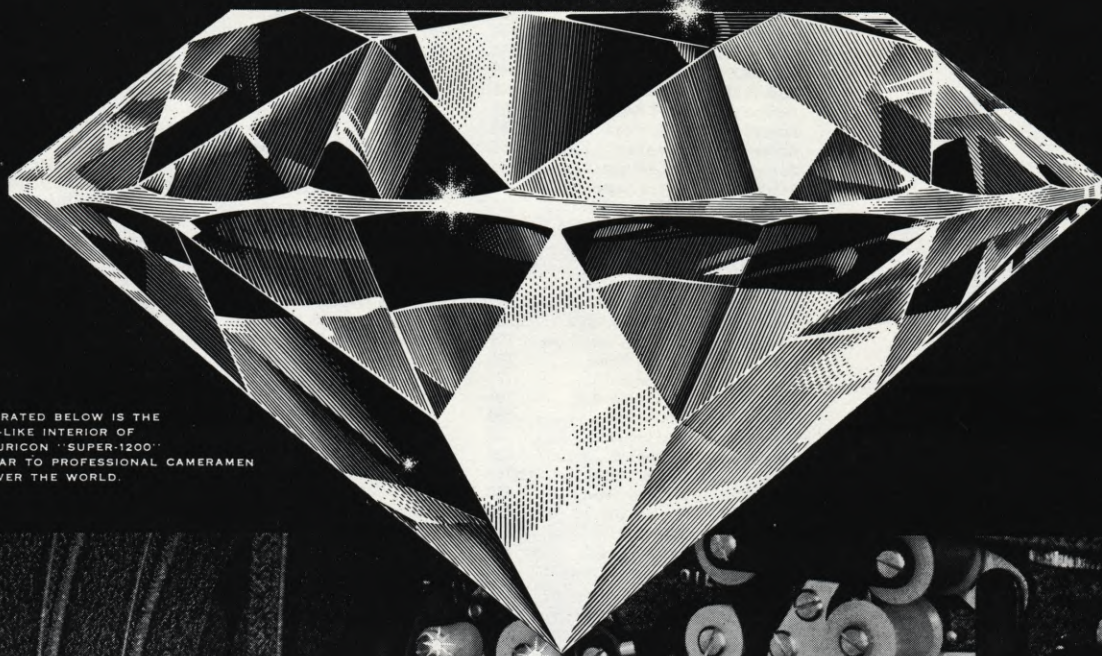
All Auricon Equipment is sold with a 30-day money back Guarantee and a 1 year Service Warranty. You must be satisfied!



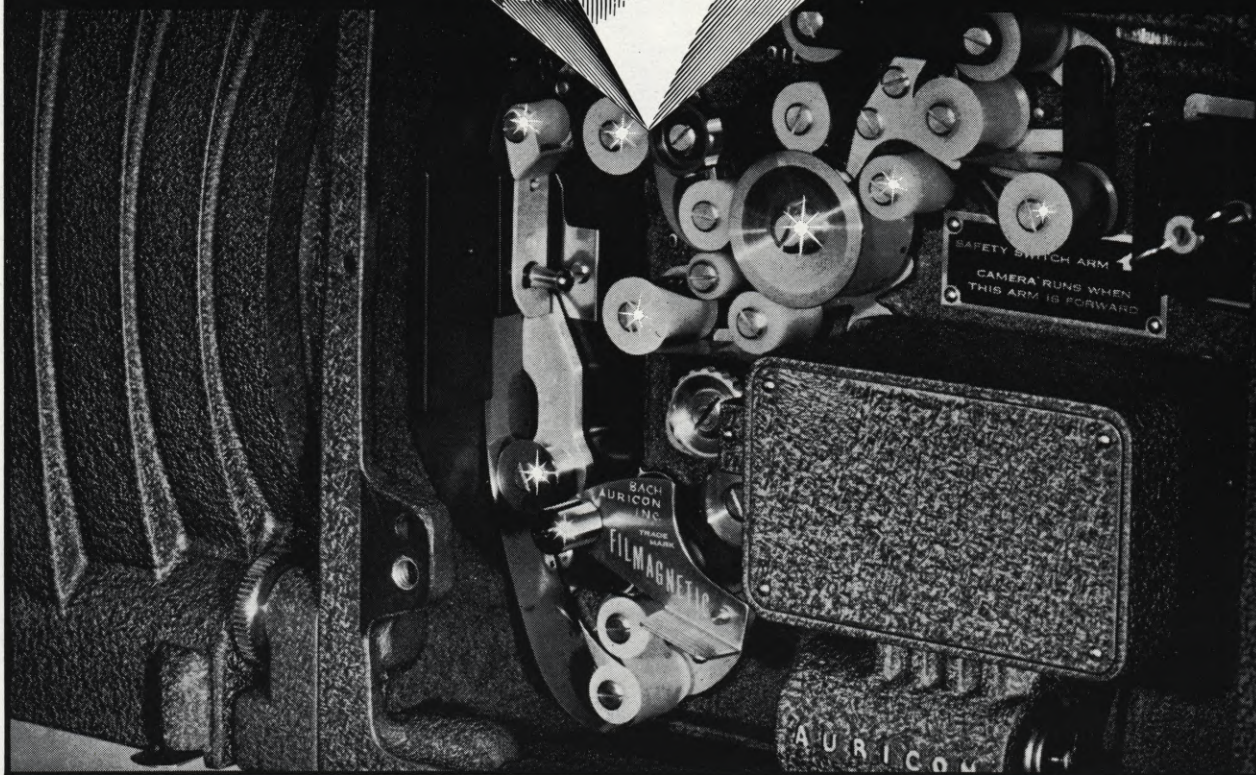
WRITE FOR  
YOUR FREE  
COPY OF THIS  
74 PAGE  
AURICON  
CATALOG

GET BEHIND AN  
AURICON "SUPER-1200"...  
...and know the real  
satisfaction of filming with  
a truly Professional Camera!

The Auricon Camera is a jewel  
of fine craftsmanship...



ILLUSTRATED BELOW IS THE  
JEWEL-LIKE INTERIOR OF  
THE AURICON "SUPER-1200"  
FAMILIAR TO PROFESSIONAL CAMERAMEN  
ALL OVER THE WORLD.



... FOR JEWEL-LIKE PRECISION IN FILMING ROCK-STEADY MOTION PICTURES!

The Auricon "Super-1200", like all Auricon 16mm Professional Cameras, is a superb picture-taking instrument. Every precision-engineered part of this finest of all 16mm Cameras is carefully built and assembled with the rare watch-maker skill of old-world craftsmanship, combined with modern, space-age know-how in optics and electronics. The Auricon "Super-1200" actually contains jewels in the Camera-Gate! This polished Sapphire Film-Gate is guaranteed frictionless and wear-proof for in-focus and scratch-free pictures, regardless of how much film you run through the Camera! Among the many professional features of the "Super-1200" is Reflex Ground-Glass Focusing through the Camera lens. All this, and high-fidelity, optical or magnetic, single-system or double-system sound-recording capabilities which are unmatched by any other camera in the world! Write for free, illustrated Auricon Catalog fully describing this rare jewel of fine craftsmanship.

**BACH AURICON, Inc.**

8902 Romaine St., Hollywood 38, California  
HOLLYWOOD 2-0931



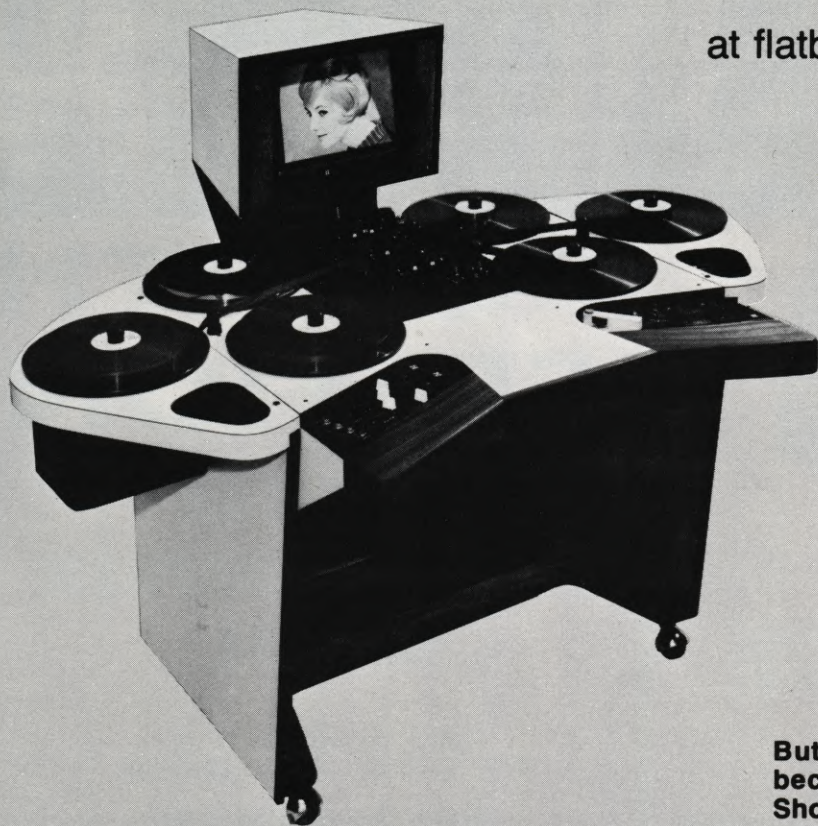
AURICON... THE PROFESSIONAL CAMERA • STANDARD OF THE 16MM SOUND INDUSTRY SINCE 1931





Take a second look  
at flatbed editors because . . .

# NOW THERE'S A CHOICE



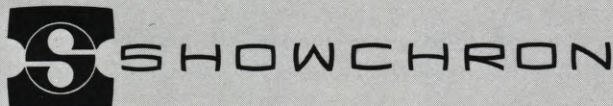
But really there is no choice,  
because when it comes to  
Showchron's performance, fea-  
tures, price and availability, it's no  
contest.

Performance and versatility . . . **Showchron** takes the lead here. Threading, marking, inching, **instant** stop at top speeds, reversing . . . all performed quickly and surely with human-engineered controls. With **Showchron's** exclusive integrated single sprocket drive design, for both picture and sound, eliminates danger of film damage in all operating modes.

SHOWCHRON is the only American-made **expandable** system available. The modular **Showchron** editing console is field-expandable from one picture/two sound, to one picture/three sound, two picture/two sound, three picture/one sound, in combinations to meet your requirements.

**Showchron** flatbeds are competitively priced, and attractive lease plans are available.

There is an alternative . . . **SHOWCHRON!**



*A Showchron product manufactured by Honeywell*

9701 Wilshire Blvd., Beverly Hills, Calif. 90212  
(213) 273-8740

Cable: SHOWAM, Beverly Hills, Calif.

Patents Pending

For more information  
mail coupon or call: (213) 273-8740

Please send full details on the Showchron  
flatbed editing system.

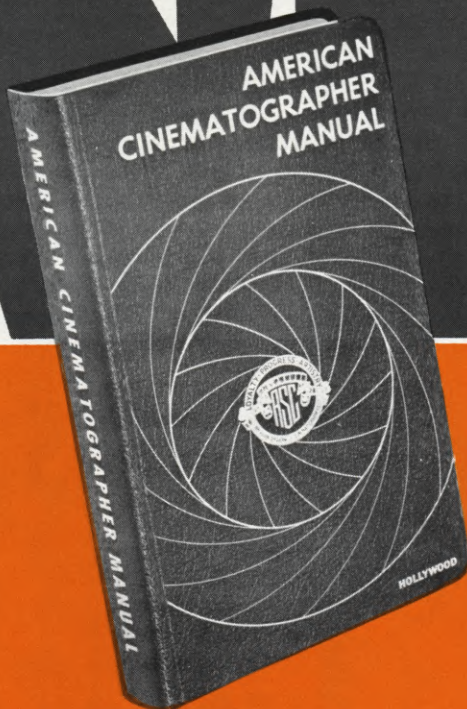
Name .....

Firm .....

Address .....

City ..... State ..... Zip .....

# NEW!



## FOURTH EDITION

### AMERICAN CINEMATOGRAPHER MANUAL

COMPILED AND EDITED BY  
TWO VETERAN CINEMATOGRAPHERS

CHARLES G. CLARKE, A.S.C.  
and  
WALTER STRENGE, A.S.C.

## MOST COMPREHENSIVE COMPILATION OF CINEMATOGRAPHIC DATA EVER PUBLISHED !

Completely updated Filter, Lighting and Lens sections. Data on most recent camera developments. Complete shooting data for Theatrical, Non-theatrical and Television cinematographers filming 16mm, 35mm or 65mm anamorphic or spherical motion pictures in any aspect ratio, in color or black and white, silent or sync-sound, in the studio or on location.

An Official Publication of the  
**AMERICAN SOCIETY OF  
CINEMATOGRAPHERS**

Dealers are invited to write for  
quantity discounts.

This easy-to-carry, pocket-size, concise, book contains practical, informative text, tables, charts, diagrams, drawings and listings of all the latest production equipment and filming techniques in use today!

Key word printed on the edge of every right-hand page provides INSTANT INDEX for quickly locating desired data!

**THE AMERICAN CINEMATOGRAPHER MANUAL**  
P.O. BOX 2230  
HOLLYWOOD, CALIFORNIA 90028  
4TH EDITION

Please send \_\_\_\_\_ copies of the AMERICAN CINEMATOGRAPHER MANUAL @ \$17.50 each, postpaid. No C.O.D.s'

NAME.....

STREET.....

CITY.....STATE.....ZIP.....

California residents please remit 6% Sales Tax (\$1.05 per Manual). Foreign Buyers please pay by International Money Order or U.S. Funds.

# Before a Duncan zoom lens goes out on rental, we check its tracking, resolution and focus-holding. Every time.



Our exclusive rear projection test machine lets us do the job in only sixty seconds.

If a lens is three inches off indicated focus at six feet, we can see it easily. (Looking through the camera with a groundglass and a magnifier, it's hard to tell a three *foot* error.) And we can check the focus at every point of the zoom range. We can and we do. *Every time.*

## HOW IT WORKS

The lens is positioned on a precision standard, in the appropriate camera mount. A front-surface glass U.S.A.F. test chart is placed at the film plane. Positioning accuracy is within 1/10,000 inch.

By rear projection, the target's image is visible two feet from the operator on a darkened screen. At that distance, it's easy to count the lines per millimeter, and to check the focus, from in tight to wide angle.

An overlay cel with the same crosshairs is positioned on the screen itself, in register with the projected image. As our service man zooms the lens in, he can see at once if the tracking is centered properly, and if there are any bumps.

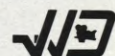
None of these tests is new, of course. What's new is that they can be done with high precision in sixty seconds. Without a darkened room and without a distant screen to peer at.

**R**ental lenses take their knocks, like everything else in this life.

At Duncan, we test everything before it goes out. (For example, we run film through every rental camera—every time.) But collimation tests take forever. So we've designed our own lens test machine.

Using overlay crosshairs, we can tell if zoom tracking is off center by .001 inch—or less. Is resolution up to specifications? Is the image sharp right across the frame? The target projected on the darkened screen lets us clearly count the lines per millimeter, at center and edge.

**BRING YOUR LENS IN TO ANY DUNCAN SHOP. WE'LL TEST IT FOR YOU—FREE.**



**Duncan**  
VICTOR DUNCAN INC.

676 ST. CLAIR, CHICAGO (312) 321-9406  
2659 FONDREN, DALLAS (214) 369-1165  
11043 GRATIOT, DETROIT (313) 371-4920

**SERVICE, SALES AND RENTALS: CHICAGO, DALLAS AND DETROIT**

**If you have a little money to spare  
you can buy a kid breakfast for a year.  
If you have a lot of money to spare  
you can buy him a home.**



For 17 years, WAIF, the Children's Division of International Social Service, has been providing homes for homeless children throughout the world.

We've arranged for their adoption and foster care, settled custody or guardianship problems and reunited many with their families after long periods of separation.

We want to continue doing this. And we can. With a little help from you.

Just \$10 can buy breakfast for 8 months for a pre-schooler in Venezuela.

\$25 will provide English language lessons and counseling for

a refugee child coming to the U.S. from Hong Kong.

\$150 will reunite a Mexican-American family separated by immigration problems.

\$240 will pay for a year's foster care for a Vietnamese baby.

And \$500 will find a home in the U.S. for a rejected Korean child.

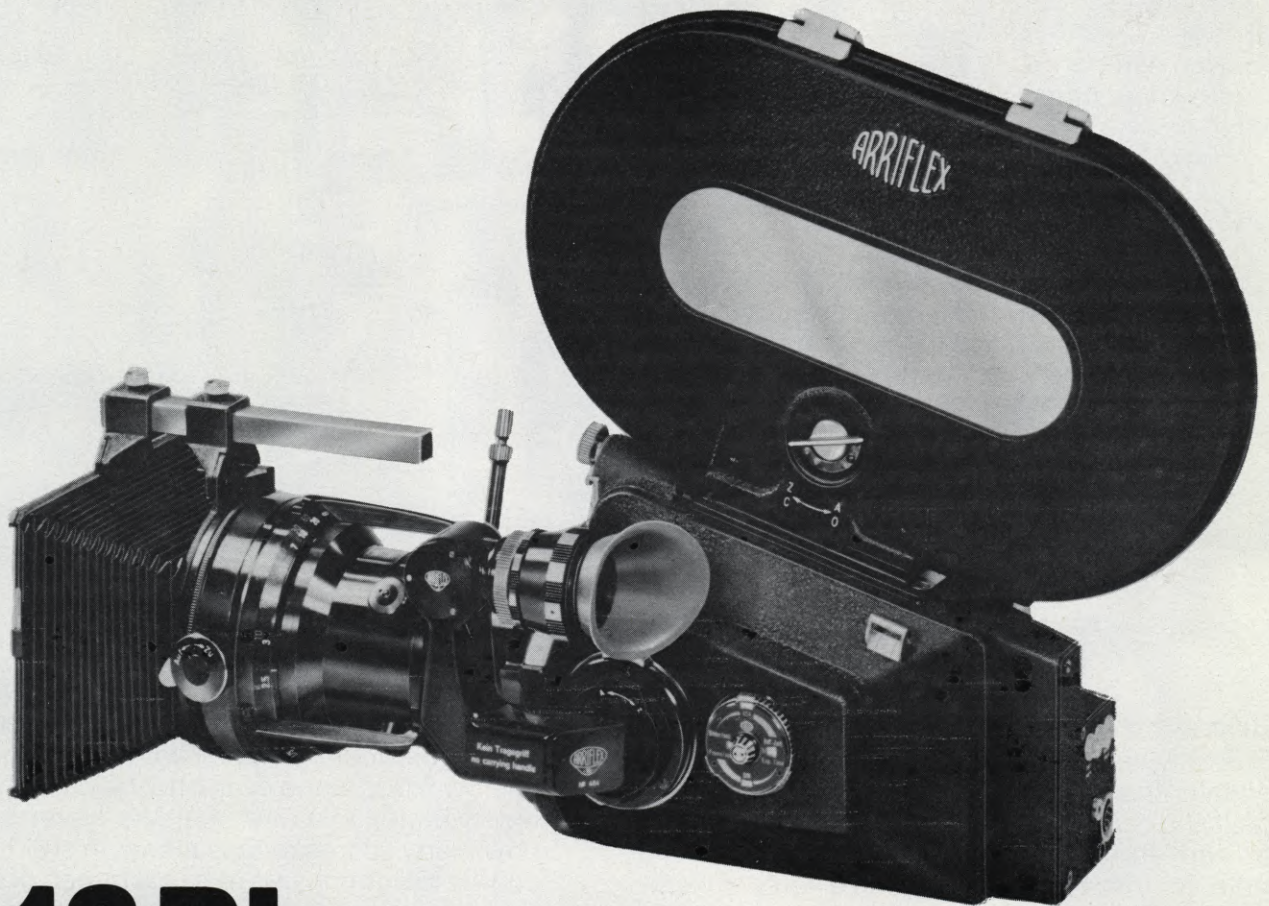
Your contribution, no matter what its size, will help make life a whole lot happier for one of these children somewhere in the world.

Send your donations to *WAIF*, Box 2004, N. Y., N. Y. 10017.

All gifts are deductible from U.S. income tax.



# after the sale, it's service that counts



## 16BL

### the camera that keeps downtime *down!*

Sooner or later every working tool is subject to some downtime for maintenance or repair. And downtime can be costly. That's why, when you are making a choice of a silent 16 mm, make it the Arri 16BL. It has all the features, plus the back-up of coast-to-coast service. Factory trained technicians, sophisticated test equipment and an extensive supply of spare parts keep downtime to a minimum.

Not every camera can claim that, ask around . . .

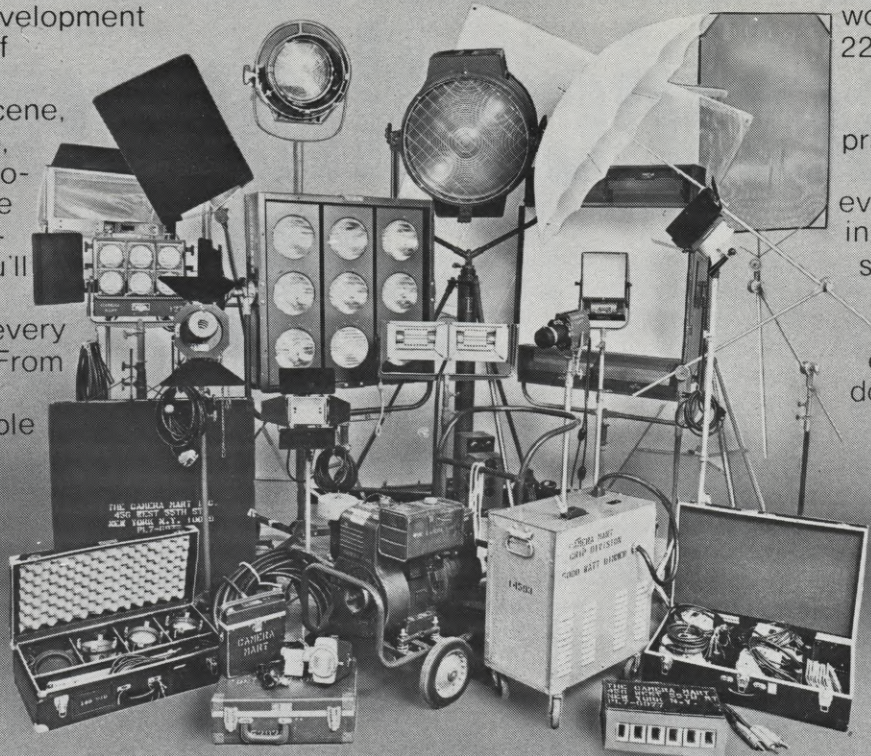
# ARRI

ARRIFLEX COMPANY OF AMERICA

P. O. Box 1050, Woodside, N. Y. 11377 • 1011 Chestnut Street, Burbank, Calif. 91502

# THE END OF HALF YOUR LIGHTING PROBLEMS.

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



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

# THE END OF THE OTHER HALF.

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

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

CAMERA MART 456 West 55 Street New York, N.Y. 10019  
 You make sense. Tell me more about how Camera Mart can solve both halves of my lighting problems.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
 COMPANY \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_  
 STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 © 1974, Camera Mart AC 974



THE CAMERA MART, INC

456 W. 55th St., New York, 10019 (212) 757-6977  
 SALES SERVICE-RENTAL

# Sony Video Tapes: made to quality standards so high we've never had a major customer complaint!

Sony Video Tape is quality video tape. It's designed, manufactured, quality controlled, marketed, and guaranteed by Sony... one of the largest video tape manufacturers in the world!

Consider this fact: Sony has never had a major customer complaint on any type of video tape we make! That's the kind of quality control that pays off... for you... with a uniformly balanced picture, in crisp black & white, or vivid color, with the highest signal-to-noise ratio available, with unmatched durability, and with benefits like no head clogging and fewer dropouts.

No matter what brand of VTR equipment you use, check this quality line-up of Sony Video Tapes:

**3/4-inch U-Matic Videocassette Tape\***: virtually eliminates dropout and color noise. Available in playing time from 10 minutes (237 feet) to 60 minutes (1175 feet).

**1/2-inch video tape**: with special backing treatment to reduce windowing and scratching. Comes in playing time from 10 minutes (380 feet) to 60 minutes (2370 feet).

**1-inch video tape**: with increased density of oxide coating for optimum picture and sound.

**2-inch video tape\***: specially designed for critical high energy recording requirements of helical scan master VTR.

**Endless Loop Video Cartridges**: for continuous-use applications like trade shows and product demonstrations. Available in 5 and 10 minute playing times.

No matter how you look at it, Sony Video Tapes are quality video tapes. To find out how you can enhance the quality of your video applications, fill out and mail the coupon today.

## Sony. Quality video tape!



Sony Corporation of America SN-175  
Video Products Dept.  
47-47 Van Dam St., L.I.C., New York 11101

Gentlemen: Please send me more information on the following Sony Video Tapes.

- 3/4-inch U-Matic Tape.     1/2-inch Tape.  
 1-inch Tape.             2-inch Tape.  
 Endless Loop Video Cartridges.

AC-094

NAME \_\_\_\_\_  
TITLE \_\_\_\_\_  
COMPANY/INSTITUTION \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE \_\_\_\_\_  
TYPE OF BUSINESS \_\_\_\_\_

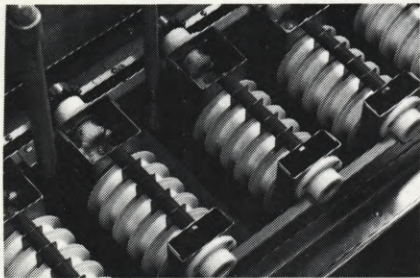
**Sony U-matic Color  
Videocassette System**

\*High energy chromium dioxide video tape



# A few reasons why Houston processors are so much better.

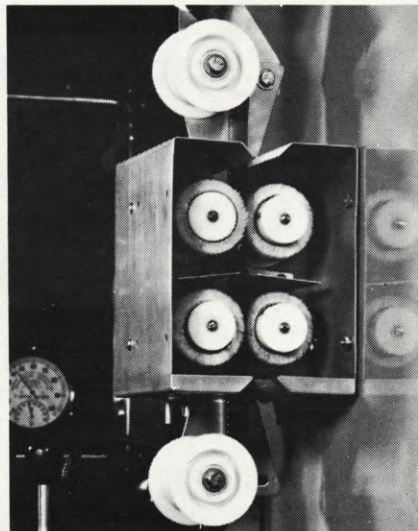
The fact that Houston film processors do their job so well is the result of 44 years experience in designing, building, operating, testing and improving every part, every material, every function. Take the demand drive system for example:



Low, uniform film tension is maintained by Houston's demand type drive with all film spools completely submerged. No springs. Less maintenance. Eliminates film scratches and breakage. Unlike many machines, film racks are quickly removable for cleaning and maintenance.

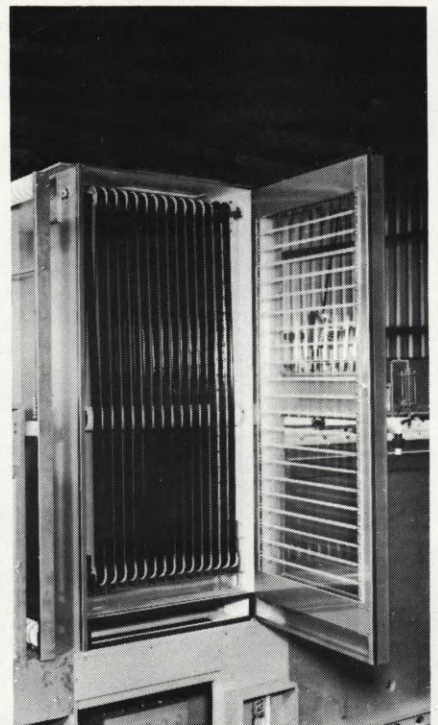


Thermostatically-controlled heat exchangers in the recirculation lines are extremely sensitive. Provide constant, accurate heat as required. Efficient chemical filters are easily accessible. Unscrew for fast servicing.



Houston buffer squeegees gently remove excess liquid before film enters dry box. Highly efficient. Extremely quiet. (Air squeegee is available if desired).

Houston's impingement film drying is the most efficient, positive system available. Allows complete circulation of warm air over and around film. Dries thoroughly without spotting.



There are many other reasons why Houston processors are so much better. And there's a machine to process every type and size of color or b&w film.

Call or write: Houston Photo Products, Inc. 655 E. 20th St., Yuma, Ariz. 85364. (602) 782-3677. Telex: 669-450.

**HOUSTON**  
PHOTO PRODUCTS, INC.  
YUMA, ARIZONA



# Stellavox.

## Your best investment in professional sound recording equipment.

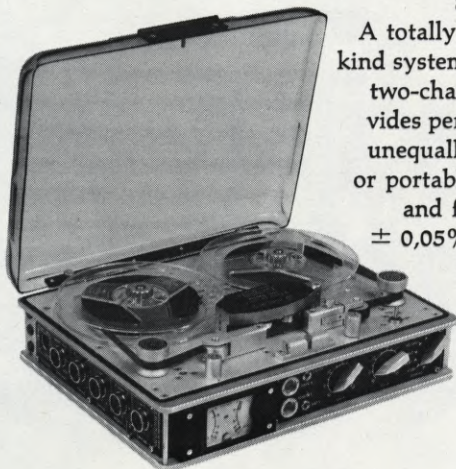
All Stellavox sound systems are designed and manufactured in Switzerland (land of engineering perfection) and incorporate the latest, most advanced "state-of-the-art" features\* which provide the highest quality sound reproduction every time (even under the most demanding on-location recording conditions).

**\* Plug-In Head Modules** (Only Stellavox recorders feature the capability of being able to accept all the mono and stereo track configurations in modules that are each individually tailored for ultimate performance on a specific recorder)

**\* Increased Reel Capacity** (With the Stellavox ABR extension accessory, reel capacity is increased up to 10½" for longer recording time)

**\* Battery Operation** (In addition to AC operation, all Stellavox recorders operate on batteries thus permitting the utmost in portability and flexibility)

**\* Professional Accessory Line** (A full selection of professional accessories are available for each Stellavox recorder)



### Stellamaster SM-7

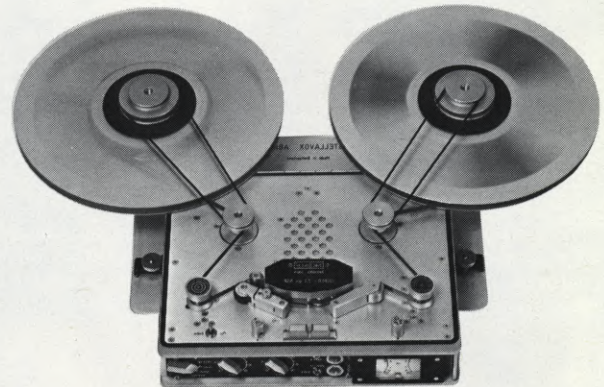
A totally unique, one-of-a-kind system, the Stellamaster two-channel recorder provides performance abilities unequalled in either studio or portable recorders. Wow and flutter (weighted):  $\pm 0,05\%$  (0,04% typical).

Overall frequency range: 20 Hz to 28 kHz  $\pm 2$  dB.  
Signal to noise ratio: 74 dB (Maxell UD 50)

### Quadrasonic SQ-7

The only professional 4-channel battery operated unit of its kind available today. Wow and flutter (DIN weighted):  $\leq \pm 0,06\%$ .

Overall frequency response: 25 to 25 kHz  $\pm 2$  dB. Signal to noise ratio (rel. 800 nW/m):  $\leq 66$  dB ASA A.



**Stellavox SP-7** The ruggedly built SP-7 is so compactly designed that you'll be amazed at how little it weighs (only 8 lbs. with tape and batteries). Wow and flutter:  $< \pm 0,07\%$ . Overall frequency response: 30 to 16,000 Hz  $\pm 2$  dB. Signal to noise ratio, weighted (ASA A filter)  $> 65$  dB stereo and  $> 70$  dB full track (at 50 mMx/mm).

Each Stellavox recorder is backed by warranty service which is available through our service center in Los Angeles. Factory trained technicians, utilizing a full stock of parts and the latest in laboratory measuring devices, will handle all aspects of quality control, maintenance and repair of Stellavox products.

If you would like to receive full technical information on the Stellavox line of professional sound recorders, please write to:

**Hervic**  
CORPORATION

Technical Products Division  
14225 Ventura Boulevard  
Sherman Oaks, California 91403

# THE FILMING OF "SANDBURG'S LINCOLN"

A prestigious series of six one-hour films, utilizing the new Eastman Type 7247 16mm color negative and a newsreel camera modified to serve as a studio camera

By HERB A. LIGHTMAN

When I first heard that six one-hour TV specials on the life of Lincoln (based on Carl Sandburg's monumental biography) were about to be filmed by David L. Wolper Productions, I was intrigued for several reasons.

Firstly, I had seen Wolper's stunning pseudo-documentary on the assassination of Lincoln, re-created with such authenticity that it appeared to be composed entirely of actual footage shot at the time of the tragic event.

Secondly, I confess to being a Lincoln buff. Like every American kid, I had grown up with a reverence for this gaunt, gentle, tough-fibered man who, against many odds, became one of our two authentic hero-presidents. But more than that, I had always been intrigued by the unique drama of his life. My sense of the theatrical was piqued by the idea of this big, awkward country boy, growing up in a log cabin on an isolated Indiana farm, teaching himself to read by scrawling words on a wooden shovel with a hunk of charcoal in front of the fireplace, becoming a country

lawyer with no immediate further ambitions than that, suffering the pangs of unrequited love, attaining the highest office in the land only to be forced into the role of "unwilling warrior" in order to prevent his beloved country from being torn asunder—finally, dying of a wound inflicted by a half-crazed fanatic, just as several other American presidents and near-presidents were to die in the future. A life absolutely packed with drama!

Wearing my other hat, that of Editor of *American Cinematographer*, I became vitally interested in Wolper's projected Lincoln series when I discovered that its production would involve two very significant technological "firsts". A package budgeted at \$2.5 million (a great deal of money, as television budgets go), it would be the first high-budget, prime-time, prestige production to be filmed in the new Type 7247 Eastman 16mm Color Negative.

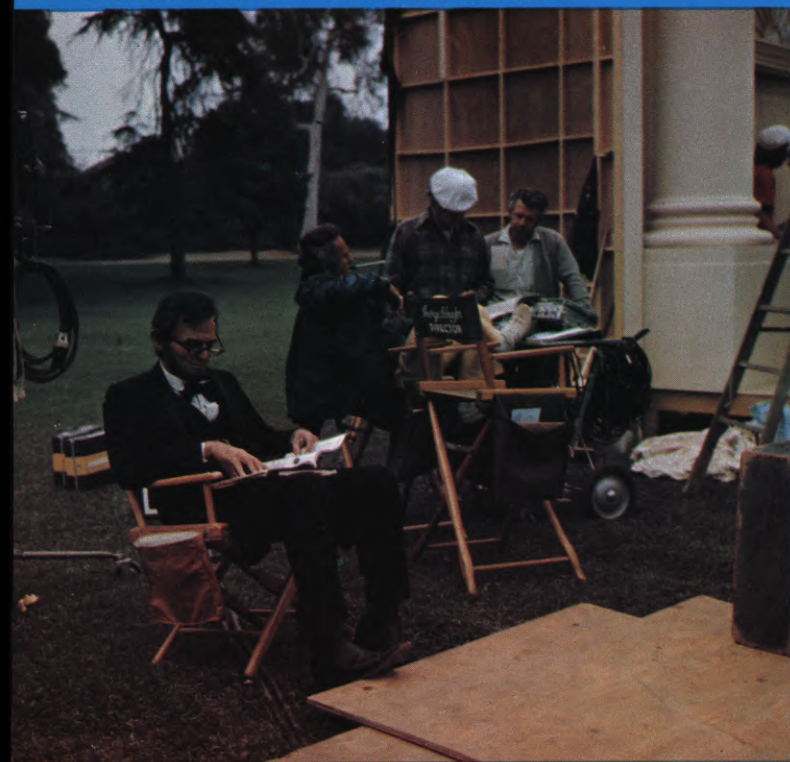
To understand the import of this fact, it is necessary to realize that American producers of film for televi-

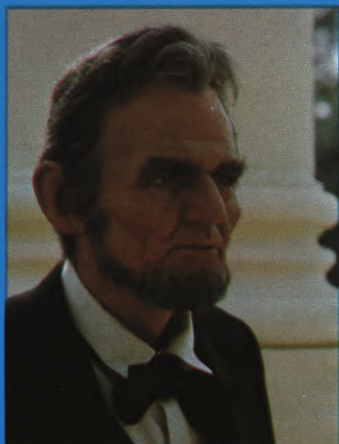
sion (except for newsreels) have always avoided 16mm like the plague—especially 16mm *negative*. This despite the fact that Type 7254 negative has been used very successfully for years in other countries—most notably by the BBC in London.

The second technological breakthrough was the choice of camera to be used for filming this multi-million-dollar project. It was not to be a 16mm Mitchell or an Arriflex 16BL or an Eclair NPR—but rather the least probable 16mm sound camera on the market: Cinema Products' CP-16R. This handsome little machine had been designed specifically as a television newsreel camera and, as such, had achieved an enormous success—but a *studio* camera? They had to be putting us on!

Further investigation turned up the fact that the CP-16R had, through intensive impartial testing, proved to be the quietest-running of all the professional 16mm cameras considered. Moreover, it was the most adaptable for modifications to provide the options

(LEFT) Actor Hal Holbrook, made up to bear an uncanny resemblance to President Abraham Lincoln, studies his lines between set-ups on location for the filming of "SANDBURG'S LINCOLN", a series of six one-hour television films produced by David L. Wolper Productions for airing on the NBC network. (RIGHT) A segment of the White House was built in Lacey Park in Los Angeles, with the remainder of the building being matted in





(LEFT) The face of Lincoln, as restructured onto the features of Hal Holbrook by makeup artist Charles Schram. (CENTER) A scene in which Lincoln holds a Cabinet meeting. White House interiors of the time were meticulously recreated on Paramount Studios sound stages for the series. (RIGHT) Director of Photography Howard Schwartz, ASC takes a light meter reading on the set.

necessary to a studio camera. In our tight little world of film-making, this, indeed, was news!

Talks with Howard Schwartz, ASC, the highly imaginative Emmy Award-winning cinematographer who had been selected as Director of Photography on the Lincoln series, sparked my enthusiasm even more. He was genuinely excited about the project and, being an old pro at the game, he was not one to get excited over something that did not substantially warrant such excitement.

Meanwhile, Cinema Products President Ed DiGiulio and his corps of talented gnomes were feverishly modifying two CP-16R's in their workshop. Alan Gordon Enterprises Motion Picture Production V.P. Jim Martin (who is also gnomelike, in an endearing sort of way) kept me apprised of the progress.

A bit of journalistic scouting and patrolling added to my knowledge of the project. As I've already mentioned, it was to consist of six filmed one-hour plays wrought from the exhaustive biography of Lincoln written by the legendary American poet-biographer, Carl Sandburg. Each teleplay would detail a separate facet of Lincoln's character. "MRS. LINCOLN'S HUSBAND" (to be aired Sept. 6 on the NBC network) would be shot from a script by James Prideaux to depict Lincoln's domestic life. Later episodes would deal with Lincoln as a philosopher (script by Jerry McNeeley), a politician (script by Loring Mandel), an unwilling warrior (script by Jerome Lawrence and Robert E. Lee), the President (script by Philip H Reisman, Jr.) and as a young beardless country lawyer (script by Irene and Louis Kamp; story by Emmet Lavery).

The separate segments of the cycle (rather than *series*) of plays would not be shown consecutively within a short time span (weekly or monthly), but would be aired on NBC over a two-year period (three this season, three next

season) as part of the network's Bicentennial commemoration. The very able (and affable) George Schaefer would function as Producer-Director for the entire project.

When shooting began, I kept hearing rumors emanating from Paramount Studios (where the films were being shot) to the effect that the fantastic makeup necessary to transform Hal Holbrook into Lincoln took almost three hours to apply. My first direct contact with the project came when I was invited to come over to Paramount (at six o'clock in the morning!) to photograph the transformation taking place. One must sacrifice for one's art—so I readily agreed.

I arrived at Paramount with Jim

Martin (bright-eyed and bushy-tailed at that ungodly hour) to find makeup artist Charles Schram bustling about, arranging the various "appliances" (pieces of molded plasticized rubber) which would be used to literally rebuild the structure of Holbrook's face to duplicate that of Lincoln's. Schram showed me a book of photographs of Lincoln, taken at various stages of his life, which had served as models for the "resculpturing" of Holbrook's features and he said that he had to pour a new set of appliances (using molds) each night, because an individual set (seven pieces) would grow too "tired" during a single day's shooting to be used again.

At this point the star of the show arrived and I was introduced. I had

Cinematographer Schwartz and Producer-director George Schaefer contemplate the CP-16R camera, as modified by Cinema Products engineers for studio production use. It looks very small when mounted on the dolly head standard for large studio cameras. If Schwartz and Schaefer look a bit skeptical here, their skepticism rapidly disappeared, as the diminutive camera turned out a consistent stream of sharp, steady pictures. (Production photographs by BOB FULL, FRED SABINE and PAUL BAILEY.)





Lincoln reads by the light of a kerosene lamp. Since all of the interiors of the time were illuminated by candlelight, lamplight or fire-light, the sets had to be lighted warmly without distorting makeup.

never met Hal Holbrook before but had long admired his work, considering him to be one of the few truly great American actors. In person, he is pleasant, quiet, very low-key, almost bland—as though he is husbanding his tremendous creative energies to conserve them for the next performance.

He nibbled at a plate of tired-looking breakfast which had been brought in, as Schram got his paints and potions

ready. This was the last solid food the actor would be able to eat until the makeup had been removed late at night. During the long day (because his lips are covered with rubber “appliances”) he would be able to eat only dry food that had been cut into tiny squares which he would push through his rubber lips with a toothpick. He would drink through a straw.

As the painstaking makeup was applied, Holbrook listened to his dialogue which he had recorded on a cassette. At various stages in the transformation of his face, I moved in to photograph closeups, practically shoving the lens down the poor fellow’s throat in the process—but neither he nor Charlie Schram complained.

A thin latex skull cap was applied to completely cover Holbrook’s hair and blend in with his skin. Then, in turn, appliances representing oversize ears, forehead, nose, lips and cheekbones (one of them complete with the famous wart) were very carefully cemented to his skin. With each new addition his physiognomy was radically changed. It was like watching instant plastic surgery.

When all of the appliances were in place, an overall base makeup was applied, which completely obliterated the boundaries of the rubber pieces. Then a wig, beard and false bushy eyebrows were added, after which Schram very carefully penciled in a complex network of “wrinkles” and facial lines. A final powdering, and there sat Lincoln—or, at least, an absolute duplicate of one of the photographs I had seen in the book.

Later, on the set, I saw the transformation become complete. In the proper



Mary Todd Lincoln, played by actress Sada Thompson, brings a quilt to put about her husband’s shoulders, as he sits writing in the garden of the summer White House. The sequence was filmed in Pasadena, California.

wardrobe, and wearing slightly built-up shoes, Holbrook loomed as a tall, gaunt, almost emaciated figure, but with a peculiar dignity. He spoke his lines with an authentic folksy, rural Indiana twang. Holbrook had completely subdued his own personality and had almost literally become Lincoln—or at least Lincoln as I had always imagined him to be in every detail. An absolutely uncanny characterization!

(LEFT) Lincoln speaks to an anti-war mob on the portico of the White House as he is about to make his fateful decision to bring the nation into war in order to preserve it. (RIGHT) The CP-16R camera, mounted on a crane, is positioned to film crowd on a White House staircase. The series of six high-budget films portrays Lincoln at six different times of his life, revealing little-known facets of his character.





Beginning at top left (and continuing left to right), this series of photographs by the author shows various steps in the almost three-hour process of transforming the face of actor Hal Holbrook into that of Lincoln. First, Holbrook's hair is covered with a latex skullcap. Then seven rubber "appliances" are added, representing false ears, cheeks, nose, forehead and lips. A wig, false beard, eyebrows and wrinkles complete the amazing facial reconstruction. Makeup artist Charles Schram had to create not one, but six such makeups to portray Lincoln at various ages.

The sets on the Paramount sound stage (rooms of the White House, in this case) were sumptuous and scrupulously authentic down to the smallest detail. The lighting was mood-filled and careful. No expense was being spared to make this series an elegant masterpiece. It was first-cabin all the way.

The little CP-16R camera, with its grown-up matte box and viewfinder, looked a bit amusing in the context of all this super production, especially when the tiny little thing went soaring high up on a Chapman crane, but the crew treated it with respect and affection.

Producer-Director George Schaefer,

one of the most genial men I've ever met, moved confidently about the set, sure-footed pro that he is. He knew exactly what he wanted for each set-up and never once lost his cool. It was easy to see that the crew felt great affection for him, as well as tremendous respect.

At noon I was invited to view dailies. Holbrook spread out flat on his back on the floor of the projection room as the lights dimmed and the scenes were flashed upon the screen.

Although we were watching one-light workprint (which had made a few abrasive trips through the Moviola), I was stunned by what I saw. The picture was of superlative quality—beautifully

photographed, rock-steady, ultra-sharp and clear. I would defy anybody to be able to tell it from 35mm on the same size screen. It is, of course, too soon to make any definite predictions, but judging from what I saw, I would say that there may be a serious shift to 16mm color negative production for television, now that the new negative is a reality.

It was a great thrill to observe the filming of this prestigious series—historic in more ways than one. But I expect that it will be an even greater thrill to view the first of the six plays, "MRS. LINCOLN'S HUSBAND" when it lights up the tube over the NBC network on the evening of Sept. 6. ■

# GEORGE SCHAEFER TALKS ABOUT "LINCOLN"

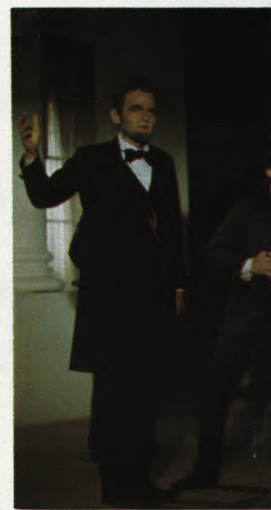
The Producer-Director of "Sandburg's Lincoln" discusses the visual style of the series and the techniques employed for achieving it

**QUESTION:** By way of introduction, would you mind discussing a bit of the background of the "LINCOLN" television series that you're currently shooting?

**SCHAEFER:** The series consists of six one-hour filmed episodes. The project is a David Wolper production and is being sponsored by the American Banking Association and Lilly Pharmaceuticals. Not only was the material itself enticing—because the thought of digging through Carl Sandburg's "LINCOLN" for six hours was most challenging—but also the fact that it was a complete package that would be handed to me to produce, direct and deliver to the network for airing was a major consideration in my wanting to do it. I was not up to getting involved with any helpful assistance from the networks at this point. It's been a very happy working relationship

with David Wolper and his organization. We set down all of that material in front of us and did a lot of reading and a lot of thinking, because, as you know, the source material consists of six huge volumes. There's no way to tell the whole story on the screen, so we've finally adopted this philosophy: We've selected six aspects of Lincoln, six sides of him—the young prairie lawyer; the politician; the family man (husband and father); the sage, wise judge of men; the president; and the military man (then called "the unwilling warrior"). We chose these aspects of Lincoln and assigned a separate writer to each of the six of them, and said: "Now, you go through the Sandburg material and pick out some specific part of Lincoln's life that we can center in on and make into a one-hour dramatization. These films are not documentaries. They all spring from Sandburg and we are trying to be

very true, not only to the spirit of Sandburg, but to what really happened. They are dramatizations, plays—we hope—with a beginning, a middle and an end to each one. We're trying to show a facet of the man in 48 or 49 minutes, which is all the prime time we get for each segment. It's been hard, but it's worked, I think. It's interesting to note that we decided to avoid all the things about Lincoln that have been dealt with before. So we don't have any of the big speeches or debates and Ann Rutledge isn't mentioned. We don't go to New Salem and the Emancipation Proclamation isn't included. We've really avoided the things the audience has already seen, on the theory that they might get fed up with seeing the same old things over and over again. Instead, we show interesting new facets of the man. Of course, we're so glad Lincoln is being played by Hal Holbrook, who catches exactly



Rich, but subdued color characterizes these scene from "SANDBURG'S LINCOLN". No attempt was made to lend these films a "documentary" look. (BELOW CENTER) A section of the White House was built in Lacey Park in Los Angeles. For longer shots, matte paintings of the executive mansion as it appeared in Lincoln's day extended the scope of this small set. (BELOW RIGHT) Antique trains were pressed into service for the filming.



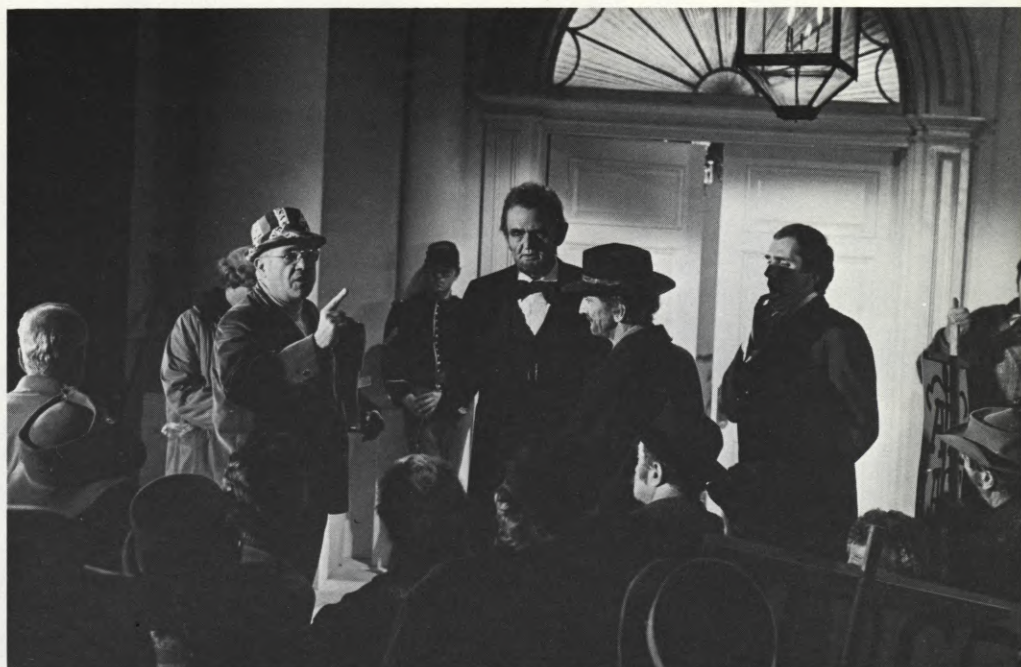
what Sandburg had in mind. He takes Lincoln right off the pedestal and makes him a breathing, real person—the kind of man I think we'd like to find for our country today.

**QUESTION:** It's interesting that you speak of these films as "dramatizations" rather than "documentaries" and, of course, I'm fully aware of the distinction in terms of creative approach—but in the technical execution how do the two forms differ, would you say?

**SCHAEFER:** Well, the major technical difference, really, is that we're shooting each film as if it were a piece of fiction. We're shooting it just like we would a modern police story, or "MEDICAL CENTER", or a "Movie of the Week", or a feature, for that matter—in that everything has been designed. The clothes were designed; everything was constructed and lighted and composed as though we were doing a complete work of fiction. The fact that it is all based on history, and many of the events and the words are actually as they took place at the time, doesn't change that approach to it. On the other hand, if you're doing a documentary, the whole approach is as if it were actually happening. You catch everything on the fly. You use hand-held equipment. The excitement of documentary is to get it as it's happening. Well, what we're filming is all re-created; there is nothing that is being shot in the "reality" style at all.

**QUESTION:** Some producers, when re-staging history, try to give it a documentary "feel"—which usually boils down to a rough-hewn look, a certain technical rawness.

**SCHAEFER:** Yes, some attempt to make the film look like it's older film, and we started out to do that in this case. For one thing, the David Wolper organization has been so identified with documentaries; they've done so many absolutely brilliant documentaries. They did a "documentary" on Lincoln last year which made you feel that you were actually sitting back and observing these things—and even though they had all been re-created, they were photographed and processed in such a way as to look like they might have been really happening at the time, with you, the audience, watching them from far away. Our approach to Lincoln's life, however, was to be on the other side of the coin, while getting right inside Lincoln's family and Lincoln's head. So we have pulled back and used quite a different style. To have tried to get a documen-



Producer-Director George Schaefer, wearing his "patriotic" red, white and blue hat, instructs extras on reacting properly to Hal Holbrook's speech in night scene. Gaslight, candlelight and firelight are the established sources for all practical interior illumination throughout the series, so the cinematographer photographed these scenes in warm light.

tary feeling would, I think, have destroyed the basic approach—which was to try to find out how the man ticked. The footage we're shooting is not stylized in any way. I suppose that some people watching it will feel that it's really happening, but there has been no attempt to use devices to make them think they're watching old film.

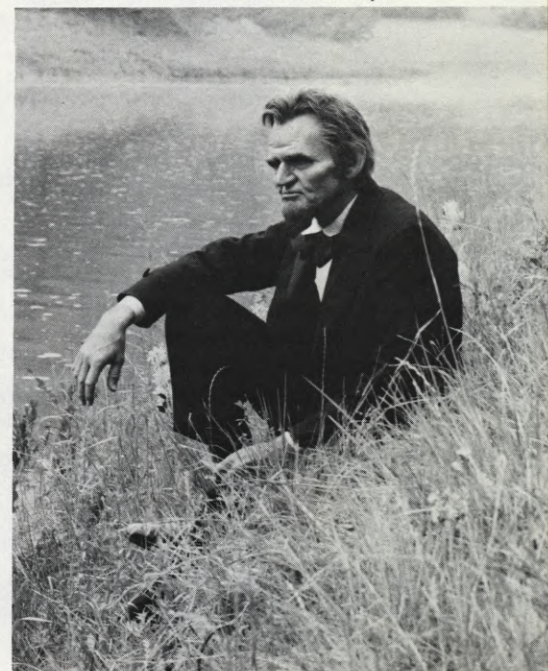
**QUESTION:** In working with your Director of Photography, Howard Schwartz, on the visual aspects of these films, did you arrive at a particular photographic approach that is distinctive?

**SCHAEFER:** We had several meetings and discussions to begin with about how to approach the material visually. The style that most people associate pictorially with this period is probably that established by Brady in his photographs, especially the portraits he took of Lincoln. They reflect all the problems of black and white photography of the time—the sharp contrast and the bright one-way light that give him those big black shadows under the eyes, which probably wouldn't have been there if they'd had modern lighting equipment to photograph him with. So, with a little of that in mind, Howard has, I think, been reaching for what you might call an "etched" quality, in the sense that he's avoided having anything look bland or pretty. We're not fighting the fact that the films are in color or that some of the events, particularly in the White House, are colorful. We simply decided

not to superimpose a distinctive visual style. We don't want people to say: "Oh, that looks like an etching." or "That looks like an old film." Rather—hopefully—people will feel that they are participating in the events taking place.

**QUESTION:** You're working with some new technology on these films and, basically, it shouldn't affect the staging or direction in any way—but I have the

Lincoln sits alone in a meadow on the afternoon of his death, after having taken Mary Todd Lincoln for a drive in the country.



feeling that there may have been a certain spillover, due to the fact that you're using the new Eastman 16mm color negative for the first time on a major network show, and also the little Cinema Products newsreel camera, which has been converted into a studio camera for this project. Do you have any observations on that?

**SCHAEFER:** Yes. In the early weeks of shooting it seemed like quite a hazard, as we were all getting used to it. But in the last six weeks I must admit that I no longer even think about it or worry about it, because the quality of the work we've been seeing in the dailies seems to be absolutely first-rate in every way. We have been—and still are, I must say—conscious of the slight problem of handling the more delicate film, but I protect myself. There was a period when I abandoned caution and said: "Well, now we are so secure that if I get a single good take I'll hop right into the next set-up." That's what I would ordinarily do when I'm shooting for TV in 35mm, because you don't really have the time to do any more. But in several cases I've got stuck with film that was, in some way, damaged in the developing and we've had to edit around one or two moments—so I'm not risking having that happen again. I'm shooting everything on the assumption that any one piece of film can get hurt in the process and I can still get what I want. This does mean extra takes at times, and on anything that I'm not covering with alter-

Lincoln, with his son Taddy and pet goat, goes by carriage from the White House to the summer White House. The intent of the "SANDBURG'S LINCOLN" series of six films was to show several different facets of the President's character and personality, as exemplified by various stages of his career. Purposely avoided were incidents with which the audience might be over-familiar.



nate angles, I definitely give myself one protection take. That's probably a pretty good idea in any event—but particularly so in view of the delicacy of the 16mm negative film and the fact that we did have, in the early days, some problem with the developing. Overall, I must say that the quality of the dailies seems to me to be remarkably good.

**QUESTION:** Since these extra takes for protection which you've mentioned inevitably require a certain amount of extra time, have you found that there is any making up of that extra time, due to the fact that the camera equipment is smaller and should permit moving around a bit faster?

**SCHAEFER:** Not particularly. I do think that in one or two cases, where we were using two cameras and putting them side-by-side to get two different sizes on something, the fact that they could be placed so close together was a pleasant advantage. We've been trying to get a feeling of realistic sets, which means that some of the rooms in the hotels and early offices were very small—as they were in Lincoln's house in Springfield, which we duplicated foot-for-foot. I feel that when we were working in those tiny rooms the smallness of the camera definitely gave us a certain advantage. When we use the little camera on the same dolly we would use for a 35mm camera it really doesn't make that much difference, however. In

our early days of shooting it took a while for the operator—using the smaller and lighter camera—to get used to some of the crazy moves I like to make, because you have only half the panning surface for those quick and difficult moves. But I must say that the camera boys got used to it fast and were able to handle it with the same skill as with the 35mm camera. The advantage is obviously a fiscal one. The Wolper people feel that it's going to represent a tremendous savings to shoot in 16mm a series intended to be shown only in 16mm—for television and, eventually, in schools. They can work from the original, rather than having to reduce from 35mm. So there would seem to be a certain logic in applying that savings to other elements, such as costumes and scenery—areas where we really could use it on a project like this.

**QUESTION:** When you speak of "the crazy moves I like to make," I would assume that you have a basic attitude toward the moving camera. Can you tell me a little bit more about that?

**SCHAEFER:** Yes. I have an overall philosophy about camera movement—one which I followed early when working in television and later in films. In general, it's simply that the camera doesn't wander around by itself. I invariably tie camera movement to that of the actors, so that when it's all put together, hopefully, the audience doesn't have the impression that the camera has moved very much—whereas, in actual fact, some of the best things I've done in the past have had the camera moving incessantly, but you were never conscious of it. I think that as soon as the camera starts to float around by itself, you are in another world. Now, in this production, contrary to anything I've ever done, I have, in a number of cases, made absolutely arbitrary camera moves in a setting. I don't know why. It just seemed to fit the style. There is a certain historical feeling and there are moments when you feel the need to move around. In general, I have shot this, I would say, between 80% and 90% the way I would if I were doing it as a feature—and there have been tremendous amounts of coverage. The essence of these films is going to be the performances of Hal Holbrook and Sada Thompson and the interplay of the tremendously fine supporting cast that we have. If you're really going to get in close enough to watch the eyes and all that, you have to prepare for lots of cuts and lots of editing time.

**QUESTION:** Then you feel, actually, that you've broken this up more than





(LEFT) Preparing to shoot a scene with Sada Thompson, as Mary Todd Lincoln, in the garden of the summer White House outside of Washington. The scene was actually shot on a private estate in Pasadena, California. (RIGHT) During filming of the summer White House garden sequence, Director of Photography Howard Schwartz, ASC (left) discusses camera position for an upcoming scene with Producer-Director George Schaefer.

you would an ordinary film made for TV?

**SCHAEFER:** Yes, I would say so—although I haven't really done an awful lot of TV film. My years in TV were almost entirely electronic. So the only compromise I find that I've made in the relatively few films I've shot specifically for TV has been the avoidance of some of the very exciting wide shots that one might take the time to do for the big screen. Other than that, the F. Scott Fitzgerald film I shot in Georgia last

year, *"THE LAST OF THE BELLES"*, had a beautiful cinematic look, I thought, as did the one that I did in Ireland the year before, *"THE WAR OF CHILDREN"*, which was lucky enough to win the Emmy as the best show that year. With the exception of that certain freedom to use wide shots, both of these pictures were filmed exactly the way I would have shot them as theatrical features. So I've just been spoiled. I must admit that I've never had to work under the time pressures where they tell you that you've got just six days to do an hour feature. We're taking eight days, and using every bit of them; yet, I haven't felt the need for more time. I think that eight days for this particular kind of subject—with the great majority of the work being interiors—is just about right. I would not have wanted to try to do it in seven, and it would have been absolutely impossible to do it decently in six.

**QUESTION:** With the exception of some exterior shooting which, as I understand it, was done on the backlot and on nearby locations, most of the footage for this series has been shot inside the Paramount sound stages. What is your attitude toward shooting in actual locations, as opposed to filming on studio sound stages—assuming that there's a choice?

**SCHAEFER:** Well, I've done a lot of shooting in actual locations and I've enjoyed doing it, but I'm not one of those who feels that it's the making of a picture. Strangely enough, on this project we've done quite a bit of exterior shooting—more than one would think. We've shot three days on locations in

the Franklin Canyon area; we've spent a couple of days in Lacey Park, and we were over in Pasadena for another day. We still have three days of various exteriors to shoot—two of them with trains. I would say that out of the overall eight-day schedule on each show, we've averaged maybe two of them outside of the studio, in order to give them some horses, the army and scope to it. I find that there are tremendous disadvantages to the full-location sort of project. Both of the films for television which I've just mentioned were done completely on location. For the one shot in Ireland, we were constantly having to compromise in order to shoot inside those tiny rooms in the Irish homes. I would have loved to be able to knock the walls out in order to do some other things, but perhaps the reality of being there made up for it. I doubt it, though. On the other hand, the exteriors had to be there and they served us wonderfully. The Scott Fitzgerald picture we shot entirely on location in Savannah, Georgia, without a moment in the studio, and I loved the look of it. That film really did have a flavor, both interior and exterior, that would have been very hard to capture if we had not gone to a city like that. On these *"LINCOLN"* pictures, however, we were really locked in. There was a day or two of shooting that we could have done in Springfield, and if we had been able to get permission to shoot at the White House, we could have shot one section of it. But because things have changed so much around there, we probably would have ended up building our own section of the White House in Lacey Park. If anybody said to me: "We can get a location that

Continued on Page 1088

On the backlot at Paramount Studios, a scene is shot in which Lincoln and his younger son observe the grim immediate aftermath of war.



# Introducing Compact's Bird's-Eye View of the World.



It's an exciting point of view that you could get only on film. Until now.

Now, with our new videotape helicopter package you can shoot aerial photography on videotape as simply as film—and view your results instantly.

Our videotape package incorporates National Helicopter's reliable fleet of choppers and Continental Camera Systems' Mark 20 videotape camera mount featuring motorized lens controls and variable speed motors for zoom and focus lenses. (The Mark 20 is the same mount that shoots vibrationless 35mm and 16mm film.) The lens complement includes the Canon 15:150mm zoom lens (with optional

extender).

We've integrated our new PCP-90 battery-powered camera system (designed for perfect intercutting with our famous hand-held PCP-70's) and on-board VR-3000 recorder with 22-minute record capability and on-board instant monitoring. When you're not running power off the PCP-90, you can switch to the helicopter's own 28-volt generator. And an air-to-ground intercom system keeps everyone in constant communication.

Find out how you can combine ground and air videotape production in a single day for one low rental price.

You'll like our new view of the world.

For an appointment to see our helicopter demo reel, contact Newt Bellis, Lou Selener or Sharon Dennison.

**compact**  
VIDEO SYSTEMS, INC.

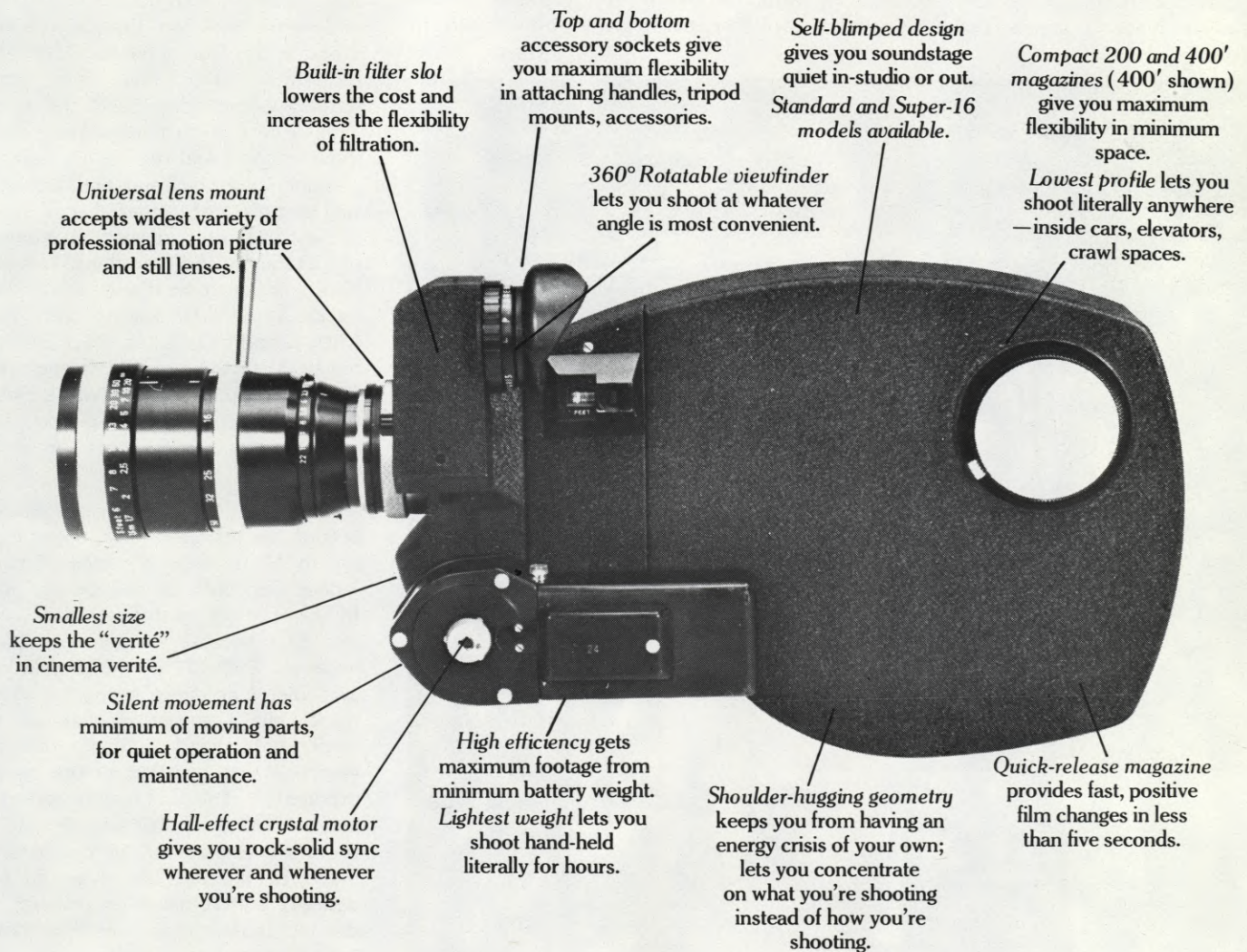
A Step Ahead...  
and Up

2813 W. Alameda St.  
Burbank, Calif. 91505 • (213) 843-3232

# Keep your options open.

It's only common sense: the more versatile you are at your craft, the more in demand you're likely to be. So the last thing you can afford is a camera that type-casts you... by restricting you in style, technique or location. With that in mind, we designed the ACL for maximum versatility in all types of surroundings, on all kinds of shoots.

A brief look will show you what we mean, and a demonstration will be proof positive. For more information, and a list of franchised Eclair dealers, call or write.



## eclair corporation of america

Eclair Corporation of America, 62 West 45th Street, New York, N.Y. 10036 (212) 869-0490.  
7262 Melrose Avenue, Los Angeles, California 90046 (213) 933-7182, Telex: 14-7208.

# BEHIND THE CAMERA ON THE "LINCOLN" SERIES

Emmy-winning cinematographer discusses the technical details of filming with the 7247 16mm negative and a famed newsreel camera which has been modified to serve as a studio production camera

By HOWARD SCHWARTZ, ASC

Abraham Lincoln, Hal Holbrook, George Schaefer, David Wolper, a big-budget show for TV and 16mm suddenly entered the scene for me for the new TV season.

When George Schaefer called and asked me to do the photography on a series of six one-hour TV shows to be made from material taken from Carl Sandburg's Pulitzer-Prize-winning Lincoln biography, that he would both produce and direct for David Wolper, I was delighted and quickly accepted. Later George said he was attempting to get Hal Holbrook to play Lincoln, which made it appear to be an even

more exciting project. It surely turned out that way.

We met a short time later at George's Century City office and he explained his concept of the project, the type of material he was using from the books and his visual concept. Believing the project would be filmed in 35mm, we discussed desaturation, flashing, toning, and various methods of giving the picture a look of the 1860's, which really represented the feelings in people's minds taken from the black and white still photographs of Matthew Brady, who, besides his photographs of the Civil War, made many portraits of Lin-

coln in his gallery in Washington, D.C., as well as at the White House and in the field.

The illustrated book that we used for historical accuracy is Stefan Lorant's "LINCOLN: A Picture Story of His Life", a very readable book of the period, full of enjoyable pictures by Brady and others.

The decision on how best to create this mood was shortly to cease to be a matter for us to decide. Tight budget dictated many of our decisions and eliminated many of our prerogatives. It seems that when David Wolper made his deal with NBC on the six one-hour shows it was from a general concept of the show rather than from actual scripts. George developed the scripts with writers of his choice. He chose to show intimate and less familiar glimpses of Lincoln as husband and father, as well as president, rather than the well-known and often re-enacted moments of history. By the time the scripts were nearing completion it was evident that we would have large costs, particularly when Lincoln had taken office and with the type of people to be cast, the size of the cast, duplicating the White House, the burning of Richmond, period trains, and period wigs and beards. We needed to cut costs.

At this time Phil Wylly, Wolper's production manager, first suggested going to 16mm as one means of saving money and both he and George asked for my feelings in this regard. My view was that because of the new 16mm negative, Type 7247, which was now available, I certainly thought it would work, but I suggested that we test amply beforehand to make sure that everyone was satisfied before starting production. This was readily agreed to, but unfortunately, because of Hal Holbrook's unavailability, we didn't test as much as the lab and I would have desired, both because of makeup and the lab experiencing their first shot at the new negative.

While we are on the subject of savings on raw stock and lab costs, Phil

(LEFT) On Paramount sound stage, Director of Photography Howard Schwartz, ASC lines up diminutive Cinema Products CP-16R camera on the Chapman crane for scene in "SANDBURG'S LINCOLN".





(LEFT) The author removes from the CP-16R camera the barney which was affixed to it a tape reading "Italian Panaflex". This is the crew's private joke for the benefit of Cinema Products President Ed DiGiulio. Camera operator Mike O'Shea behind the camera. (RIGHT) Reflectors are used to provide soft fill light for filming of exterior sequence. The series of six one-hour plays depicting various facets of the life of Lincoln was shot with all the care of feature production—but on a television schedule.

had estimated that we would save twenty thousand dollars on each hour segment by going in 16mm, a worthwhile savings. My feelings were that the figure was perhaps 50 per cent too high, but still a substantial savings. It is still a little early to have a solid figure of our costs, but Phil has provided the figures shown here based on the first show to be aired, "MRS. LINCOLN'S HUSBAND", which, at the time of his statement, was in final cut from a work print without music, effects, and dubbing. Another cost figure for 16mm was obtained from Bill D'Angelo, producer of "RUN, JOE, RUN" an outdoor 16mm half-hour program for Saturday morning showings. Bill had just completed his 13 segments and he estimated a savings of between three thousand and thirty-five hundred dollars a show. In addition, he felt he saved between a half and a full hour of shooting time a day on his show, which was shot in rugged terrain, and 16mm allowed him to move faster. Since most of Bill's show was shot in available light with no booster, it allowed him more setups per day. In our case it was not a savings time-wise, as it was a different type of show where we had sustained scenes that had to be lighted. However, it sure made it easier for the crew to move the camera around outside and particularly in the crowded quarters on the railroad cars.

For the sake of the record, for any of those who may think that you use less light when shooting in 16mm—or smaller lighting units or a smaller crew—it just isn't so. The sets are all the same size and you are basically saving on raw stock and lab costs. Fortunately, the new 16mm negative (7247) has a speed of 100 ASA for interiors and 64 for

exteriors with an 85 filter. This is the same speed as the old emulsion 7254 and the 35mm emulsions 5254 and 5247. This speed allowed us to consider using it in the first place, plus its fine grain, as we could not go higher than a key of 225 foot-candles for day interiors without making life miserable for Hal Holbrook under that heavy makeup. As it was, about the middle of the second show, Hal started fading from the heat and we had two air conditioners on the set from then on.

We considered four cameras for our first test, the Arri 16BL, Eclair NPR, Maurer, and Cinema Products Reflex. After Mike O'Shea, our operator and Rick Neff, our assistant, along with Glen Anderson, our mixer, looked them over and listened to them we decided to go with the Cinema Products Reflex. Tests in the camera department at Paramount proved the CPR 16 to be quieter than the Arri and the Eclair, at least on the cameras we tested. We didn't seriously consider the Maurer since it has reflex focusing, but didn't permit use of a zoom lens without a finder.

We then went into photographic and sound tests. We tested both the Arri and the CPR and, as we had observed in the camera department, the CPR was the quieter. We tested many lenses to get the ones that gave us the best definition, finally selecting, after resolution tests on a chart and actual filming on the set, two Angenieux lenses, a 9.5-95 and a 12-120, plus a 10mm Schneider Cinegon and a 5.9mm Angenieux lens. George Schaefer had said he would be willing to go with flat lenses if we had trouble finding good zooms. However, with help from Jim Martin of Gordon Enterprises who got Angenieux in New York to

select two fine lenses which were tweaked here at their Venice plant, we were in business lens-wise and camera-wise. The proper use of the zoom lenses saved us tremendous amounts of time and we only took them off when we needed a wide angle lens.

We received great cooperation and help from Ed DiGiulio as well as Jim in eliminating bugs and keeping the equipment in fine shape. We couldn't resist, as you will see in one picture, taping "Italian Panaflex" on the barney we used on the CPR and it produced many a laugh and you can imagine DiGiulio's reaction when he was on the set.

We discovered an interesting thing sound-wise. The first week we were getting bounce noise off the McAllister dolly. We switched to a Fisher and it eliminated that problem, besides being a fine dolly that will get you as low as a high-hat will.

There are two other features that are desirable and being worked on by Ed to improve the CPR for production use—first, lengthening the viewing tube and getting it farther away from the magazine so that the operator can keep his eye in it while making a 180-degree pan, and the other is making a BNC-type focus knob for the assistant. We used an upright image viewfinder extension from an Eclair on the CPR on this show.

One other thing about the camera which has been corrected in the models now being produced: the camera speed switch is easy to move accidentally and hard to see under the barney we used.

We tested Hal Holbrook's makeup and, on the first test, it went too light. We made a second test and on this Charlie Schram darkened it considerably and the consensus was that it was



Scene showing the Lincolns leaving the White House to go for a carriage ride on the afternoon of the President's death. Noted character actress Sada Thompson plays the role of Mary Todd Lincoln. A great deal of care was given to the casting of the series, resulting in a roster of excellent actors to portray the historical types.

correct, although it tended to go toward the chocolate side. We didn't have time for a third test, as Hal went into rehearsals the next day and, since it took three hours to make him up and time was of the essence, we went along with the second test. The reason we started testing so late was Hal's availability. He is such a dedicated actor that he went back to Kentucky, prior to shooting, to an area where Lincoln grew up, in order to listen to and tape record for further study the dialects of the people

Director Schaefer and Cinematographer Schwartz look fetching in their custom-designed millinery—floppy wide-brimmed hats that look funny, but offer fine protection from the sun.



there. During our tests we tried a number of different gels to get the proper feeling of candlelight and gaslight and decided on a 54 which was used on all night scenes where a light source is in evidence.

The practice of the labs, on Eastman's recommendation, is that if you desire an extra stop of light you should, by prior arrangement, mark your magazine tickets shot at 200 ASA" and they can give you an extra stop of light, either in printing or by conventionally forcing the development by one stop. If you are two stops underexposed you mark your tickets "shot at 400 ASA" and the lab will force develop one stop and print-up one stop. We tried this on our tests with mixed results. We shot all footage on the show at 100 ASA. The new emulsion cannot be force-developed two stops without seeing a significant shift in color balance. This is why I and an increasing number of Directors of Photography are asking Eastman Kodak not to deny us the use of the old emulsion by taking it off the market until such time as the new film can be force-developed two stops without contrast mismatch problems. There are occasions when you need the two additional stops of speed and, for that reason, I have requested Eastman not to deny us a tool they gave us with the old emulsion that works so well and results in significant lighting savings on natural-light night exterior photography.

We also tried flashing on our tests. However, we abandoned the idea after seeing the softness it created which we certainly don't want in 16mm.

In talking with Bill Bickford of Moviellab, I discovered that he has some reservations about the new emulsion. He feels that the reason the labs were having trouble timing the new emulsion is that it didn't track consistently on the Hazeltine color analyzer that is used for color timing, as did the old emulsion. Dr. Rod Ryan at Eastman admits that is true. This forced the labs to go back to eyeball timing and to rebuild the Hazeltine for the new emulsion.

We started having timed prints on our dailies and on the third day's dailies I saw a print that I liked in every respect. We gave CFI the scene number and asked them to check their printing lights color-wise, as they use an additive printer, and to put us on a one-light print of those exact lights from then on. This worked very well and after seeing several days of dailies this way, I suggested to Charlie Schram that he lighten Hal's makeup and our results have been even better and more consistent since.

Hal's makeup is a whole story in itself and as you can see, it is great, as shown by Bob Full's cover shot, *American Cinematographer* Editor Herb Lightman came in at 6:00 a.m. with Hal and Charlie Schram one morning to shoot the stills of the makeup and get the full story. I never have seen a harder-working or more competent makeup man than Charlie. He is constantly by the camera when we are shooting, attendant to Hal's makeup, and if he feels that the makeup doesn't look good and is obvious, he tells me and I move the key light to correct the situation. This happens only occasionally and it is usually late in the day when the makeup gets tired.

Speaking of makeup, on the overall show with the other actors, it is the most natural appearing makeup I have ever photographed; the flesh tones look real. The makeup we have been using is one I have never used before. It is made by our makeup man, William Tuttle, and it is very light and gives a natural skin tone. It is called Custom Color Makeup Foundation and is a cream type makeup which requires little or no powder and gives a natural glow to the skin instead of a greasiness. It is applied very thinly in the desired color and value, thus does not build in facial lines or creases and is sufficiently transparent to allow the subtle natural skin tones. It is also unique in its ability to lighten a dark skin, subdue sunburn redness, or darken light complexions while still retaining a natural translucency without

the visual and photographic side effects of milkiness, streaking or blotching, and works equally well with either oily or dry skin. More information can be obtained from Bill Tuttle who was the head of the makeup department at MGM for years.

Another interesting fact is that we are delivering the project in 2-inch tape to NBC. George Schaefer felt that in this way we could improve the sound track by a generation through transferring from the original tape, and can even enhance our 16mm CRI print from which the picture will be transferred. In case all of you don't know it, many of your film programs shown on network prime time are transferred to tape anyhow before they are aired. This is done in order that the shows and commercials can be properly integrated and blended, so that the dial twisting and corrections are made before airing and not during it. This has been going on now for several years. Conrad assured me that if I am available at the time of the transfer from 16mm to tape, I will be in on it. I am really looking forward to this, as this should be most interesting.

In regards to the new emulsion, it seems to have great latitude, as is indicated by the fact of the wide range of printer lights that the lab can give you without force-development. I feel sure it is at least a quarter of a stop faster in speed than its published rating. It appears to have more contrast than the old emulsion and, consequently, requires more fill light for the same effect. According to our contact man at CFI, Elby Cuniberti, my printing lights are as follows:

	Red	Green	Blue
Day Ext. Location	41	23	22
Int. Day and Night	41	23	21
Night Ext.	41	23	22

This averages out to 29, which is quite close to what CFI considers the middle of the scale, 27. When asked if they wanted me to bring it down to 27 by taking a one-quarter of a stop more on the lens, they said no, that it was great as far as they were concerned and to leave it alone. The reason I was concerned about my printer lights was to make sure the negative was the proper density and would give us a high quality CRI print. Since this is one of the first big-budget prime-time shows to be shot in 16mm we have had Eastman engineers constantly reviewing our rushes.

The Eastman people have been quite pleased with the overall quality and Wolper executives have run the material over closed circuit to their satisfaction.

One thing about 16mm that requires special attention is the handling. Dick

Barlow, the Paramount camera department head who has been very helpful, instructed the loaders to put our exposed rolls into 35mm cans so that there would be no danger from forcing the exposed film into 16mm cans, thus causing scratches and cinch marks. In 16mm everything is printed, which causes the editors to spend more time in assembling the dailies. Bill D'Angelo asked my advice on a dimpling or notching system, such as is done on 35mm to save print and development cost plus saving the editor's time. My answer was to forget notching, as with any film the more you handle it the more chance for scratches.

One other way to avoid scratches is not to use collapsible takeup cores. Leave the cores in the rolls when you send them to the lab.

Eli Lilly and Company, which is sponsoring the show along with the American Bankers Association, asked my opinion through John Strauss of McFadden, Strauss & Irwin, their publicity representatives, as to the advisability of showing a 16mm print to a convention of two thousand of their people. Instead I suggested that they try a blowup to 35mm. I have not seen a full reel of the blowup yet, but have seen several scenes and the result is fantastic. No grain, great sharpness and resolution. However, the scene they blew up was done mostly on the tight part of the lens.

We did two matte shots in the show, filmed on 35mm, one of the White House and one of the burning of Richmond. Both were done by Howard Anderson.

We had a great time doing the film. Hal Holbrook and George Schaefer are



One for the album. (BOTTOM ROW) Howard Schwartz and Doug Digoia. (TOP ROW) Hal Holbrook, George Schaefer, Al Bettcher, Rick Cosko. Holbrook in makeup of Lincoln as young circuit court lawyer in Springfield, Ill.

two remarkable people who generate continuous enthusiasm which makes the time fly by. In addition, we had Sada Thompson, a lovely lady and fine actress who played Mary Todd Lincoln. Bill Neff was our gaffer, Pete Papanikolas was our key grip, the operating was done by Mike O'Shea and Al Bettcher, the assisting by Rick Neff, Rick Cosko and Doug DiGoia.

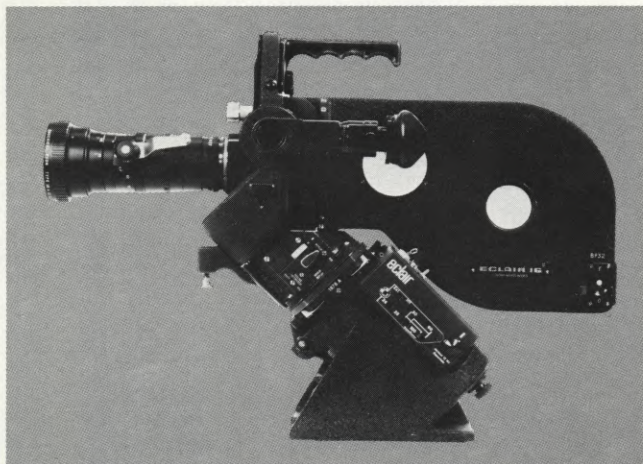
Having read about the show, I now invite you to tune in on NBC on Friday night, September 6, at 10:00 p.m. and draw your own conclusions on the new 16mm film. I assure you that you will be entertained by a fine story and some outstanding performances. ■

16mm and 35mm cost comparisons for shooting of one-hour show, including costs of raw stock, developing, work-printing and answer print. It would appear that there can be a saving in excess of \$15,000 per one-hour show. In the case of a series of six, this adds up to a considerable amount of money saved.

RAW STOCK COSTS	
16mm	35mm
23,325 ft. @ .88¢ per ft. = \$2,077.00	58,313 ft. @ 16¢ per ft. = \$9,330.00
DEVELOPING COST	
16mm	35mm
23,325 ft. @ 12¢ per ft. = \$2,799.00	58,313 ft. @ 10¢ per ft. = \$5,832.00
PRINTING COST	
16mm	35mm
23,325 ft. @ .1335¢ per ft. Printing all = \$3,114.00	40,819 ft. @ .1271¢ per ft. = \$5,189.00
ANSWER PRINT	
16mm	35mm
2,000 ft. from (A&B Roll) @ .8477¢ per ft. = \$1,696.00	5,000 ft. (1st. Trial Composite) @ .8486¢ per ft. = \$4,243.00
16mm	35mm
TOTAL \$9,686.00	TOTAL \$24,855.00
All Prices Are Standard Lab Quoted Prices As Of July 10, 1974	

# Imported from France. Again.

And available for immediate delivery.

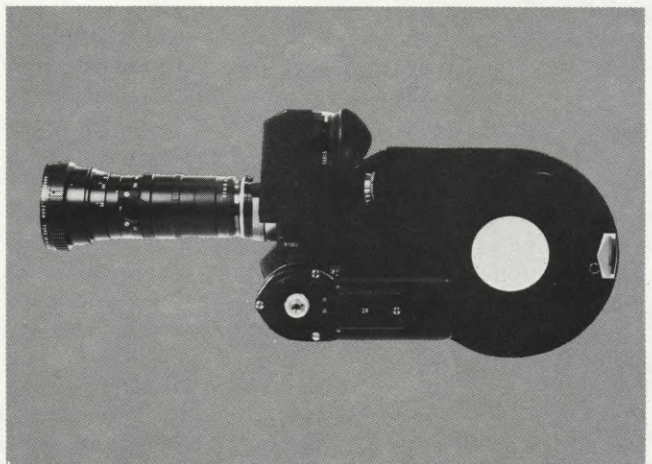


**Eclair 16mm NPR**

The precision, handcrafted French-made Eclairs are available again for immediate delivery. This includes the world-famous Eclair NPR and ACL cameras, plus the complete line of Eclair equipment.

The NPR is now outfitted with an improved BEALA crystal control motor that allows cordless sync sound shooting in addition to a selection of variable speeds. Plus, of course, all the other features that have made the NPR the premier 16mm reflex camera in the world.

The ACL has an all-new, heavy duty, variable speed crystal control motor that incorporates the most mod-



**Eclair 16mm ACL**

ern electronic components and offers total reliability plus filming speeds of 8, 12, 24 or 25, 50 and 75 fps. And, a complete range of instant snap-on coaxial magazines, both 200 and 400-foot capacities.

Be sure to specify "Made in France" when ordering your new Eclair. Accept no substitutes. French Eclairs are available for immediate delivery. Again!

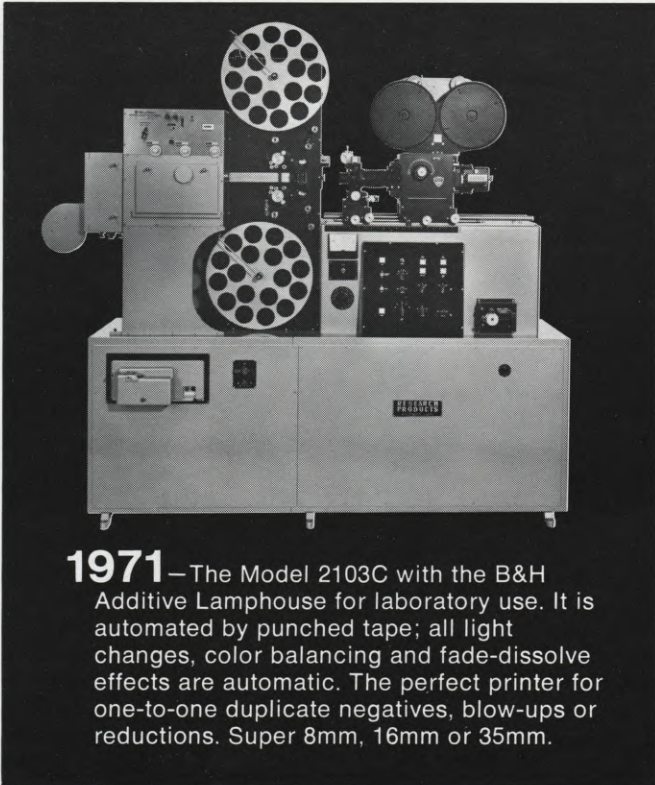
For the complete line of French Eclair cameras, including the NPR, ACL, Cameflex CM-3, GV-16 and GV-35, contact your local dealer or the E-Cam Company.

## E-Cam Company

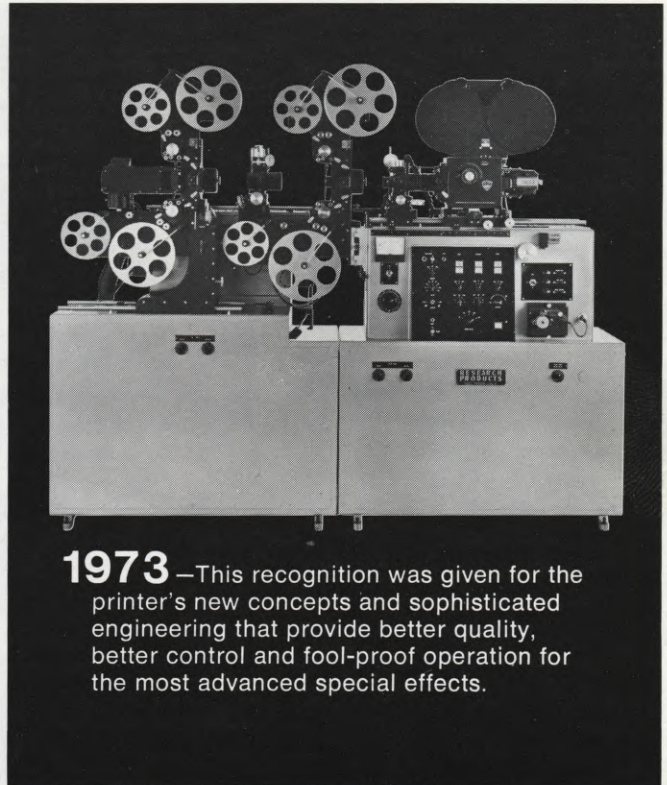
5410 Cahuenga Boulevard  
North Hollywood, Calif. 91601  
(213) 466-3700 / (213) 766-3300



# 2 Academy Award Winning Optical Printers



**1971**—The Model 2103C with the B&H Additive Lamphouse for laboratory use. It is automated by punched tape; all light changes, color balancing and fade-dissolve effects are automatic. The perfect printer for one-to-one duplicate negatives, blow-ups or reductions. Super 8mm, 16mm or 35mm.



**1973**—This recognition was given for the printer's new concepts and sophisticated engineering that provide better quality, better control and fool-proof operation for the most advanced special effects.

**We wish to thank—  
the more than eighty engineers and technical experts of the  
Academy of Motion Picture Arts and Sciences, for these honors.**

Both optical printing systems embody the latest technology for maximum efficiency, economy and versatility: our patented 'PhotoTron' solid-state electronic film drive system that eliminates virtually all mechanical gear trains, shafts, clutches, solenoids, relays, knuckle joints . . . and associated trouble; snap-out printed circuit boards that minimize down-time; pre-programming capability that provides truly automated operation; power requirements appropriate for international use.

For complete technical data, prices and delivery — write, telephone or cable Research Products, Inc., 6860 Lexington Ave., Hollywood, CA 90038, USA; Telephone: 213-461-3733 / Cable: RESEARCH.



**RESEARCH  
PRODUCTS**

*Research Products are Products of the Future*

*Note to Foreign Purchasers: U.S. export/import  
loans are available upon approval of credit.*

*RPI Optical Printers are in use in —  
Sweden, Italy, Japan, Hong Kong, China, Canada, Mexico, Brazil and U.S.A.*

# THE CP-16R CAMERA MAKES ITS STUDIO DEBUT

A highly successful single/double-system newsreel camera is extensively modified to function as a studio camera and finds itself on the brink of a whole new career

By ED DiGIULIO

President, Cinema Products Corporation

We were delighted to learn from Jim Martin of Alan Gordon Enterprises that Paramount studios would be using two of our new CP-16R reflex cameras for the filming of the Wolper production on the life of Lincoln. As this would be the first time that 16mm had been used for the production of a prime-time TV network show, one can easily imagine how excited we were to be a part of this pioneering project.

Over the years, I've become pretty familiar with the special production demands made on 35mm camera equipment by Hollywood studios. I was, therefore, quite amused, and bemused, to see how our little CP-16R reflex cameras got loaded down with big matte boxes, zoom motors, riser plates, erect-image viewfinders, and several miles of gaffer's tape. We also added that most important of studio accessories, a tape hook. In all seriousness, though, the biggest problem we had to contend with

was sound level.

The CP-16R was selected on the basis of its silent operation. Comparative tests between the CP-16R, the Eclair NPR and the Arri 16BL determined that the CP-16R was the quietest camera of the three. Still, it did not come up to sound stage noise level requirements.

The two cameras that were to be used on the Lincoln production were checked out rigorously. We really went over those cameras with a fine-tooth comb. We made sure that all the gear meshes were perfectly fitted and lapped, that the lubricant was clean, and that all the sound insulation and isolation material was properly in place.

The CP-16R was designed as both a single-system and double-system sound camera. And for single-system operation it contains a 1 lb. flywheel. For this application, though, we removed the flywheel on the theory that its additional mass would increase gear noise, and

that it would have a tendency to resonate to any sympathetic vibration. We can't be certain of the efficacy of this solution, but it did seem to help reduce the sound level by a dB or so.

We then determined, by accurate testing in our sound room, that mounting the conventional J-4 zoom motor on the lens with a normal gear mesh greatly increased the noise-radiating properties of the lens. We found that much quieter operation could be achieved if we mounted the zoom motor on the matte box rods and coupled it to the lens through a rubber-based timing belt.

To provide the production-type matte box capability that the production crew required, we jury-rigged a riser plate with rods running through it to support a matte box originally designed for use with our XR35 studio camera. This matte box has the capability of accepting either 4½-inch round or square filters, as well as a rotating pola-screen.

In a final sound test in our sound room, we had the camera set up with the zoom motor mounted as previously described. The matte box installed also contained an optical flat—to further help baffle camera noise normally radiating through the lens. We measured the camera pulling film at a distance of three feet from the front of the lens on the weighted "A" scale. With a room ambient of approximately 19 dB, the camera read a surprising 27 dB!

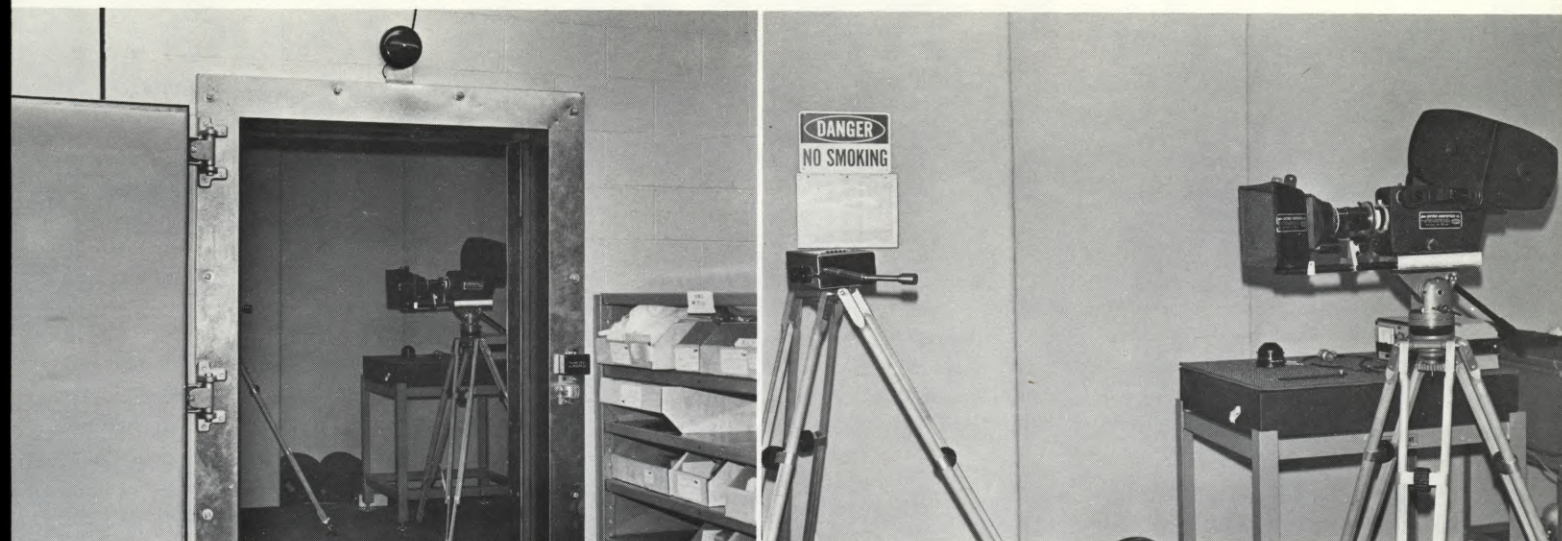
Bear in mind that putting an optical flat in the matte box is no different than the situation that obtains with an Arri 16BL—where an optical flat is an integral part of the zoom lens shroud. I am confident that the CP-16R, as configured for the Lincoln filming, is without a doubt the quietest 16mm camera ever built. I only wish I could get reflex BNC conversions to be as quiet.

As if to gild the lily, we had Roy Isaia of Matthews Studio Equipment Co. make a cloth Barney for the camera and magazine. And the camera crew reports that this seemed to provide still further noise reduction.

The magazines being used exclusively for the filming of the Lincoln production were our new plastic PLC-4 magazines. And the crew reports that they operated very efficiently, and were, if anything, quieter than the old Mitchell

Cinema Products' CP-16R camera, shown as modified for studio use in the production of "SANDBURG'S LINCOLN", six hour-long films produced by Wolper Pictures for television viewing on the NBC network. Most obvious change evident in this photograph is the addition of a production-type matte box, but several important internal changes were made. Following through to make the CP-16R a true studio camera, Cinema Products has now designed an extender tube for its erect-image viewfinder and a proper follow-focus gear arrangement similar to that used on 35mm production cameras.





The modified CP-16R, shown during extensive testing inside the Cinema Products "silent" room, a soundproof vault of floating construction. To further improve the camera's already low noise factor, the single-system flywheel was removed, the J-4 zoom motor was remounted on the matte box rods and coupled to the lens by means of a rubber-based timing belt, and an optical flat was placed in the matte box as a sound baffle. These modifications resulted in a sound reading, with the camera pulling film, of 27db. Further reduction of noise was achieved with the addition of a cloth Barney and use of Cinema Products' new plastic PLC-4 magazines.

magazines that they replaced.

After film-testing several different types of lenses, Director of Photography Howard Schwartz, ASC, decided on the Angenieux 12-120mm lens as the one giving him the best overall results. So I called Bern Levy at the Angenieux Corporation of America headquarters in New York, and I explained the critical importance of this production. He responded by carefully selecting two 12-120mm lenses that were especially trimmed to stay in sharp focus throughout the zoom range. In addition, Angenieux's extreme wide angle 5.9mm F/1.8 lens was also used. Corrected to be virtually distortion-free, this fixed-focus lens is in sharp focus from 20 inches to infinity—making it ideal for hand-held operation. From all reports, the results on film are excellent, and Angenieux deserves a great deal of credit for their cooperation and for the performance of their lenses.

One of the CP-16R's supplied for the Lincoln filming was used as a back-up camera and as a second camera (either hand-held or tripod-mounted) for two-camera shots.

Although most of this equipment was put together on a crash basis, to meet the schedule demands of this Wolper production, Cinema Products Corp. is, of course, following through to produce properly engineered hardware so that the CP-16R reflex will be a truly effective studio production camera. For example, we are designing an extender tube for our erect image viewfinder that will permit the operator to comfortably view through the finder when the camera is on a geared tripod head. Another improvement (which could not be rushed through in time for this produc-

tion) is a proper follow-focus gear arrangement, similar to that used on 35mm production cameras, which would slide along the matte box rods and engage the lens gear. By moving along the rods, and by having a swing-away gear, the follow-focus mechanism is easily adaptable to any lens that might be used.

The filming of the prestigious Wolper production on the life of Lincoln has been a baptism of fire for the CP-16R reflex. I think it stood the test admirably. As we gain more experience with 16mm studio production, other ideas and suggestions for improving the equipment will come along. And we will respond as rapidly as we have in the past to ensure that the CP-16R becomes the premier studio production camera for 16mm filming to whatever extent that medium becomes a significant factor in Hollywood and elsewhere. ■

### THE ELEVENTH-HOUR DELIVERY OF THE TWO MODIFIED CP-16R CAMERAS USED IN THE FILMING OF "CARL SANDBURG'S LINCOLN"

By JIM MARTIN

*Vice President, Motion Picture Production  
Alan Gordon Enterprises Inc., Hollywood*

At Alan Gordon Enterprises, we have long been exponents of professional 16mm cameras used for the filming of TV presentations, and our confidence in them has been justified by the many years during which fine sports and documentary films have been shot with these cameras.

Now, the introduction of 7247 film, combined with the foresight of the Wolper organization and the talent of Howard Schwartz, A.S.C., has made it

possible to produce a feature-quality series in budget-saving 16mm color. Undoubtedly film, foresight and talent were mandatory components to the success of the production "CARL SANDBURG'S LINCOLN", but without an efficient camera system, much of the efforts of the above would have been negated.

At the request of Dick Barlow, head of the camera dept., Paramount Studios, we supplied three of the leading 16mm cameras for evaluation by Howard Schwartz, operator Mike O'Shea, Assistant Rick Neff, and sound mixer Glen Anderson. While each of the cameras had certain desirable features, the consensus of opinion was in favor of the CP-16R.

We had literally pirated our demonstrator camera from our S.M.P.T.E. booth at the Century Plaza Hotel and the prospect of obtaining a second camera to complete the order was cloudy at best. We beseeched Ed DiGiulio to pull all stops on his production line to provide us with the "B" camera in time for the start date of May 2, 1974. At 10:30 p.m. May 1, yours truly departed Cinema Products with the "B" camera, a hastily designed and manufactured matte box and base plate to return to Gordon Enterprises to prepare the package for owl-time delivery to Paramount. Dave Matthews kept the camera dept. open for my eleventh-hour (1:30 a.m.) delivery.

The first 8-day segment was the most trying for all concerned, as we experienced lab problems, projection problems, and a realization that further camera modifications were needed. Ed DiGiulio explains these changes in detail  
Continued on Page 1067

# AND THEN THE PHONE RANG...

By MERLIN A. DOBRY

Director, Motion Picture Dept.

Brooks Institute, Santa Barbara, Calif.

It seemed like a typical day—students buzzing around, trying to get their film productions together under the final deadline. "Then the phone rang." It was Professor Gary, of Scripps, a gentleman whose face I've never seen, but his call sent me and eight pieces of camera equipment "at extra luggage cost" on a four-legged hop to an island I had vaguely heard of in the South Pacific.

EXIT STAGE LEFT, Santa Barbara to LAX; then via The Proud Bird With The Golden Tail to Hawaii.

Most people are greeted in Honolulu by beautiful hula girls bearing gifts of flower leis—or so I heard. A friend had told me of the sweet smell of flowers carried by the warm trade winds that had greeted him upon his arrival. Frankly, I must admit I was full of anticipation. The door of our 747 slid open—no strings of leis, nor scent of flowers—only a face-full of jet exhaust fumes, and the trade winds bore a torrential downpour which never did let up until our Air Force transport jet climbed above it the next day on the third leg of the flight, Hawaii to Kwajalien.

"Kwajalien—where is that?" I asked a seemingly well-versed Air Force Captain next to me. I was apparently on the correct plane, because he informed me that it was 2600 miles SW of Hawaii and the last chance to get off before you get dumped at the world's most deserted atoll, Eniwetok. With this new-found reassuring news, I sat back for the 5½-hour jet ride, and dozed off.

Let me digress briefly to give you a location fix. Eniwetok Atoll is located 11 degrees, 21 min. North, 161 degrees, 21 min. East. It is the Westernmost atoll of the Ralek chain, the Marshall Islands. Generally speaking, it is 550 miles SW of Wake Island, 200 West of Bikini, and East of Guam. Eniwetok was the site of early atomic bomb tests and the scene for one of World War II's most devastating Marine landings. It still is a restricted area in the South Pacific Trust Island group. Even the original inhabitants have not set foot on her shores for many years.

The mad reversing of engines and squealing of tires brought me back from slumberland and announced our arrival on Kwajalien.

1st Official: "You must fill out Form GA7094-R6."

2nd Official: "You need not fill out Form GA7094-R6."

3rd Official: "Where is your Form GA7094-R6?"

4th Official: "You do not need Form GA7094-R6, but you must have a boarding pass. Wait here and I'll get you one." And he did! Thirty-two minutes later, the 707 took off and, as it lifted from the runway, I noticed the plane was empty, except for one other passenger. The Air Force Captain's words reechoed in my ears—"This is your last chance to get off."

By now, you are probably wondering what this story has to do with cinematography, and why it was printed in a photo-oriented magazine—or any magazine, for that matter. Please bear with me, as we are coming to that shortly. I think!

Touchdown, Eniwetok Atoll, a 70-mile ring of coral islands—the largest just wide enough to support one runway. But when I stepped off the plane, and set foot on that atoll, the whole context of the trip suddenly took on a new light.

Underwater cinematographer finds Eniwetok Atoll to be a paradise of clean air, clear water and exotic things to film—but beware of sharks!

Here was the clean air, the soft warm trade winds you read about in the travel folders; and the clearest, bluest water in the world—truly an underwater cameraman's dream. If a diver could be suddenly reincarnated, and his body become part of his environment, it would surely take place in a spot like this. Thank heaven most of the world feels there is nothing here—and they are right, except for 10,000 years of marine, biological and geological progress.

On Eniwetok the outside world stops. You can see the curving of the earth on the distant horizon. Air temperature +80° to 87° day and night, rain or shine, humidity 80%+, water temperature 80°+—a condition which, back in the California smog, would turn a man into a wet noodle. Yet somehow, out here, I found a crew of 30 scientists working from 7 a.m. until midnight, every day, and loving it. If you are more than casually interested in the structure and function of coral reefs, pick up *Oceans* magazine Vol. 5, #5. My job was to film the research operation Eniwetok Symbois Expedition and the fantastic support ship, *Alpha Helix* (Scripps). With only seven days to get acquainted, find out what each of a dozen or so research groups were doing, and get it on film, I started in that first evening.

Dr. Robert Johanas, the group leader and chief scientist, outlined the aims of the basic teams and introduced me to the different crews.

## Basic Equipment

As a general rule I like to have a complete backup system for all my photo equipment. This is not because of a lack of faith in the manufacturers, but rather as an insurance policy against the unforeseen. Things which function perfectly in the studio before a trip can easily be bumped into a weakened state during transportation; so pack them as if your job depended on it, because it does. I've seen a first class 2¼ x 2¼ camera loosen up with jet vibration and pressure changes and drop a small screw into the works, rendering the camera inoperative until a difficult field repair was completed.

Flash units, strobes and electronic lighting equipment seem to have their own devilish pact with the sea. With agents such as salt spray, humidity, electrolysis and general seal leakage, they present a formidable opponent to the undersea photographer.

The use of silicone, grease and spray and careful washing became one of our daily routines. Our camera equipment consisted of Hasselblad and housing, a complete Pentax system, one Nikonis, 6 portable Heric lights, two 16mm Beaulieu's units with 200 ft. magazines, etc.—one equipped with a 12-120mm Angenieux and the other a 16-68mm Angenieux. These were our basic working units. Two sets of extra batteries and chargers were taken so there would always be a spare hand grip both on charge and ready for use.

A.C. power on the Island was supplied by Scripps' fantastic support ship, *Alpha Helix*.

The *Alpha Helix* is a godchild of the National Science Foundation and is actually a gift from the American people to all world scientists.

Its cooperative programs involving scientists from other countries have proven especially productive and rewarding.



(LEFT) Dr. Robert Johanas, chief scientist of the Eniwetok Symbols Expedition, shoots pictures with an underwater grid camera. This unit records an exact square meter for accurate reef mapping. (RIGHT) Shark's eye view of an unwary scientist exploring the garden of undersea life that lies beneath the surface. The author's assignment was to film activities of 30 scientists working from 7 a.m. to midnight on Eniwetok—and loving it.

### The Ship's Facilities:

#### DESIGN CONSIDERATIONS

The R/V *Alpha Helix* was designed and built as a biological research vessel capable of operating in both tropical and polar regions. A principal design objective was the provision of optimal space for scientific research on a vessel of limited size. The ship has no external keel; thus, quiet sea conditions or protected anchorages are necessary to the Laboratory-centered research work.

#### HABITABILITY

The vessel is air conditioned and accommodates 12 crew and 12 scientific staff members. A conference room-library serves for compiling data, preparing reports, staff meetings, seminars and recreation. A section of this room is devoted to a small technical library maintained with literature pertinent to the expedition in progress.

#### LABORATORY AND SUPPORT FACILITIES

1. Main Laboratory
2. All-weather wet laboratory
3. Physiology laboratory
4. Photo Laboratory
5. Walk-in freeze Laboratory
6. Instrument and machine ship
7. Non-contaminated salt water supply

#### PHYSICAL DIMENSIONS AND CAPACITY

Length, 133 ft; beam 31 ft; draft 10.5 ft; displacement 512 tons; gross tonnage 294; net tonnage 73. It is also equipped with complete electrical power; navigation, and echo sounding equipment; echo sounders; winches, A-frame and crane; small boats consisting of a 20 and 16-ft. work boat; a 14-ft. Boston Whaler; and 10, 20, 40, and 65hp outboard motors; and a list of scientific equipment too numerous to mention. In other words, she is some put-put!

The *Alpha Helix* had just completed a project in Antarctica and stopped off in the South Pacific (a pleasant change of climate for the crew) to make her facilities available to the Eniwetok Scientists. An underwater housing for the Beaulieu was to have arrived there on the same plane as myself, but it

showed up on the aircraft I was boarding at the project's end to leave the island. Fortunately I had an extra Bolex underwater housing and camera, courtesy of Brooks Institute's undersea division in Santa Barbara. This unit did not have zoom capabilities, but was equipped with a good fast 10mm lens.

As so many good articles and books have been written on underwater photography, I do not want to digress too far into this field because it is a complete unit within itself. But I would like to quickly skip over a few general facts regarding light, and underwater photography. After all, that's what activates our film's emulsion and makes the whole thing possible. Light intensity and color transmission depend greatly upon the sun's penetration of your underwater studio. As light hits the water's surface, some is bounced back. The amount of penetration depends on both angle and surface condition. The lower the sun's angle and the smoother the surface, the greater the reflection or bounce-back effect. This is easily seen by watching the magnified highlights race along the bottom of a swimming pool after someone throws you in. Water clarity and depth also scatter or decrease penetration: This, in turn, pulls your highlight and shadow ratio closer together. (Lowers contrast.) The contrast can be regained somewhat in black-and-white photography by filters or exposing for the shadow area and extending the developing time 10%. Also, closeup work seems less affected.

With color film, it's a little different story, as true color restoration now becomes a dominant factor. The blue ray spectrum is scattered more than the warm tones by the water. Therefore, the deeper you go, the greater distance the sun's rays must penetrate, so the greater this effect. Thus, the loss of normal reds and oranges.

At Eniwetok, due to the direct overhead sun and remarkable clarity of the water ("Sparkletts never had it so good"), available light and true color work was quite satisfactory up to 10 ft. This does not mean you could not photograph subjects 100 ft. away, only that over 10 ft. away, colors begin to blue.

If the desired effect is the restoration of true color

Continued on Page 1087



# I didn't think anyone would ever come up with the durability I needed in a lighting filter

Paul Beeson B.S.C.



## LEE FILTERS LIMITED

Walworth Industrial Estate, Andover, Hampshire, England.  
Tel: Andover (0264) 66245 Telex: 477259.

Paul Beeson, past President of the British Society of Cinematographers, has finally found the perfect lighting filter. Here he chats with Lee Filters chief David Holmes, as he sees how the Lee Filter range is made at the Company's new plant in Andover, England.

- DH "You were complimentary about our colour control. This is the machine that does it."
- PB "You certainly have an excellent plant here. But control takes more than one good coating machine. How do you manage it?"
- DH "Top quality stock, for a start. ICI make our base. It's Melinex a polyester film. Tough as old boots and much more heat-resistant than conventional acetates."
- PB "And laboratory control?"
- DH "The latest equipment. ICI digital colorimeters, Beckman spectrophotometers, Jagenberg pilot coating machines. There's no stinting anywhere in this plant."
- PB "What I'm really taken with are the anti-fade properties of your range."
- DH "So is everyone else who tries Lee Filters. We both know how nice it is not to keep looking over your shoulder to make sure your filters aren't going up in smoke!"
- PB "That's a strong point! So how's the message going over?"
- DH "Loud and clear, we think. Lee Filters are enjoying a fantastic sales rate to all major film and TV studios and theatres throughout the world."
- PB "How do you reach them?"
- DH "By world-wide representation. And our production capacity provides delivery virtually off the shelf."
- PB "I'm glad you've got that sort of back-up. I've known other filters fall down on that score."
- DH "We think it's a great product. We can't allow a situation where film and TV technicians can't get at it."
- PB "Well, David, I already use Lee. What you're showing me says I'm doing the right thing."

**Drop us a line and we'll show you why Paul Beeson goes for the best. We'll also put you in touch with your local stockist.**



# TO SHOOT ANTHROPOLOGY FILM CREW TRAVELS 60,000 MILES

By WARREN WRIGHT & THOM EBERHARDT

KOCE-TV 50, Huntington Beach, California

Thirty half-hour programs to comprise a three-credit college course send film-makers all over North America and to 21 foreign countries

Public television has ghosts. There is the ghost of educational television past, and the ghost of public broadcasting present. The former was most often characterized by its tendency to originate "educational programs" which went by names like "GOOD MORNING SEMESTER".

These shows usually featured a verbally facile teacher who either lectured or chatted with other educators. For graphics, the teacher punctuated his talk with charts and diagrams. Occasionally, he turned his back to the camera and wrote on a chalkboard.

Mercifully, that format has pretty much given way to the ghost of public broadcasting present. There are 230 public broadcasting stations (PBS) in the United States today. Most of these stations occupy their prime time with excellent programs provided by PBS (Public Broadcasting Service), the Corporation for Public Broadcasting, and various other syndicators, with BBC probably the best known. Many do a notable job with news and documentaries of local interest. But when it comes to instructional television, most public broadcasting stations will still go back to the talk show and chalkboard format.

At KOCE-TV 50 we believe that we

are representative of public broadcasting's future. Our film department originates news and documentaries of local interest. However, our larger mission is to produce film for instructional television. By doing this, we help the Coast Community College District in Orange County, California, to extend its reach into thousands of homes every day.

That was one of the major motivations for the organization of KOCE-TV 50 by the community college district in 1970. Its trustees felt that instructional television was an ideal way to bring advanced education to people who couldn't attend classes on campus. It also was a practical way for the community college district to continue to grow without overburdening its facilities or faculty.

We use our own television studio, located on the Golden West Community College campus in Huntington Beach, California, to produce interviews, lectures and demonstrations which can best be done that way. We also have the equipment and facilities there for editing and mixing film and tape and for transferring film to tape.

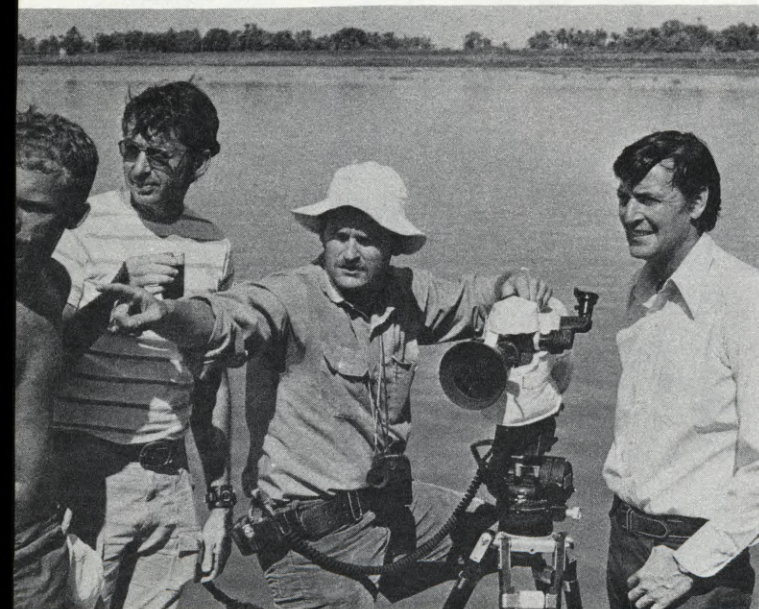
The job of our film crews is to take students and other viewers to places and people beyond the normal reach of the TV studio. For example, we recently

completed shooting and editing 125,000 feet of color film for inclusion in a three-credit college course in cultural anthropology. Entitled "DIMENSIONS IN CULTURES" this course has been divided into 30 half-hour programs. These are repeated two to three evenings weekly. The repeat shows give students an opportunity to review or make up TV classes that they might have missed.

KOCE-TV 50 began programming "DIMENSIONS IN CULTURES" during the spring semester of 1974. The programs are also on cassettes, which are available at a campus library for make-up, review, and independent study.

The concept for "DIMENSIONS IN CULTURES" was introduced to us late in 1970 by Dr. Dwayne Merry, a professor in the department of anthropology at Orange Coast College—one of the community colleges in our district. His premise was that the constrictions of the classroom, and the restricted global travel and personal experiences of many instructors, considerably narrowed the scope of a survey course in cultural anthropology. The exciting educational possibilities of such a project captured the imagination of Don Gerdts, Director of Operations and Production for KOCE-TV 50.

(LEFT) On location on the Nile River in Egypt (near Luxor). (Left to right) Crew members Terry Nelson and Bill Neill, Warren Wright and anthropologist Dr. Dwayne Merry. (RIGHT) In Egypt the "set dressing" included haughty camels and the local people in exotic dress. A total of 125,000 feet of film was shot to provide the 30 half-hour programs that will be repeated two to three evenings weekly on public broadcasting station KOCE-TV 50.







(LEFT) For global filming, equipment had to be kept light and portable. The simplest form of dolly was pressed into service to shoot this trucking shot of Pat McGinnis and Dr. Jane Goodall for the "PRIMATE BEHAVIOR" segment of the series. (RIGHT) It isn't every film company that has a herd of hippos browsing just off camera as a scene is being shot. Simple reflector is used to fill shadows for this scene of Dr. Jane Goodall and anthropologist Dr. Dwayne Merry.

It was agreed that the next best thing to taking thousands of students on field trips all over the world every semester, where they could conduct personal interviews with scores of noted anthropologists, was using a mobile film crew to bring the anthropologist's world to the student.

During the filming of material for "DIMENSIONS IN CULTURES", our crews traveled all over North America as well as to 21 countries in Africa, Europe, and Asia. In all, we covered nearly 60,000 miles and filmed many of the world's most respected anthropologists, often at the sites of their field work.

Whenever possible, Dr. Merry traveled with our crews providing them with story outlines, and serving as on-camera host/narrator throughout the series. He not only gave us an expert on-the-spot, but also an alter ego for students and other viewers to identify with. Except

for Dr. Merry, crew assignments varied throughout the production of the series. The authors divided the filming and still-photography chores, and also assisted in directing. Each remote film crew usually consisted of a cinematographer, a producer-director, and a sound recording specialist.

KOCE-TV developed most of the criteria for the organization of the crew and its mode of operation during the production of a series "pilot" made on location at a Navajo Indian reservation at Window Rock, Arizona. We worked there for more than a week, exposing more than 10,000 feet of Eastman Ektachrome commercial film 7252 and

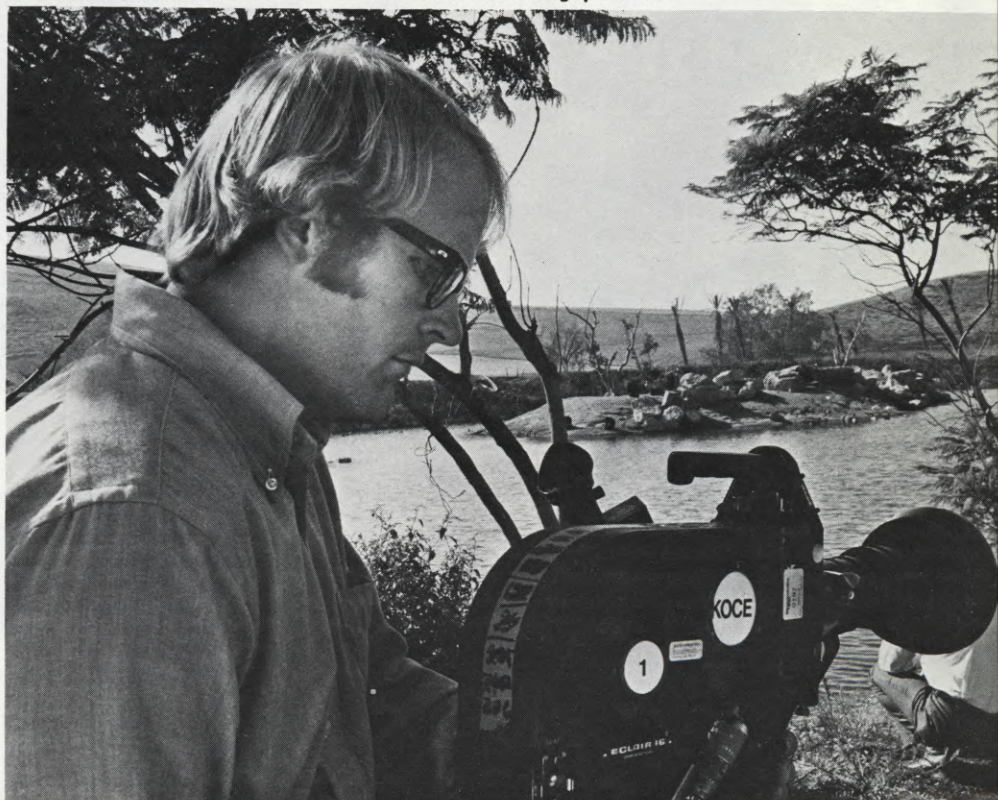
Kodak Ektachrome EF film 7242 (tungsten).

We originated both double-system sound and silent film, all depicting the current life-style of the Indians on the reservation, and contrasting that with relics of their history found in nearby empty hogans, cliff dwellings, and cave drawings. Interpreting the visuals, Dr. Merry's narration detailed how the members of the tribe were adapting to the use of modern technology, thereby enhancing their ability to survive in a changing world.

To do this, our crew worked mostly with an Eclair NPR camera and Ange-  
Continued on Page 1105

Warren Wright checks out Eclair NPR during filming of "PRIMATE BEHAVIOR". Crew assignments varied throughout production of the series. The authors divided the filming and still photography chores and also assisted in directing. Each remote film crew usually consisted of a cinematographer, a producer-director and a sound recording specialist.

(ABOUT THE AUTHORS: Warren Wright and Thom Eberhardt are filmmakers for KOCE-TV 50, a public broadcasting station serving Orange County, California. KOCE-TV is unusual in that it is owned and operated by the Coast Community College District, and as such has done pioneering work in the development of televised courses for home viewing. Wright was graduated from San Diego State University. He worked as a director-cinematographer for KPBS-TV, the PBS affiliate in San Diego, where he helped to produce "Troubled Waters", a program which won NET's 1969 Affiliates Award for Excellence in Television News Documentary. He was employed at KOCE-TV 50 in July 1971, and now heads the five-person film department. Eberhardt studied filmmaking at the University of California at Long Beach. After graduation, he free-lanced in the Long Beach area. In 1969, he produced a documentary entitled "The Hill", which won a Newsweek magazine award as the outstanding film of the year in its category. He joined the KOCE-TV 50 staff in February 1972.)



# save \$3,053 on Arri 16BL outfit complete with Zeiss 10-100 Vario Sonnar lens!

Here's the story. We were lucky to obtain just 25 16BL's at 1973 factory prices and at a very favorable currency exchange rate to boot! So we've made up a package and are passing a whopping savings on to you.

But—repeat—there are just 25 outfits available. So first come, first served! Don't procrastinate if buying a professional, silent 16mm camera is on your mind. See your participating authorized Arri dealer right now!

## here's the package!

DESCRIPTION	SUGGESTED LIST PRICE
Arri 16BL w/10-100 Zeiss Vario Sonnar . . . .	\$11,040.00
Matte box . . . . .	210.00
Universal motor . . . . .	775.00
400' magazine . . . . .	760.00
6 ft. power cable . . . . .	68.00
Duro-Pack battery—12V/2AH with charger . .	196.00
<b>TOTAL</b>	<b>\$13,049.00</b>

**SPECIAL PRICE . . . . . \$9,996.00**  
**YOU SAVE \$3,053.00**



**ARRI**  
 ARRIFLEX COMPANY OF AMERICA

P. O. Box 1050, Woodside, N. Y. 11377 • 1011 Chestnut Street, Burbank, Calif. 91502

# save \$3,053



at these participating  
**AUTHORIZED  
ARRI DEALERS**

**BEL-AIR CAMERA AND HI-FI**  
927 Westwood Blvd.  
Los Angeles, Calif. 90024

**BRENNER PHOTO INC.**  
5215 Wisconsin Avenue N.W.  
Washington, D. C. 20015

**CAMERA MART INC.**  
456 West 55th Street  
New York, N. Y. 10019

**F & B/CECO INC.**  
315 West 43rd Street  
New York, N. Y. 10036

**F & B CECO OF CALIFORNIA INC.**  
7051 Santa Monica Blvd.  
Hollywood, California 90038

**ATLANTA FILM EQUIPMENT RENTALS**  
1848 Briarwood Road, N.E.  
Atlanta, Georgia 30329

**VICTOR DUNCAN INC.**  
11043 Gratiot Avenue  
Detroit, Michigan 48213

**VICTOR DUNCAN INC.**  
2657 Fondren  
Dallas, Texas 75206

**VICTOR DUNCAN INC.**  
676 St. Clair Street  
Chicago, Illinois 60611

**FILM EQUIPMENT RENTAL COMPANY**  
419 West 54th Street  
New York, N. Y. 10019

**FILM EQUIPMENT RENTAL COMPANY**  
363 Brannan Street  
San Francisco, California 94107

**GALAXY FILM SERVICE INC.**  
3000 France Avenue  
Minneapolis, Minn. 55416

**ADOLPH GASSER INC.**  
5733 Geary Blvd.  
San Francisco, Calif. 94121

**ALAN GORDON ENTERPRISES INC.**  
5362 N. Cahuenga Blvd.  
North Hollywood, Calif. 91601

**MOBIUS LTD.**  
565 5th Avenue  
New York, N. Y. 10017

**MOTION PICTURE LABORATORIES**  
781 South Main Street  
Memphis, Tenn. 38106

**JACK PILL AND ASSOCIATES**  
6370 Santa Monica Blvd.  
Hollywood, California 90038

**STANDARD THEATRE SUPPLY CO., INC.**  
P.O. Box 20660  
125 Higgins Street  
Greensboro, N. C. 27420

**WESTERN CINE SERVICE INC.**  
312 South Pearl Street  
Denver, Colo. 80209

## CP-16-R STUDIO CAMERA

Continued from Page 1059

in his article so I won't be redundant, except to add that the work was performed during the three down-days between segments.

Simultaneous with the "LINCOLN" show, A.G.E. cameras were being used to shoot "RUN JOE RUN", a DiAngelo production; also in 16mm and 7247 emulsion. Although it was mostly exterior location shooting, similar ominous reports emanated from the same lab that was processing "LINCOLN". Alternate phone calls from the two production offices informed me of "camera scratches"—"flicker"—"shutter timing"—"over or under exposure"—"soft lenses"... you name it. Since it was damn near impossible that four different cameras and about 20 magazines would malfunction simultaneously, we suspected the lab's learning curve on 7247 was slightly bent. Fortunately, these problems were resolved and the dailies soon reflected the high quality we all knew was inherent in the negative.

Alan Gordon Enterprises is pleased to have participated as camera supplier to "LINCOLN" and we consider it a beneficial experience in research and development of the requirements for 16mm studio production cameras. We owe thanks to Howard Schwartz and his crew—Mike O'Shea and Al Betcher, operators; Rick Neff and Rick Cosko, 1st assistants; and Doug DiGioia, 2nd assistant—for their professionalism in adapting to a very different camera than the 35's normally used for such a picture.

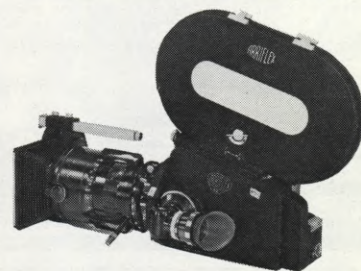
As a parting shot, excluding raw stock and lab cost savings, producers can expect about 50% less rental rate for 16mm cameras than a 35mm package. The 16mm lenses provide greater depth of field, excellent overall sharpness, and with 7247 blown to 35mm, are an inviting equipment consideration for the budget-wise, but quality-conscious producer. ■

### To Classified Advertisers

Copy deadline for classified advertising is the 1st of month, preceding publication date. Mail copy and remittance to cover cost to

**AMERICAN CINEMATOGRAPHER**  
1782 No. Orange Dr.  
Hollywood 28, Calif.

# IF YOU'RE THINKING ARRI IT PAYS TO THINK CAMERA MART. HERE'S WHY:



1. Our large stock—all types of Arris—in depth.
2. All Arri accessories, too... the works.
3. Our knowledgeable people... if you're looking for advice or suggestions, we're at your disposal.
4. Our "test 'em first" policy. Unless you specify otherwise, we assemble, calibrate and test your camera *before* you get it.
5. Our large, highly-trained technical staff: what we sell, we back to the hilt.
6. Last, but not least, we give you a good deal—even if you don't count all the other things we do for you.

If you're particular enough to buy an Arri, shouldn't you be just as particular about where you buy it? For more information about purchase, rental or lease of Arri equipment, please write or call. Better yet, see us for a demonstration.

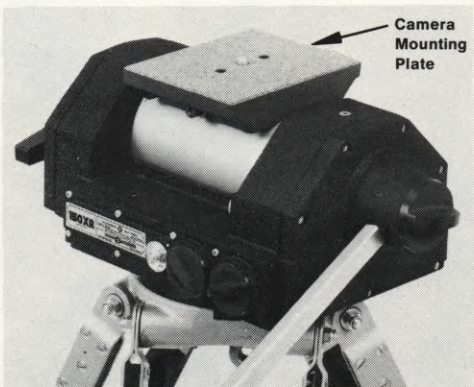
## CAMERA MART

THE CAMERA MART, INC.

456 W. 55th St.,  
New York, 10019  
(212) 757-6977



SALES SERVICE RENTAL



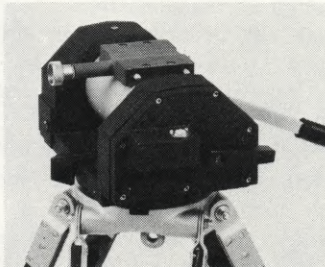
# Cinema Products 150XR

## Ultra-smooth, Lightweight Fluid Head

Cinema Products  
**XR35** Studio Camera  
shown mounted on  
Model **150XR**  
Fluid Head.

### FEATURES

- Accommodates studio-type motion picture cameras and television cameras weighing up to 150 pounds.
- Ultimate smoothness in both panning and tilting is provided by Timken bearings plus O'Connor's exclusive fluid action, acknowledged to be the most dependable ever developed.
- Removable camera mounting plate can be permanently mounted to the camera.
- Temperature Range: 0° to ±120° F.
- Weight: 25 lbs.
- Counter-balance: Standard *torsion bar* will completely counter-balance or neutralize the weight of a 100 lb. studio-type camera. (Optional *torsion bar* is available on special order for cameras weighing up to 150 lbs.)



For further information, please write to:

**cinema E products**  
CORPORATION

*Technology In The Service Of Creativity*

2037 Granville Avenue, Los Angeles, California 90025  
Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

The Model 150XR Fluid Head is designed and manufactured by O'Connor Engineering Laboratories Inc. for exclusive worldwide distribution by Cinema Products Corporation.

**HOWARD A.  
ANDERSON CO.**



CREATORS OF DISTINCTIVE IDEAS  
AND DESIGNS FOR  
SPECIAL PHOTOGRAPHIC EFFECTS FOR  
MOTION PICTURES AND TELEVISION

TITLES · GRAPHICS · MINIATURES  
BLUE BACKING · INSERTS  
MATTE PAINTINGS · OPTICALS  
SPECIAL UNIT PHOTOGRAPHY

Main Office: PARAMOUNT PICTURES  
5451 Marathon Street, Hollywood, Calif. 90038  
(213) 463-0100

# We'd like to throw some light on our new filters.

Rank Cinemar is a new range of lighting control media, designed to give all the flexibility you need for film, theatre and television lighting.

For colour control, colour effects or diffusion, they're all made to consistently high standards, and are tough enough to take the heat of modern quartzlights without affecting their performance.

Cinemar is available world-wide. Write now for free swatch book to Rank Film Equipment, PO 70, Great West Road, Brentford, Middlesex TW8 9HR, England, or contact any distributing centre.

Available in 20 Effect Colours and 13 Control Colours also New Diffusion Super Spun.

#### USA

Century Strand Inc  
5432 West 102nd Street, Los Angeles  
California 90045  
Telephone: (213) 776-4600  
Telex: 65-3508

#### Asia

Rank Strand Asia Ltd  
1618 Star House, 3 Salisbury Road  
Tsim Sha Tsui, Kowloon, Hong Kong  
Telephone: K-677589  
Cables: Spotlight Hong Kong

#### Australia

Strand Electric (Australia) Pty Ltd  
19 Trent Street, Burwood  
Victoria 3125  
Telephone: 29 3724  
Cables: Spotlight Melbourne

#### Canada

Strand Century Ltd  
6334 Viscount Road, Malton, Ontario  
Tel: (416) 677-7130. Tel: 06 22204

#### W Germany

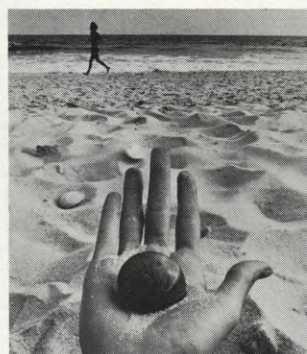
Rank Strand Electric  
3301 Salzdaheim, Salzbergstr. 2  
Tel: (05331) 7951. Telex: 0952-441



# Rank Cinemar

# Special Effects

# TIFFEN

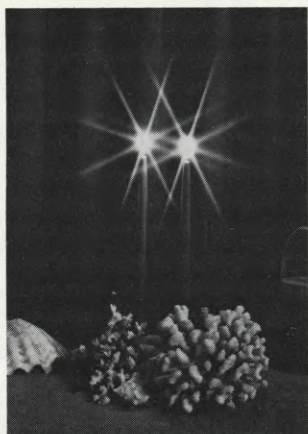


## SPLIT FIELD LENSES

Breathtaking close-ups . . . with sharp distant detail . . . with Tiffen split field lenses that fit like a filter. Available in +1/2, 1, 2, 3 diopters in series sizes 6-9, 4 1/2" and 138mm diameter too!

## CLOSE-UP LENSES

To extend the close up capabilities of your camera's lens, Tiffen manufactures a range of Close-Up lenses in various diopter capabilities. Range +1/2, 1, 2, 3. Available in series sizes, direct screw-in sizes, 4 1/2" and 138mm diameter.



## STAR EFFECT

Highest quality optics to create star burst effect. Use individually or in combination to achieve effect desired. 4-point available in 1mm, 2mm, 3mm grids; 6 and 8-point in 2mm, 3mm and 4mm grids. Supplied in series sizes, direct screw-in rotating mounts, 4 1/2" and 138mm diameter, squares and rectangles.



## FOG EFFECT

Natural fog conditions can be simulated by the use of Tiffen Fog Filters #1, #2, #3, #4 and #5. Variations can be created by using combinations of these filters. Density of the fog effect can also be controlled by changes in exposure and development. Supplied in series sizes, direct screw-in sizes, 4 1/2" and 138mm diameter, squares and rectangles.

## LOW CONTRAST FILTERS

Designed for the cinematographer seeking to effectively desaturate and mute on-screen colors by pre-selected degrees: to soften shadows and to blend make-up in portraits, without altering lighting: indoors or out. TIFFEN LOW CONTRAST FILTERS range in effective degrees from minimal to maximum in filters #1-#5. They are used at any lens opening: their effectiveness does not change with speed or lens opening. Retain resolution in filters #1, 2, 3; hold good resolution while achieving a marked increase in softness and a slight degree of diffusion in filters #4, 5. For further special effects, they may be used in combination with color filters for mood or unique soft-light scenes. Available in all standard filter sizes.

# TIFFEN

71 Jane Street  
Roslyn Heights, N.Y. 11577

(516) 621-2700 Telex 96-7748

## DON'T COMPROMISE QUALITY FOR COST!



The Steenbeck ST1900 is a complete, 3 gang, 16 mm film editing machine available at a price you can afford. This compact unit measures only 43" wide, yet offers the same quality editing capabilities and time proven operating performance as most larger models.

- 3 gang, 16 mm, picture and optical or magnetic sound
- Revolving prism - rear screen projection technique provides brilliant, 8" x 11" picture
- Heavy duty construction and rugged operator controls

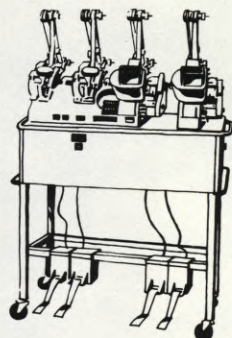


GENERAL  
ENTERPRISES,  
INC.

10518 Detrick Avenue • Kensington, Md. 20795 U.S.A.  
Telephone: 301 942-1170



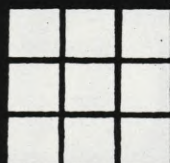
# preview theatre, INC.



*The complete "Professional Service" for*

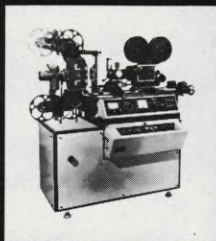
**SCREENING | CUTTING | EDITING**  
**Facilities | Rooms | Equipment**

1600 Broadway, New York, N.Y. 10019 • Phone: 212-246-0865



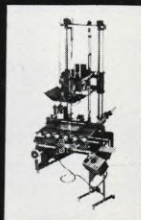
## Photographic Equipment Service, Inc.

We are THE nationwide field **Repair Service** for your major photographic equipment specializing in Optical Printers and Animation Stands.



We **Buy and Sell** previously owned, top quality equipment. *Consult the classified ads in this magazine for our current equipment offerings.*

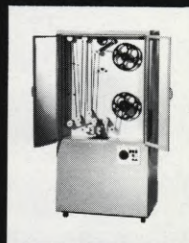
Phone or write for more information.



We will install **Computers** with stepping motor drives in existing Animation Stands or Optical Printers enabling them to out perform any new equipment available at lower cost than new equipment, eliminating clutches, solenoids and 95% of the parts sensitive to wear and failure.



We manufacture "**Liquitech**" full immersion Wet Gate. The easiest, fastest operating gate for 16mm 35mm and super 8 film.

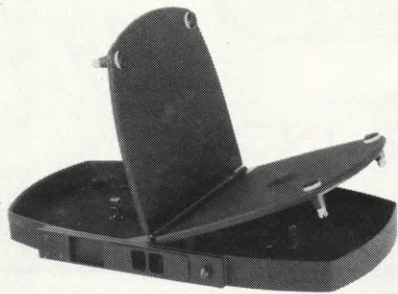
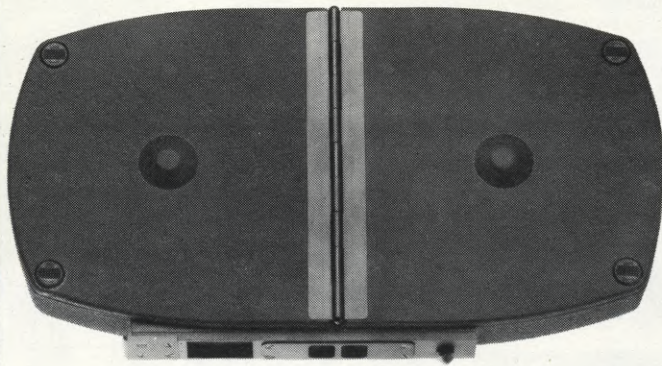


We distribute the **CAN-AM** ultrasonic cleaning machine for 16mm, 35mm and super 8 film without parts conversion. It uses a fraction of the fluid of other machines and almost silent in operation.

**695 Main Street**

**New Rochelle, New York 10801**

**(914) 235-2720**



# PLC-4 Magazine

From Cinema Products — the newest, most advanced design in 16mm 400 ft. magazines.

## FEATURES

- Made of extremely lightweight, glass-filled Lexan®, a material with greater impact strength than magnesium, the molded plastic PLC-4 magazine completely eliminates the problem of film spotting (caused by particles of magnesium adhering to the emulsion and reacting in the developing bath).
- Compartment-type magazine design permits the use of either 200 ft. or 400 ft. darkroom cores or daylight-load spools.
- Hinged magazine doors provide quick access for fast loading and unloading.
- A triple-step light trap on doors prevents light leaks.
- Magazine toe is a removable aluminum insert, easy to repair or replace.
- Magazine may be fastened to the camera by conventional screw-down methods or the unique Cinema Products snap-latch technique.
- PLC-4 magazines are extremely silent in operation.

For further information, please write to:

**Cinema Products Corporation**

*Technology In The Service Of Creativity*

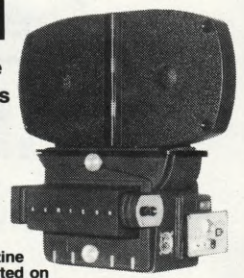
2037 Granville Avenue, Los Angeles, California 90025  
 Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

## MAGAZINE COMPATIBILITY

PLC-4 magazines are compatible with all 16mm camera systems which accept standard 400 ft. Mitchell-type magazines.



PLC-4 Magazine shown with CP-16R Reflex Camera.



PLC-4 Magazine shown mounted on Auricon Cine-Voice Camera (400 ft. conversion model).

# “Ze French Moteur zat will turn you on.”

The Alcan 54 by Aaton Beauviala is probably the finest motor on the market today. And it's the lightest, smallest crystal motor for the Eclair NPR. It'll do everything a heavier motor will do and more.

The shoulder support rod at the base maintains the camera in a vertical position even with zoom on and without magazine.

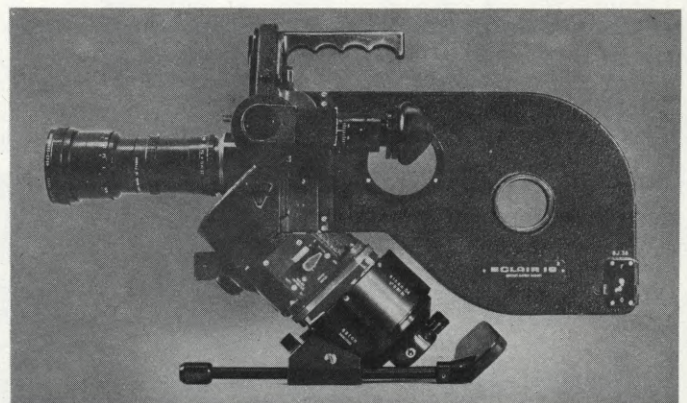
The Alcan feels good. You don't have to be a contortionist to operate it. The shoulder position feels comfortable because the location of the rod and the motor's form allow the hand to remain solidly on the camera body.

Downtime is kept to a minimum because of interchangeable modular circuits. The power supply is 12 volt with a power drain of 1.9 amps at 72°F.

There is an out of crystal warning indicated by a pronounced flickering in the view finder.

The price? \$2,395.00. If all this doesn't turn you on, operating the Alcan will.

Write Belden for your nearest dealer. Shoot a roll. That will turn you into, how you say, a believer.



**BELDEN COMMUNICATIONS, INC.**



P.O. Box 92, Radio City Station, N.Y., N.Y. 10019 (212) 889-9432



# "MILLER"...

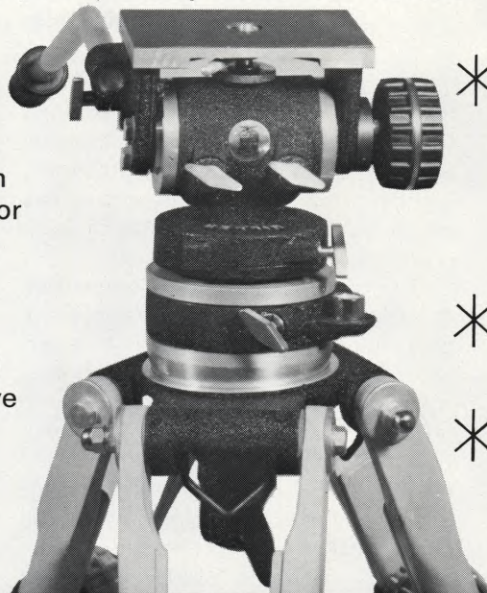
## ALWAYS ONE STEP AHEAD

The new Senior "F" and Light Professional Tripod Heads to supplement present "Miller" Lines.

### FEATURES INCLUDE:

\* Pan Unit permits (full 360°) horizontal traverse between full fluid drag and free slip for filming fast moving objects or events.

\* Full fluid action tilt (full 90°) either way with more positive tilt control and Lock, in any traverse.



\* The "F" Head will support medium weight 16mm Cameras up to 15 lbs. and the LP-2 Professional Fluid Head will support up to 30 lbs. Both are available with or without the Slip Pan Unit.

\* Slip Pan Units are available to convert older "Miller" Fluid Head models for this use.

\* There is a Miller Tripod ideally suited to every Miller Head.

U.S.A. PATENT NO's. 3,712,571 and 3,592,429  
Others Pending.

### MILLER PROFESSIONAL EQUIPMENT

6500 Santa Monica Boulevard / Hollywood, California 90038 / Phone: (213) 466-5105

## NEW FROM B & S

# GAFFACLAMP™

Mickey Mouse is great in cartoons—but "Mickey Mouse" light holders are a pain to all. This tough, rugged, positive-grip GAFFCLAMP™, an import from Europe, holds the light (up to Baby Juniors and 2K-Q's) solidly and firmly on doors, poles, 2x4's, anywhere. Jaw opens to 3". Come on in—let us demonstrate the Champ of the Clamps! Make your own job easier! Catalog No. 3012, \$49.50.

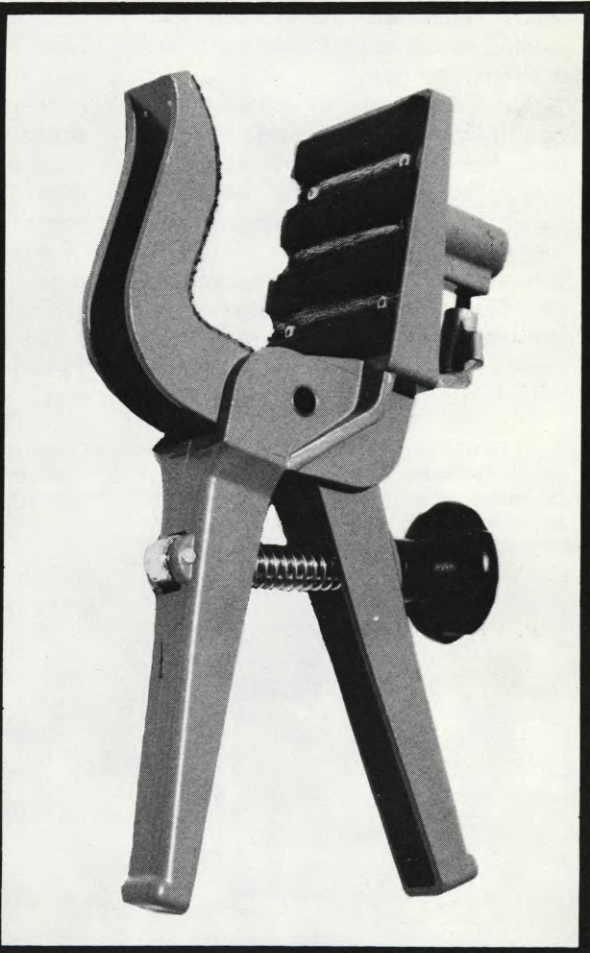
*Our 21st Year*



**BIRNS & SAWYER, INC.**

1026 N. HIGHLAND AVENUE LOS ANGELES, CALIFORNIA 90038 • (213) 466-8211

CABLE: BIRNSAW-HOLLYWOOD TELEX: 673280



# HOW THE NEW COLOR NEGATIVE FILM WILL CREATE POTENTIAL FOR MORE PRODUCTION

By E.E. GREGG SNAZELLE

President, Snazelle Films Inc., San Francisco.

If Gertrude Stein were alive and writing about the film and videotape production industry today, she might be tempted to say something obvious like, "an evolution by any other name still smells the same."

What I mean is that many people in our industry have a tendency to say "revolution," which Webster's Dictionary defines as a radical change, when they mean, *evolution*, described as a series of events unfolding.

For example, it was called a revolution 20 years ago, when the first videotape equipment was unveiled. Yet, here we are, two decades later, still meshing the film and tape technologies into an evermore intertwined marriage with most of the rules still highly flexible and subject to change.

Today, since the introduction of Eastman color negative II film 5247/7247, we are now moving into an important, new evolutionary cycle which could lead to a much more flexible, decentralized, and open production industry.

There are plenty of precedents for what is currently unfolding in our business. For example, several years ago, they called it "uncoupling" when computer manufacturers began to separate the cost of their equipment and their software programs. Once it became possible for people to buy equipment and software separately, business in both areas began to sharpen to everyone's advantage.

The author, Gregg Snazelle, hand-holds 16mm Arriflex camera in shooting test closeup of model for commercial. He began his career as a still fashion photographer and "graduated" to cinematographer in the late 1950's, starting a film company which has since won many awards for its work.

This is roughly analogous to what is happening in the advertising business today. Many of the most successful agencies are uncoupling (or streamlining) by stripping away loss centers, like media buying, and concentrating upon creative and marketing services.

The result is the same. Competition is getting tougher and agencies are shopping more aggressively. What this portends for commercial production houses is obvious. We are also going to have to uncouple or streamline. And as competition stiffens, we are going to have to learn how to squeeze the best advantage out of any new technology, which can help to make us more competitive.

This is where the 5247/7247 should play a major role. As almost everyone in the trade knows by now, it is a color negative film with a recommended exposure index of 64 in daylight with an 85 filter and 100 in 3200° K tungsten illumination.

That sounds familiar, so far. The main technological breakthrough made with this new emulsion is a significant improvement in sharpness and grain structure over the previous Eastman color negative film. Both of these characteristics can be translated into improved resolution on the television tube. That is true whether the release format is color print film or color videotape.

This means that commercials originated on Eastman color negative II film 5247 (or in the 16mm format) will have more aesthetic potential than ever. It

should be interesting to see how this enhanced ability for translating creative ideas influences the making of more artistic commercials.

However, at this point in history, I believe that is a side issue for our industry. There is a much more important question, and that is how will the improved 16mm version of the new negative affect and influence the commercial production industry? Originating on 16mm film certainly isn't a new idea. Many of us have been originating commercials on Eastman Ektachrome commercial film 7252 for years.

This is a fine grain film with excellent television playback qualities. We have developed some effective techniques for using this film for television, and, in fact, our company won a CLIO award with it last year for a commercial produced for the Ford Dealers Association (agency: J. Walter Thompson, L.A.).

However, the new 16mm color negative film is four times faster than 7252. This is an entirely different ballgame. It should make it possible for us to produce an entirely different type of commercial on location. Available light will be much less of a problem for both the conception and production of 16mm commercials. There will also be fewer other limitations in creating and filming 16mm commercials.

There are several important factors which have to be considered. One is that the new emulsion is the first Eastman color negative film in 20 years to utilize a significant change in processing. Processing for the new films is much simplified. Exclusive of drying, processing time for the new negative film is less than 13 minutes.

That is about one-third the time that it took to process the previous Eastman

(ABOUT THE AUTHOR: E. E. Gregg Snazelle started working during the early 1950s' as a still fashion photographer. By the latter part of that decade, he organized Snazelle Films, Inc., a San Francisco-based commercial production company, which was, in reality, Gregg and some 16mm camera equipment that he owned. Snazelle has worked behind video and film cameras, the latter in both 16mm and 35mm formats. He has also worked as a television technical director and as a film director. During the past several years, S.F.I. has won many awards for their work.)



color negative film. As a result, many laboratories, in different parts of the country, are either installing equipment, or at least are considering the possibility of processing the new film.

As this turns to reality, the implications for the location production of commercials becomes obvious. It could be possible, in time, to shoot a commercial on location in or near any major population center, and get back a workprint the same day, or possibly the next morning, without acquiring nervous indigestion while you wait for your flight to arrive from New York, Chicago, or Los Angeles.

But why 16mm rather than 35mm? A few years ago, I would have said, "to save money," or, "the equipment for the smaller format is more mobile." But neither is the case today. With the marketing of the Arriflex 35BL and Panaflex cameras and related equipment, a film production crew can now work as fast and as easy on location in the 35mm format as they can in 16mm. Furthermore, the rental cost for the 35mm equipment is only around ten percent higher and the difference in raw stock and processing costs is nominal when viewed in the light of overall budgets.

Today, there is a different answer to the question, why and when do you originate on 16mm? To find it, you have to go back to that word, uncoupling. Snazelle Films, Inc. provides a good example. We have uncoupled or streamlined by forming two autonomous, new organizations which operate independently of the production company—and which, no doubt, will soon become the tails which wag the dog.

One company, Cine Rent West, has taken over all of our production equipment, including grip trucks, lighting, sound, and enough 16mm and 35mm camera outfits to keep 6 crews working. Cine Rent West rents this equipment to producers working on location in the San Francisco Bay area.

The other company, Edit Center, has taken over all of our physical postproduction facilities including two screening theaters for viewing both 35mm and 16mm film, three KEM 8-plate editing rooms equipped for both 16mm and 35mm film, two Moviola cutting rooms and a sound department equipped for 16mm and 35mm dubbing and mixing. In addition, there are video cassette playback facilities. These facilities are also being rented to producers working in northern California.

While this has been good for many Bay Area producers, it has probably been even better for us. Why? Because  
Continued on Page 1096



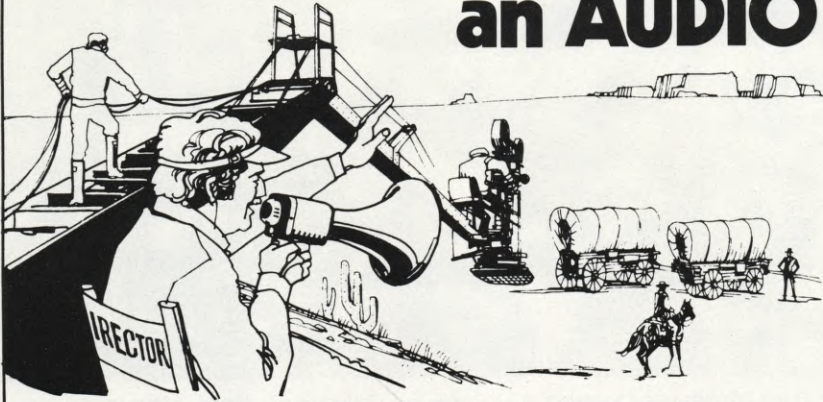
(ABOVE) Hunt Wesson night location shooting in the Redwood country of northern California. The filming involved "Big John" commercials for Norton Simon Communications Inc., John Blumenthal, Producer. The author, along with many others in the film industry, feels that the new negative stocks will prove very valuable in situations like this—especially when shooting in 16mm.



(ABOVE) A film for television being shot with three cameras on the Snazelle stage. (BELOW) Shooting a food commercial on the stage. The author feels that, with the new negative, "available light will be much less of a problem for both the conception and production of 16mm commercials." However, he is convinced that compact 35mm cameras, such as the Arriflex 35BL and the Panaflex, will make possible almost as much mobility as 16mm cameras.



# Cue a cast of thousands with an AUDIO megaphone.



Shooting outdoors on location, with the expanse of desert or mountain in the background and a big cast of actors to control...requires infinite skill and patience on the part of any director. With a powerful, transistorized AUDIO megaphone, actors and crew will hear your every command, in clear, undistorted tones. Write for free catalog and name of your nearest quality Audio dealer.

## AUDIO EQUIPMENT

Division of Walter Kidde & Co., Inc.  
706 Forrest St., Charlottesville, Va. 22901  
Telephone (804) 977-8050



### AUDIO HAILER

Model S-168M

Rugged anti-feedback construction. Pistol grip with trigger switch. Easy volume control. Over 3000 10-second messages on 12 "C" batteries. 5 lbs. Two-tone blue.

**\$94<sup>95</sup>**



### SUPER HAILER

Model S-183

Watertight and shock-resistant for use hand-held, or as a portable public address system. Forest Green with shoulder strap and detachable mike.

**\$159<sup>95</sup>**



Clyde Ruppert: Producer Services



John O'Malley: Processing



Henry Zenner: Slides and Filmstrips



Matt Herman: Laboratory Operations



Allen Hilliard: Technical Information



Raymond Czarnik: Order Control



Joe Britz: Inspection



Joe Boffa: Printing



## Big things have been happening lately at Colburn Film Laboratory.

We're on the move to make the NEW Colburn Film Lab your best source for printing and processing, editing and sound, slides and filmstrips.

Our management team has assumed part ownership and is aggressively moving ahead to serve you better.

New equipment.

New services.

New image.

If you haven't worked with us lately, we invite you to come see for yourself what we're talking about.

### GEO. W. COLBURN LABORATORY, INC.

164 N. WACKER DRIVE • CHICAGO, ILL. 60606 • 312/332-6286

COMPLETE LABORATORY SERVICE FOR 16MM / EDITING / RECORDING / WORK PRINTING / SUPER 8, 8MM & 16MM RELEASE PRINTING / TITLING / 35MM SLIDE & FILMSTRIP SERVICE

# A CASE IN WHICH FILM PROVED TO BE PREFERABLE TO TAPE

For televising the 1974 "Miss Yankee" Pageant, videotape seemed the logical way to go—until it was found that filming was less expensive, more comfortable and far less disruptive to the atmosphere of the event

By KEVIN COUTTS

When Larry Folgo, President of Miss Yankee, Inc., came to us for help in getting this year's Miss Yankee Pageant televised, he was worried. Televising the 1973 Pageant had meant a live audience of more equipment than people. But it's people, not equipment, that makes a pageant; this year, all that equipment just had to go.

It turned out that last year's Pageant had been done directly on videotape, using an on-site remote truck at The Pageant. For some unknown reason The Pageant had been made subservient to the medium; that space not physically consumed by cables, stands and pedestals was made unbearable for a live audience because of the heat generated by the lighting brought in.

With Larry personally paying all the bills, there was very little money available for production this year. The Pageant, held in The Ballroom on the roof of The Parker House Hotel in Boston, was virtually impossible to cover on videotape and stay within the budget. Camera cables alone would have had to climb fourteen stories before getting anywhere near Miss Yankee.

Wragby's Film Director and Produc-

Wragby's Mike Rogers, shown operating audio decks used to feed music into both the film sound track recorder and the ballroom public address system during filming of the 1974 "Miss Yankee" Pageant. Equipment was kept quite unobtrusive, with lighting mounted out of the way of all traffic and cables kept virtually out of sight of the audience.



1974 Junior "Miss Yankee" contestant walks runway as Wragby Films director Libé Stril-Rever follows the action with Arriflex 16BL camera. The previous year, the Pageant had been videotaped, but this required a vast amount of cumbersome equipment, uncomfortably hot lighting equipment—and a considerably higher budget than film.

tion Chief Libé Stril-Rever, shook his head, kept saying things like: "No way . . . crazy . . ." while he commenced to make it happen. Our custom-made electrical distribution system was installed from a hotel circuit board, through a ballroom ventilation duct, via a ceiling-level plaster cove, to a point halfway around the ballroom opposite the stage. Power was tapped at 240 volts at source, ultimately distributed as 120 volts among eight 1,000-watt focusing lights.

The cabling was virtually entirely out of audience sight. The lights themselves were mounted out of the way of all traffic, on freestanding pedestals set so as to occupy virtually no people-audience space. Additional 1,000-watt lights were strategically beamed on the live audience. The youngest Miss Yankee contestant category begins with 3-year-olds; cutaways of audience reactions were therefore considered to be especially vital to the finished show.

The sound would be recorded double system, edited as such, then transferred to the magnetically-stripped camera film

Continued on Page 1094



# FILMING THE AGONY AND THE ECSTASY OF A FOOTBALL TOURNAMENT: WORLD CUP 1974

Planning a people-to-people filming approach to a sports event that rivals the Olympic Games in scope, and organizing the logistics to carry it through, adds up to quite an assignment

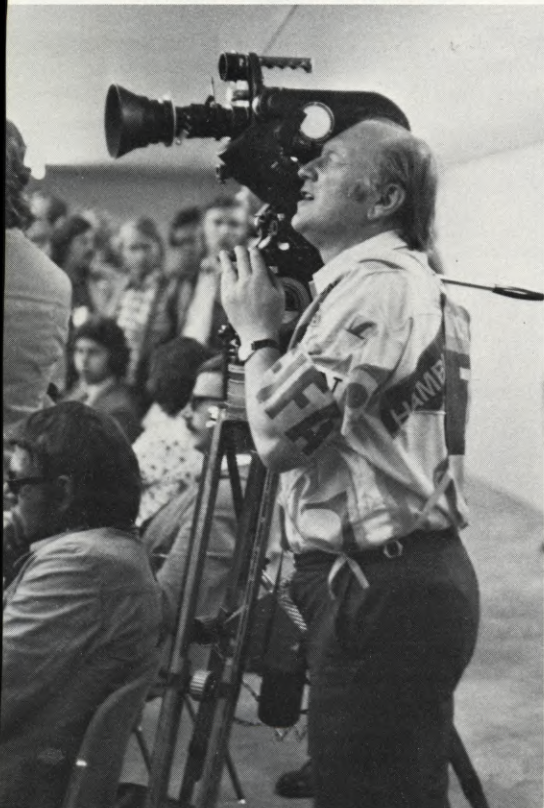
By MICHAEL SAMUELSON

*(EDITOR'S NOTE: By dint of having organized all of the equipment and camera crews for filming of the World Cup Football in London (1966), the Olympic Games in Mexico City (1968), the World Cup Football in Mexico (1970), and the Olympic Games in Munich (1972), Michael Samuelson had, by 1974, become the world's foremost authority on the filming of such massive sporting events. So it was quite natural that he should also be selected to organize and direct the filming of the 1974 World Cup Football in West Germany. Long before the first kick-off of that Series, however, he had written the following synopsis of how he visualized this particular film should be treated. Although applied to Soccer, in this instance, it could well form the basis for a film about almost any spectator sport.)*

The theme of the film will be people, players, spectators, all drawn together "for and against" to take part in one of the highlights of football history.

The film will explore the emotions of everyone involved. By means of new techniques, we will be able to follow in detailed close-up every exciting incident

Required to shoot over people's heads, David Samuelson uses an "any-angle" viewfinder to film a World Cup press conference.



occurring in the match. As well as seeing in close-up the jubilant actions of a successful attack, we will see the unhappy reactions of the defenders who have conceded the goal.

We will be able to show both emotions. The facial expression of the striker as he realises his shot is going into the net. Similarly the expression of the goalkeeper as the ball passes him. We will hold on both players as they fully realise the implication of what has just happened. The agony and the ecstasy in close-up on the large cinema screen as it has never been seen before.

Imagine a penalty situation. One side happy, one side miserable, one section of the crowd is winning, one section losing. We will have seen in great detail the attack, the goal, the referee's decision, the arguing—with the feelings of everybody involved. The goalkeeper preparing himself. The defence angry and frustrated. The referee showing his authority. The captains restraining their colleagues. The trainers and managers wishing they were out on the field rather than sitting on the side line. The crowd shouting, embittered and sad or cheering and happy. The match now is reduced to just two men. The penalty taker and the goal keeper. There is silence as they face each other. The tension is unbearable. The kick is taken. A GOAL. The faces on the screen tell their own story of opposite emotions. Every reaction microscopically recorded.

Why is this going to be so different from the television coverage? This film will begin where television leaves off. TV at its best can only do an overall coverage. That coverage must be kept fairly wide and cover all incidents as they happen. They must at all times follow the ball. They must "instant-edit" as they go along. Nothing can be altered afterwards, so their scope is very limited. Much of the drama of a cup tie happens away from the ball. This we alone can record. We will not forget the Soccer fans who want to see football at its brilliant best. As in the 1966 film "GOAL", we will endeavour to find the right mixture of football and artistic content.

With film, we will have as many cameras as will enable us to cover everyone of the 22 players, plus the

referee, plus the coaches in detail throughout the whole game. We will be recording all their emotions throughout the 90 minutes, as well as adequately covering linesmen, managers and crowd. We will, of course, need cameras covering the game from wider angles. Every explosive moment in the match will have been recorded in tremendous detail, the like of which has never before been seen on a screen anywhere in the world. Some of the greatest players will be seen in their ecstatic and brilliant moments, in their sad and angry moments.

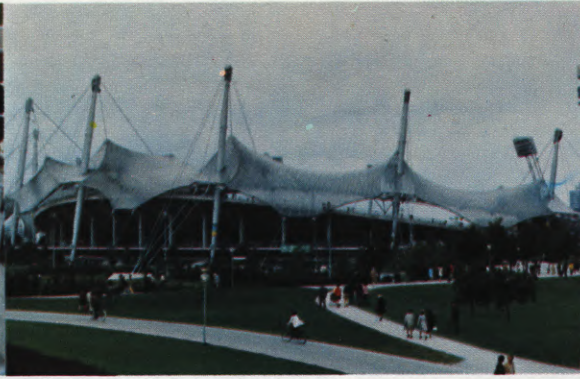
As we have the advantages of editing our film in retrospect, we can compile a film packed with every incident that happened, every emotion felt by all the people squeezed into the stadium for a day they will never forget. Human beings watching fellow beings at the peak of their career, battle for one of the great honours of football. Locked together for ninety minutes of Agony and Ecstasy, of hopes raised then dashed, raised again, lost, won, drawn, extra time maybe? Time irrevocably ticking away. The winning happy team, when they have won, receiving the Cup. The losing, unhappy team receiving their runner-up medals, bravely smiling. The winning team doing its lap of honour—and, at the same time, we see the losers walking to their dressing rooms defeated. The winning supporters cheering their team. The losing supporters leaving the stadium, still arguing over that goal that cost them the match.

The assignment should not end there, separate coaching and refereeing films should follow.

Sixteen additional films, showing in detail the participation of each of the countries playing in the final rounds of the tournament. Obviously, the main film will show all the teams in the early stages of the tournament, but in a film whose running time is between 90 minutes and 2 hours, it is not possible to do justice to each and every one of these nation's matches.

In the history of sports filming, the outstanding films were always successful because of three basic reasons:-

No cost should be spared on the amount and quality of the technical equipment involved or the film stock to be shot.



(LEFT) The mountain of equipment required to film a World Cup match is unloaded in one of the arenas. (CENTER) Exterior of the Olympic Stadium in Munich, site of the Finals match for the World Cup 1974. (LEFT) Capacity crowds thronged the stadia for many of the World Cup matches. While football (soccer) is played very little in the United States (except in schools), it amounts to a Grand Passion in many other countries of the world, and the World Cup Tournament is the supreme "moment of truth".



(LEFT) On the ground, using a 600mm lens, David Samuelson reaches out for those big closeups he's famous for. Behind him is cameraman Eric van Haren-Noman, operating an Eclair NPR. (CENTER) David gets as close as possible to the action in filming the match for third and fourth place. (RIGHT) Michael Samuelson sprawls out flat to level camera fitted with a 5.7mm lens.

(LEFT) Since it was most important in editing to know the time sequence of each play recorded on film, the slate boards which were used included clocks (presumably synchronized). (CENTER) A collection of slightly used car park passes stuck onto the window of one of the camera cars. (RIGHT) Harry Hart using a monocular viewfinder to zero in his 600mm lens. Tested in several other major sporting events, this type of viewfinder has proved valuable for such filming.



(LEFT) Looking a bit like a wartime "bazooka", this king-size effects microphone was one of several types used to insure a clean feed to the sound recorder. (CENTER) Wearing Final Day shirts, made up of official bibs from previous matches, are Assistant Cameraman Tony Gaudioz, Michael Samuelson, Producer Morton Lewis and Cameraman Eric van Haren-Noman. (RIGHT) Celebrating at Munich's Mathaser House Beerhall after the Finals match.





(LEFT) Revisiting the Munich Olympic Stadium, scene of his former glory, Michael Samuelson, wearing his Finals Day shirt, looks at the screw holes he put in to secure camera positions at the head of the 100 meters straight during the 1972 Olympic Games. (RIGHT) Cameraman films the security guards checking every inch of the stadium prior to the finals event. Mindful of the tragedy that occurred there during the 1972 Olympics, Munich authorities enforced the most rigid security measures.

The best sports cameramen in the world must be found and engaged to work on the picture.

Top creative direction during the shooting and editing stages is required.

Finally, after the enormous amount of material has been sifted, a factual and artistic film, in no way resembling television coverage, will have emerged. ■

## PHOTOGRAPHING THE 1974 WORLD CUP SOCCER SERIES

By David W. Samuelson, F.B.K.S., B.S.C.

The pages of the *American Cinematographer* Magazine may not seem

the appropriate journal in which to publish an article about Soccer, but the fact is that in all but one or two of the 92 countries where the ACM is circulated, Soccer is the national sport and, in some instances, the national obsession, even a *religion*.

Readers in the United States not aware of the mesmerizing hold Soccer has on the rest of the world may be interested to know that every four years a World Cup Football (Soccer) series is held in which almost every country in the world competes. There are those who would argue that the Olympic Games (held in-between each World Cup Football event), because it has no outright winner, is by comparison a minor affair. The United States enters the competition in its preliminary stages

and, on one great occasion, succeeded in eliminating England, which took such a lesson from this humiliation that it was able to go on and win the competition in 1966.

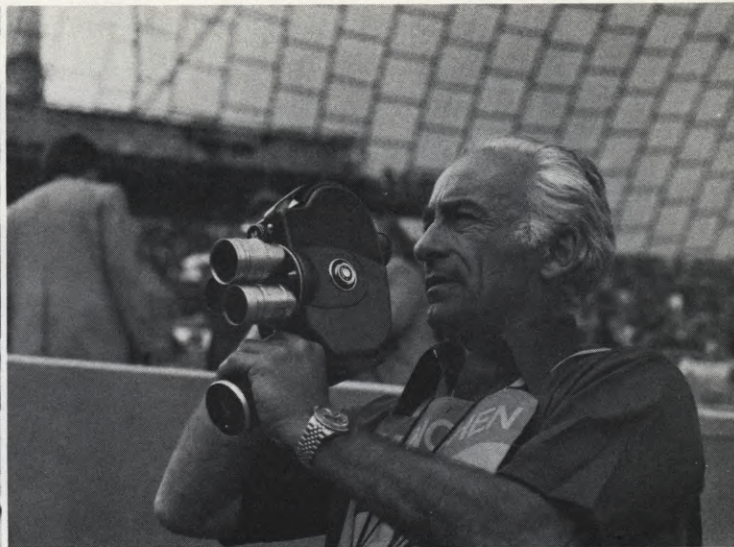
This year, the 16 Nations which survived the Preliminary rounds gathered together in West Germany to play a series of 37 games, culminating in a World Cup Final played in the Olympic Stadium in Munich and watched on TV worldwide by an audience estimated to exceed 500 millions.

The final was contested between West Germany and Holland. These two teams had eliminated in the semi-finals Poland and Brazil, which, in turn, had eliminated such countries as Argentina, Australia, East Germany, Haiti, Scotland, Zaire and others.

(LEFT) Seven hours before the kick-off, just a few of the camera cases are unloaded. Because 36 matches were filmed in nine widely scattered locations throughout Germany, the crews were constantly loading and unloading equipment. (RIGHT) Assistants John Coe, Tony Browning and Mike Brewster, shown canning up some of the 50,000 feet of film shot during the 1974 World Cup Tournament.







(LEFT) Ron Collins using a 640mm Novaflex lens with pistol-grip focusing lever. (RIGHT) Producer Morton Lewis had a chance to show that he, too, had been a cameraman and, in this case, handled a Beaulieu camera. For the match he had a brand new Arriflex 16SR. For the Finals match, technicians were brought in from London and recruited in Munich to make up one of the largest crews, and certainly the most experienced, ever to film a Soccer event.

Such an event calls for a film, and gathered together to make it were members of more or less the same team which shot the Olympic film in Munich in 1972, the World Cup Football film in Mexico in 1970, the Olympic Games in Mexico in 1968 and the World Cup Football in London in 1966. Many, including Michael Samuelson, Eric van Haren-Noman, Mike Delaney, Harry Hart, Ken Goddard, Mike Davis and Terry Gould were veterans of at least four of the five events.

It is being produced by Morton Lewis who also produced the film of the 1970 event "THE WORLD AT THEIR FEET". Morton has both a sporting and a practical film-making background, being the son of World Welter Weight boxing champion Ted (Kid) Lewis and having served his film-making apprenticeship in Hollywood.

The logistics of filming an event such as this are even more horrendous than those of an Olympic shoot. The first 36 matches were played all over Germany, at venues as far apart as Hamburg in the North, Berlin in the East and Munich in the South—in nine different cities, all told, and over a period of three weeks.

During the initial period two crews drove themselves from venue to venue, made their own arrangements, shot a match and moved onto the next.

It wasn't until the match for third and fourth place and the Final in Munich that they all came together, with as many crews again brought in from London or recruited locally in Munich to make up one of the largest crews and certainly the most experienced, ever to shoot a Soccer Event.

For Event it was. Rather as Woodstock was an Event, a Happening, more

than just another Pop concert. So the World Soccer Final was to be treated as a Happening.

Gathered together in Munich for the final we had 25 cameramen and assistants and four sound crews.

At a briefing the night before, Michael explained the plan.

An important aspect of a full-length sports film, he said, is that it should as much as possible highlight the personalities involved—and in order to do this the film must get away from set events, especially in a film such as this where there is only one sport involved, and concentrate on people. Thus, the celebrations off the field, after the Final, will make good film—although, in this particular case, there is a problem in that such "after the event" celebrations may be somewhat of an anticlimax.

To overcome this, Michael explained, he intends to open the film with the final whistle of the final match, then cut to one group of players enjoying the ecstasy of victory while the others suffer the agony of defeat, the presentation of the Cup, the victors' tour of triumph around the arena, the losers' quiet return home and finally the supporters in the local fountains and Beer Halls. After that he can cut back to the commencement of the series and finish the film with the final match.

Then he allocated camera positions.

Kurt Jurgens and Klaus Beckhause (both local Munich cameramen) would be in elevated positions above the side lines about 12 yards in from the corner flags. They would be responsible for the pattern of play in their respective ends with the players playing towards or level with them.

Michael himself, probably the most

experienced of the sports cinematographers there, would take the centre elevated position from where he could also gain a feel for the whole match which would be useful to him when the film reached the editing stage because, for this film, he is also the overall

Continued on Page 1114

Sound recordist Rene Borisowitz rides the microphone during the Finals match. Like many other crew members, he was a veteran of the 1972 Olympic Games shoot.



# SOLVING THE CINEMATOGRAPHER'S PROBLEMS WITH LIGHT CONTROL MEDIA

A cinematographer of long experience, charged with setting up a company to produce light control media applies his considerable expertise, and that of his colleagues, to meeting the requirements of fellow cameramen.

By DAVID HOLMES, BSC

What is the most challenging problem with which the cinematographer is constantly confronted?

If I, as a Lighting Cameraman with more than 25 years experience in film-making, were to be asked that particular question, I would answer: "The control of light—obviously."

The answer to the question is ridiculously simple.

The answer to the *problem*—as every cinematographer knows only too well—is anything but simple.

For one thing, it is not a *single* problem, but rather an unending *series* of problems—with a new one arising practically every time a new set-up is made.

You learn to cope, of course, because that's the nature of your job as a Lighting Cameraman—or "Director of Photography", if you prefer. Each cinematographer, in the course of his experience, settles on the methods and materials that work best for him. Over the years I've done the same—selecting the bits and pieces that would enable me to solve whatever lighting problem I might encounter in the day's work.

But I always longed for a comprehensive range of light control media that would help me solve these problems better, faster and more easily. That is why, when I was asked to combine my work as a cinematographer with the setting up of a new company (Lee Filters) five years ago, I regarded it as a unique opportunity to draw upon my

own years of experience, and that of my colleagues, to develop a range of light control media that would do the job—or jobs—for us, no matter what problem might arise.

At Lee Filters we concentrated, in the very beginning, upon the types of filters most commonly used and for which there was the greatest demand—the Color Temperature Range, media used to raise or lower the Kelvin ratings of basic light sources. Then, as more specific challenges were thrown at us, we were prompted to find solutions by developing more highly specialized and exotic materials.

For example, Academy Award-winning Lighting Cameraman Ossie Morris, BSC, was indirectly responsible for stimulating the development of an entire new range of Lee Filters. It happened while he was photographing "SCROOGE" and he was called upon to light the "Hell" sequence, in which the entire set was supposed to be bathed in a red glow. He was rather desperately in need of a special type of red filter that would hold up and remain stable under the intense heat of the quartz-halogen lamps he would be using. I love such problems, and I was able to produce just what he needed within seven days. I now proudly call it Flame Red (164).

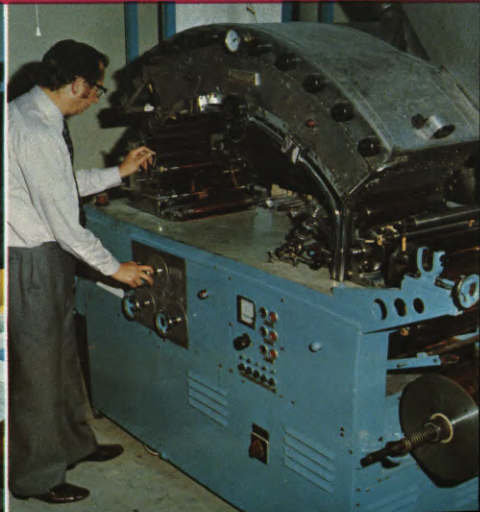
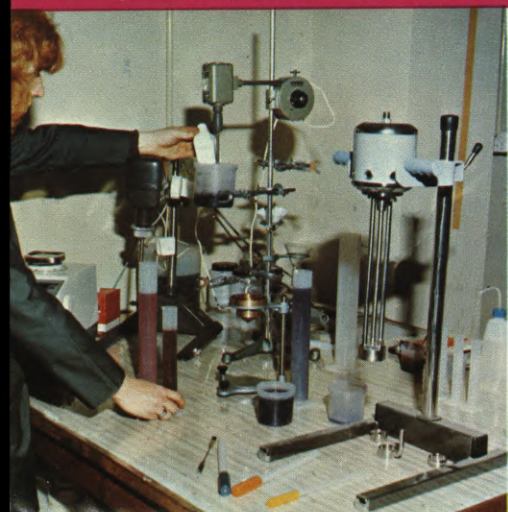
It was because of that problem which Ossie gave me to solve that I decided to develop a complete range of color filters, apart from the color temperature correction range we were already pro-

ducing. I launched the color range in June 1971 in London and at the "Photokina" that followed in Cologne, West Germany. Now such filters are used in all of the European countries.

Meanwhile, I was using my own experiences as a cinematographer to spur the development of new products. For example, when I first produced a self-adhesive window correction filter I was on location in Malta photographing "EYE WITNESS", with Lionel Jeffries, Mark Lester and Susan George, and we had a very big problem filtering the windows. It became very obvious that a much tougher material was required for this type of work. Upon my return from shooting that particular film, I made diligent inquiries in search of a tougher base. Imperial Chemical Industries came up with a polyester base, Melinex, that turned out to be just the right material. We soon found that it could be placed in a frame as tight as a drum without any problem of tearing. The fact that I was able to find new dyes that were fadeproof also helped tremendously. The enthusiastic acceptance of this combination proved that the way had been opened to meet many of the needs of cinematographers.

During my early days as a cameraman I kept wondering why someone could not produce a very stable filter to help us with our location filming. The type of White Flame Green filter we used with arcs in those days would go milky when exposed to wet weather. We

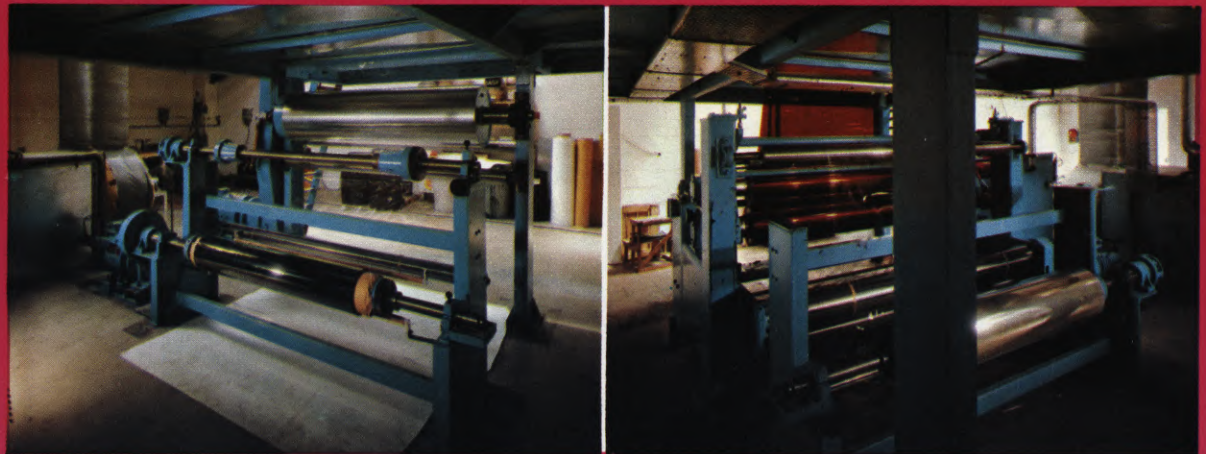
(LEFT) At Lee Filters lab in England, chemist tests dyes before making a laboratory coating. All dyes are tested for anti-fade qualities before being accepted. (CENTER) Here dyes are being tested at a further stage. The spectrophotometer, shown here, has the ability to plot both absorption and transmission data. It is also used for the continuing analysis of dyes to make sure they meet specifications. (RIGHT) This laboratory coating machine is a miniature version of those in Lee's main plant. It is used to produce an effective product, so that final tests can be made before putting the main plant into operation.





Lee Filters' spacious new administrative headquarters and factory on the Walworth Industrial Estate at Andover, Hampshire, England. Equipment, manufacturing area, laboratory, storage space and administrative accommodations at this new location have all been planned to handle at least double the company's present output.

The Bone Craven coater used in the manufacture of Lee Filters. (LEFT) Here we see material coming off the machine at the end of a run through the oven (which is overhead). The film then passes over the cooling roller and is taken up on the last roller before going into the roll converter. (RIGHT) At the head end of the machine the master roll of clean polyester film is being driven through the coating head. At the far end can be seen the finished coated material entering the oven for drying. In this case, the filter being manufactured is Lee's #164 Flame Red.



(LEFT) One of the several control panels used to run the coating head. It specifically controls speed and tension of the coating head. (CENTER) The operator checks the coating quality. The dye can be seen going onto the bare film at the right side of the photograph. Later a fine bar carefully distributes the dye to provide an even coating of the correct density. (RIGHT) The young lady is shown making final checks before converting the master roll into the correct lengths required for use. All materials have to pass this rigid final inspection.



found ourselves waging a constant battle with nature. But now, with the new and extremely stable materials in use at Lee Filters, we were able to eliminate that problem completely.

As our range of filters grew, I felt the need to extend it still further into the area of diffusion materials—and my decision to do so was promptly vindicated by a problem I encountered while shooting one of the many episodes of "THE AVENGERS" television series, which I had the pleasure of photographing. I was called upon to shoot a fog sequence encompassing a wide area. I believe that I'm correct in saying that we were using about 50 10K's and an equal number of 5K's. We certainly had our problems laid on because of the speed at which we had to shoot. I'm proud to say that our latest creation, with its sturdy polyester base, stood up to the heat without causing any production delay—and a new filter was born.

As each of these new filters has been created and introduced, it has given me great satisfaction to see them adopted, not only by my fellow cinematogra-

phers, but also by technicians in the television studios, theatres and commercial photography field. Their gratifying acceptance on a world-wide scale has created a need for expanding our laboratory and manufacturing facilities.

As a result, after having been based in London for the past five years, Lee Filters recently moved into its spacious new factory on the Walworth Industrial Estate at Andover, Hampshire. In June, more than 250 people attended a champagne reception to celebrate the official opening of these new facilities. The guests included cinematographers and other senior technicians from the film and television industries.

Equipment, storage space and administrative accommodations at our new location have all been planned to handle at least double the company's present output.

In the manufacture of Lee Filters, top-quality dyes are applied precisely and consistently to the Melinex polyester film base by means of a Bone Craven coater.

## CONTROL

As a working cinematographer, learned early on—and sometimes the hard way—that *consistency* is a key factor in the selection of light control media. As a result, strict and absolute color control is an essential feature of our manufacturing process.

Two of the most modern instruments available have been obtained to assure such control. The Beckman SPECTROPHOTOMETER has the ability to plot both absorption and transmission. This instrument is also used for the continuing analysis of dyes and for recording the transmission spectra of filters as they are made, thus ensuring that they hold to the appropriate specifications.

Another important instrument is our I.C.I. DIGITAL COLORIMETER, which measures the relative proportions of Red, Green and Blue transmissions throughout our color film. It is primarily used for monitoring products as they are made, thus ensuring that any variations are held within their defined limits. For example, in comparing one batch against another, this instrument gives the results in terms of numerical limits, establishing the precise color values for a given product.

## PROCESS

An essential feature of our process is the careful choice of dyestuffs for our products. With the assistance of principal dye manufacturers throughout the world, careful screening takes place to ensure that those possessing only the finest and most reliable characteristics are chosen. Fading, in particular, is carefully checked against common light sources, as used in film studios and on location.

## PILOT COATING

After everything has been given the "all-clear" by the laboratory, our next step is to make a test run on our pilot coating machine before going into production on our main coater. Even so, samples are still taken from the main run at periodic intervals for purposes of spot-checking.

Everything is done to make sure that our filters arrive on set prepared to do the job we say they will do. Lee Filters has felt the need for such careful controls for many years and now we are doing something about it. After all, we are making filters for our own industry, so we care very much.

Above all, our new plant is capable of producing enough filter material to service cinematographers throughout the world, thus ensuring a continuing supply and consistent standard of quality wherever they may be filming.

In Hollywood, Lee Filters Managing Director David Holmes, BSC (RIGHT) visits the shooting location of Hanna-Barbera Productions' "KORG-70,000 B.C.", where he shows samples of Lee Filters to Tim Griffith (gaffer), Jeb Gholson (cinematographer) and John Stevens (operator).



In the United States, Lee Filters are only just now being introduced to American film-makers. Our distribution arrangement is with Cinemobile Systems, which, in addition to its fleet of location filming vehicles, operates an equipment sales and rental service for producers.

#### C.T. RANGE

The Lee Filters' range of Color Temperature Orange is comprised of: Full C.T.O. (Daylight-Tungsten 3200°K), 1/2 C.T.O. (Daylight-Tungsten 3800°K), and 1/4 C.T.O. (Daylight-Tungsten 4600°K).

A combination filter is also available, which provides Full Color Temperature Orange with a .3 Neutral Density, or a .6 Neutral Density.

Neutral Density filters are also available separately in grades of 3ND, 6ND and 9ND.

Color Temperature Blue filters available include: Full Blue (for bringing a tungsten light source of 3200°K up to the daylight color temperature), 1/2 Blue (which boosts 3200°K to 4300°K), 1/4 Blue (which boosts 3200°K to 3600°K) and 1/8 Blue (which boosts 3200°K to 3400°K, for that very important subtle fill light, when you are using a combination of mixed quartz and conventional tungsten lamps).

White Flame Green, for use with white flame carbon arcs: Ordinary dye-stuffs are not sufficient to cut out the ultra-violet light produced in arc lamps. Therefore, we include special compounds which strongly absorb the U.V. content and do not fade. Transmission characteristics are such as to permit maximum illumination.

L.C.T. Yellow, for use with low color temperature carbons to correct to 3200°K.

#### COLORS

A full range of color Effect Filters is also available on Melinex base film.

The new base we use was developed by Imperial Chemical Industries. It is heat-resistant and very tough. Its yield strength is  $1.7 \times 10^4$  lbs/sq. inch, with a tensile strength of  $28-36 \times 10^3$  lbs/sq. inch.

These figures prove that we have a base which is stronger and more heat-resistant than the more conventional cellulose-acetate base used so far. This makes it more than suitable for use in front of quartz and FAY lights.

A special polymer resin has been used on the base to carry the dyes. Polymer resin is tough, flexible, heat-resistant and, above all, completely transparent.

Continued on Page 1113



Holmes gives a conducted tour of Lee Filters new facility at Andover to eminent British Lighting Cameraman, Paul Beeson, BSC, Past PRESIDENT of the British Society of Cinematographers. Holmes' long career as a working cinematographer has uniquely prepared him to understand and meet the needs of fellow cameramen working in the studio and on location.

In June more than 250 people attended a champagne reception to celebrate the official opening of Lee Filters new facilities on the Walworth Industrial Estate at Andover, Hampshire, England. The guests included many cinematographers and other technicians from the film and television industries. The mayor of Andover and his wife were on hand to greet the guests.





(LEFT) The author, Merl Dobry, on the lanai of the "Eniwetok Hilton". Cleaning equipment is an everyday routine in the Pacific. In his opinion, the Beaulieu and Hasselblad cameras and the Heric lighting equipment seemed "at home" in the tropics. (CENTER) Elements of the electronic equipment used by scientists on their Eniwetok project. (RIGHT) The *Alpha Helix*, fantastic research ship of the Scripps Institute of Oceanography. Returning to San Diego after a trip to Antarctica, it stopped off at Eniwetok to make facilities available to the scientists.



(LEFT) At times, the only transportation on the island required mechanical attention before it would start. (CENTER) The author states: "The sharks usually join you on the outer reef and, being a natural coward, I would, at this time, find an excuse to surface and work in the boat." (RIGHT) The delicate electronic analyzing equipment used by the scientists had to be lab tested before being placed in containers on the reef.

(LEFT) Like some monster from a Class Z Hollywood movie (or maybe Japanese), this yellow denizen of the deep goes swirling along over the coral. Like most reefs of the South Pacific, Eniwetok attracts a bizarre and beautiful collection of exotic undersea life, both animal and vegetable. (RIGHT) Brent Gallagher photographing some of the vivid coral formations on the outer reef. Scuba gear was not used in this area because of shallow water depth and strong currents.



## AND THEN THE PHONE RANG . . .

Continued from Page 1061

underwater, simply bring along your own light source. Strobes and flash bulbs (blue bulb up close and clear bulbs for your long shots) are great for still work, but for motion pictures you will need a constant light source. A good generator and two or three 650-watt, 3200°K floods can do the trick for small lighting projects. If you're interested in making a good proven system refer to page 80 of "Camera Below" by Hank Frey and Paul Tzimoulis. Enough said about light, as I've just exhausted my knowledge in this field.

### LIVE AND LEARN:

"All work and no play makes Jack a dull boy." After an exceptional authentic native lunch of raw giant clam, prepared by Bob Johannes, the primitive call of the South Seas took over and I began amusing myself by diving off the bow of the *Alpha Helix*. I asked the 1st mate why no one joined in the fun, it was on about the 4th dive and I had just launched myself from the railing when he replied, "It's because of the sharks that cruise around under the boat."

I don't recall touching the water on that dive, only the panic clinging to the anchor chain and calling for a diving mask, to peek into the shadows under the ship. All kidding aside, he was right. "What do I do now," I asked: "Take pictures of them," replied the 1st mate and he lowered a set of fins and my 35mm camera over the side. I was then joined by Brent Gallagher and his camera, as he wished to take a few shark photos back to the University of Hawaii.

In some nutty way it's reassuring to have someone else in the water with you, sort of a 50/50 chance of your "diving buddy" looking more appetizing than you do.

In the days of diving that followed, I learned that sharks are always with you at Eniwetok, Grays, White Tips or Black Tips. But only on one occasion did things get hot and Dr. Johannes had to fend one's charge off with a 4-ft. shark prod.

I am not mentioning this to build any danger into my business, or "man-against-the-sea" element, but to inform those who will be diving in this area, or other Southern Pacific waters, to study and know their environment. Always wear good tennis shoes, preferably not white, to protect your feet from coral cuts and possibly stubbing your toes on a stone fish. One of the scientists captured one in a bucket and moved it from our favorite wading bath. You should also be able to identify "fire coral" and that's easy, because it's the one you're always backing into!

### PHOTO PROBLEMS

The photo problems encountered were rather standard, high humidity, ocean spray on your lenses and filters, 5-knot currents, rain, heat, sand, two tons of diving and camera gear and no one to help carry it, not enough time, but nothing that could not be solved by a gin and tonic—or, if you preferred, a frozen Sara Lee cake from our beach refrigerator located under a coconut tree. (A.C. courtesy of the *Alpha Helix*.)

### HOUSINGS

Housings for the underwater cameraman are almost as numerous as the cameras on the market.

They range from plexiglass, or modified brand name plastic units which are adaptable to several cameras, to specially cast metal alloy housings, such as the Mako Arriflex, Ribikoff, Millekan, and the beautiful new Beaulieu housing by A.L. Becker Engineering.

The Becker unit utilizes 200-ft. magazines, a single lens

reflex system, and power zoom, yet!

My personal preference leans toward the cast style of housings, as they are generally aerodynamically shaped, strong, don't scratch easily, and the handles can be smoothly designed and cast in the right places.

A friend once said to me, "Yeah, that's all very good, but you can't see inside when it's leaking." My only response is "Why in the world are you shooting with a housing that leaks?"

### VIEWING, SIDE, OR SLR

Outside sights, viewers, crossbars etc. certainly make zeroing in on your subject quick and easy.

There is no loss of scene brightness due to F-stop light falloff, and focusing is done by estimating camera-to-subject distance.

Perhaps herein lies the weak link in the side viewer. When you move in for big closeups and macro work, and precise focusing is a must, as your depth of field may only be one inch or less. A single-lens reflex at this point is a great asset.

### S.L.R. & GLASSES

Most 16mm and 35mm movie cameras have diopters corrections in the eyepiece and if you can get your eye and face mask close enough to the eyepiece, no problem.

Working with a SLR still camera without viewing corrections can be a problem, as you may never see your subject in focus, if you don't have 20-20 vision. Some "artists" I know never do anyway. If you wish to correct your vision, it can be done by using a diving mask with an optically ground lens or face plate.

### EXPOSURE

The same principles apply underwater as they do in surface photography—"Use a light meter."

In-camera, and reflective types, such as the Sekonic Marine, are perhaps the easiest to operate, and simplicity in underwater photographic equipment is worth paying for.

### LENS CHOICE

The trend for years has been toward the wider angle lenses as they give good depth of field and help to compensate for the magnifying effect between the water and the flat surface space of your housing.

The Newis dome ports and aqua-correction lenses eliminate this effect.

More recently, the careful use of normal and longer focal length lenses is being realized.

There are even lenses for the diver who wants to get only half-wet. The "over-under" lens enables you to film by splitting the surface line in the center of your lens, and keeping both above- and below-water subjects in focus. Coles Pheniz makes such a rig.

### FILM STOCK

As the water has a scattering effect on light there is a general loss of contrast ratio, and films regarded as a bit contrasty on the surface may be just what you need in your undersea studio.

For example M.S. 7256 ASA 64 daylight film gives you a little extra speed over ECO 7252, and snaps up the contrast.

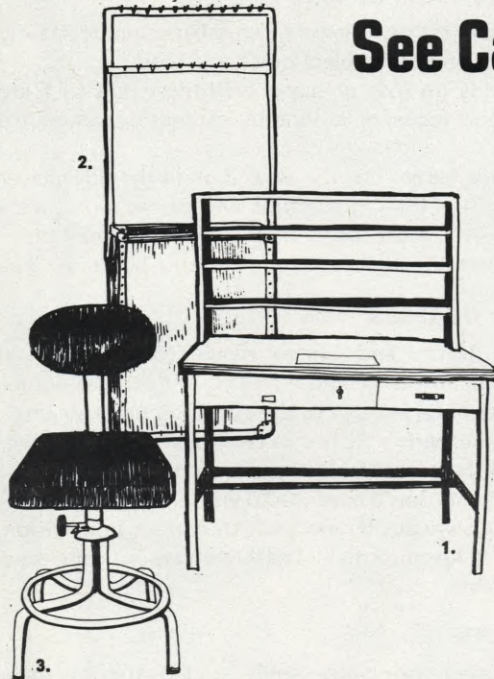
Armed with this vast assemblage of knowledge we are now ready to jump in and get our feet wet.

The week of filming on Eniwetok rolled by at 400 frames per second and, unfortunately, the "phone rang" once again, and prior commitments called me back to California just as I was about to discard my clothes for a loin cloth and blend into the coconut groves. ■

Continued from Page 1049

# Editing Equipment for motion picture and TV?

## See Camera Mart.



**1. CAMART EDITING TABLE** Custom-built, heavy-duty all welded steel construction, genuine formica top (flush trim). Built-in light-well (9" x 12") with 1/4" frosted plexiglass. U.L. approved. 28" x 33" x 60" with light box \$149.95, without light box \$129.95, other sizes, prices on request. (Packing charge for deliveries outside New York City Area.)

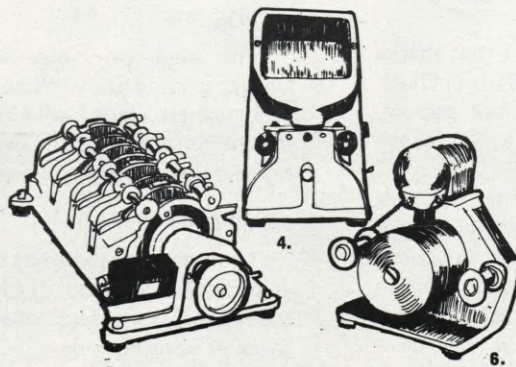
**2. CAMART FILM BIN** • Rectangular construction—30" x 24" x 12" • Vulcanized fiber with reinforced metal frame • Double-row racks. Complete with rack and scratch-proof liner. With skids \$49.00, with casters \$56.00

**3. EDITORS SWIVEL CHAIR** Seat and back-rest are deeply up-holstered with Durafoam. Mounted on heavy gauge steel seat pan 17" x 16". Adjustable backrest. All welded tubular steel frame. Without casters \$41.60, with casters \$45.00.

**4. 16mm ZEISS MOVISCOP VIEWER** Sharp 2 1/4" x 3 1/4" picture. Large magnifying screen, hooded against stray light, shows exceedingly bright image, right to corners. • Film can be run backward or forward, left to right. • Fits Precision sound base. \$249.00.

**5. MOVIOLA SYNCHRONIZERS** Easy to read. Easy to operate. Strong cast aluminum frame. Main Shaft turns on sealed, precision ball bearings. Film retaining rollers equipped with self-lubricating bearings. All parts machined for interchangeability. From \$110.

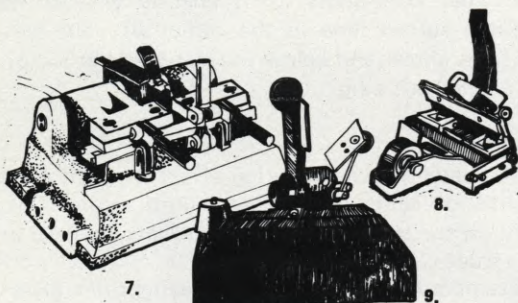
**6. MOVIOLA OPTICAL SOUND READER MODEL SRB-35** 16mm, 35-32mm \$195. Moviola's versatile optical sound reader, reads left to right, right to left, emulsion up or down.



**7. M-H PROFESSIONAL HOT SPLICER** Cuts splices and welds in one operation. Low visibility splices made at frame line. Built-in "life-time scraper blade and holder." Precision, full fitting pilot pins. Thermostatically heated blades make perfect welds-fast. Model 135-16/35mm \$379. Model 116-8/16 mm \$274. Model 8/16S-\$324.

**8. GUILLOTINE SPLICER** • Precision machined for accurate registration. • For use with non-perforated Mylar or Cellulose Tape. • Cuts straight for picture and diagonal for sound 16mm Model \$204.00 35mm Model \$230.00.

**9. RIVAS MYLAR SPLICER** Constructed to professional specifications for 16 or 35mm film. Registration pins align the film perfectly while the serrated cutter holds the tape firmly over the film during the splicing operation. Rivas 16 or 35mm straight \$150, diagonal \$160.



For Editing Equipment catalog write:

**CAMERA MART**

THE CAMERA MART, INC.

456 W. 55th St., New York, 10019 (212) 757-6977

SALES-SERVICE-RENTAL

is just right and we're going to shoot the whole thing in reality.", it wouldn't faze me in the least. But I think you do limit the movement of your camera, particularly in real interiors, because you just can't move around the way that sometimes you might like to. Obviously, you are limited much more to cuts. The theory that some people have that actors are only at their best working on locations is a lot of baloney. Good actors are just as good on the stage as they are in the real locations.

**QUESTION:** However, as to the blocking of their movement, you are somewhat restricted in small rooms on location, aren't you?

**SCHAEFER:** Yes. I'm constantly forced to start out by saying: "Where can I put my camera?" or "What can we do with our lights?", and then I plan the scheme of movement around that. But that's just another limitation, and it has its own rewards. Half the time, film-making is just understanding whatever limitation you're working under and then taking advantage of it.

**QUESTION:** I know that you have an early air date for the first of this series and I'm wondering how you've managed to work your editing around your shooting schedule on the shows yet to be filmed.

**SCHAEFER:** Right now we're halfway through our fifth show. We have the remainder of that and all of the sixth yet to shoot. The opening show I've gone through and edited, because it goes on the air September 6th and they had to get to work cutting negative on it. The other five are just going to be sitting there—hundreds and hundreds of rolls of film, waiting for me to spend the rest of the year editing them and getting them completed. I can't imagine turning this phase over to anyone else to do. I've got two wonderful editors working on them with me, both of whom I've worked with before. I would say that it will take me six full days of working closely with the editors on each one-hour show before I get it somewhere close to the shape I had in mind when I was planning it and shooting it.

**QUESTION:** How have your editors reacted to editing the 16mm negative—realizing, of course, that so far they've been handling just the workprint?

**SCHAEFER:** Jimmy Heckert had al-



ready worked in 16mm, but the other editor, Jerry Taylor, had not, and I think it took Jerry a little while to get used to the different fingerwork and the difference in timing. I've not yet worked with Jerry, because it just so happened that Jimmy was assigned to the opening show. In working with him at the Moviola I had no difficulty at all. I was wondering what it would be like, but the 16mm picture on the Moviola is the same size as it would have been with 35mm. That little roll of film looked awfully tiny sitting there on the shelf, but the actual speed with which he was able to handle it and work with it seemed to present no problems, so I can't honestly say there was any major difference. I think that the 16mm film itself gets mangled a little bit more easily than the 35mm because of the lack of the additional sprocket holes. That can be a terrible nuisance when you're running the whole thing, because it jumps around in the projector when you wish it didn't. On the other hand, there is one great advantage to the 16mm and that is that everything we shot is printed—whereas, ordinarily, when you edit the thing, you say: "Oh boy, there's one thing I didn't print up. Take two had something interesting in it—but did he sit earlier or later?" You sit and debate and ask yourself whether it's worth the phone call and the two-day wait for them to print up something that you might not want at all once you see it. With everything printed in 16mm, it's all right there available to you at a moment's notice and you can take a look at it right now and decide. I've found that to be a very pleasant advantage of editing the 16mm. I'd rather not give a final opinion until I've seen an answer print, and I hope there aren't going to be any unpleasant surprises in the handling of the negative and the balancing of the color. At first we had a real problem with Holbrook's makeup, which is all rubber and special coloring, but it's now coming up extremely well in most of the dailies. In a few scenes, it has a chocolatey look, so we're obviously going to have to balance our color carefully so that he has a completely normal and human look the whole time. I have every reason to believe that he will, but I gather that this particular type of near-feature studio work in 16mm negative is somewhat of an experiment—pretty much new territory.

**QUESTION:** It certainly is in America, but production facilities in other countries have been using the 7254 16mm negative for years on their top television shows—most notably the BBC in London—with beautiful results.

**SCHAEFER:** I'm surely hoping we will, too. There's certainly no reason why one shouldn't use 16mm negative, if the saving has been as much as they've been estimating. I won't know until all of the figures are in, but it has to be balanced somewhat against the extra time it takes me to shoot the extra takes. Presumably, with a bit more work and experience, we should have the same degree of confidence that we now have with 35mm, so that if you get what you want in one take, you can go on without any extra worry about the handling. It

seems that the camera reloading takes just a shade longer in 16mm, but if this becomes a very operative way to shoot TV film, they may come up with a form of semi-automatic loading that will pick up 20 minutes a day. That would be an asset. As for the little camera, they've done a lot of additional work on it since we started. At first there was a bit of a noise problem, especially when working in small interiors, but now, with the work they've done on it and the new housing they've put around it, camera noise is no longer a factor for us. ■



## THE LEADING INTERNATIONAL FESTIVAL OF THE PROFESSIONAL FILM & TV INDUSTRY

Now in its 17th Year

The only Festival to encompass all phases of film production:

- TV & CINEMA COMMERCIALS • FILMSTRIPS •
- INDUSTRIAL, EDUCATIONAL & NEWS FILMS •
- TELEVISION PROGRAMS • LEAD-IN TITLES •
- MULTI-MEDIA PRODUCTIONS • ETC.

NOVEMBER 4-8

### 4-Day Program includes:

Visits to an Advertising Agency and Television Station, to Videotape Production Houses & Facilities, to Film Laboratories & Multimedia Studios, to Optical Houses & Post-Production

Firms, etc. — Seminars on Testing Audience Appeal, Computer Produced Films, etc. — Screening of Commercials & Films. — Awards Presentation Banquet, etc.

For applications, detailed program, rates, etc., write, phone or wire:

**THE INTERNATIONAL F.T.F. CORPORATION**  
251 West 57th Street, New York, N.Y. 10019

Phone: (212) 246-5133

Cables: INTERFILM

## TREISE saves you money and "down time" by installing a processor in 2 to 5 days!

You know our reputation for building fine quality continuous lab processors.

But what you may not know is how quickly we can install one of our units.

The usual installation often takes up to 3 or 4 weeks and can be costly.

(That's why it is not generally mentioned in processor advertising.)

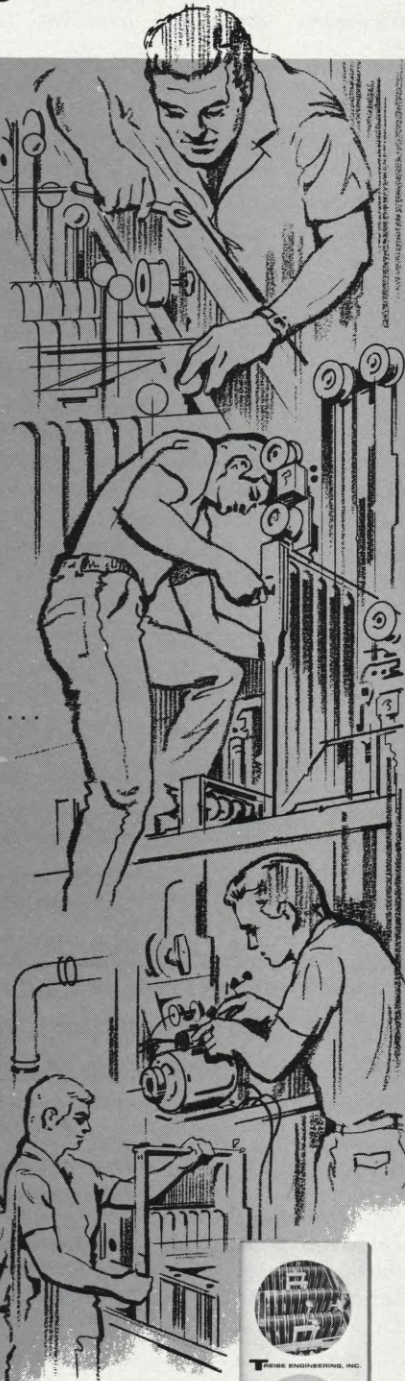
But we're more than happy to discuss it.

Since Treise Processors are modular, self-contained units, with compact components, we've been able to eliminate most installation problems. We can position a processor, connect systems, and normally establish working procedures in 2-5 days, depending on the size of the unit.

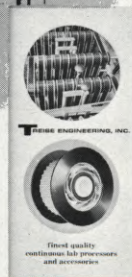
This remarkably quick installation puts you in operation faster . . . reduces inconvenience and plant disruption . . . minimizes "down-time" . . . and (if the new equipment is a replacement unit) saves much of the cost of outside processing.

These are important considerations. And are as much a cost factor as the price of the processor itself.

Many of our customers have discovered that it is more practical to buy a fine-quality Treise Processor, which may cost a bit more than other equipment but can be installed in a fraction of the normal time.



Write for free 32-page catalog on Treise Processors and Accessories



### TREISE ENGINEERING, INC.

1941 First St., San Fernando, Calif. 91340 • (213) 365-3124

### ACADEMY AWARD TO STUDENT FILM

Ben Levin, a graduate student of film in the School of Communications and Theater, was the winner of a special Academy Award in the first national competition honoring outstanding achievements by college film-makers. Temple's entry was selected from among 300 films submitted by colleges and universities all over the United States at a special screening for the members of the Academy of Motion Picture Arts & Sciences in Beverly Hills. The picture, a half-hour documentary called "You See . . . I've Had a Life", is a quiet but moving portrait of the last eight months in the life of a 14-year-old Philadelphia boy stricken with leukemia.

Levin, who is 31, came to Temple's Radio-Television-Film Department three years ago after visiting schools on both coasts which offer film training programs. Having graduated from the Eastman School of Music, done post-graduate work in musicology, and then served four years in the U.S. Marine Band, he had reached a crossroad in his professional career which led him to search for other ways of satisfying his artistic aspirations. Like many others of his generation, he sensed in the film medium a possible way of expressing creative feelings in a manner not open to him as a musician.

"I came to Temple," he said, "because its program was focused on problems in the real world, because it had physical resources the equal of any in the country, and because of the people that I would have a chance to work with there." Five of the film professors headed programs of their own at other institutions before coming to teach at Temple. During their professional careers, members of the department faculty have made almost 3,000 films, worked in 82 different countries of the world, and trained a whole generation of broadcasters and film-makers not only in the U.S. but in the Middle East, Brazil, and Africa. Together, they have contributed 286 articles and 13 books to the scholarly literature in their field, earning 144 awards, citations and honors including two "Emmys" and a recent Pulitzer prize nomination.

Though film was added to the broadcasting curriculum only five years ago, the integrated programs leading to B.A., M.A., M.F.A., and Ph.D. degrees now

# ACTIVITIES

enroll almost 800 majors. Levin's "Oscar" from Hollywood is the most recent of 11 awards won by film students at Temple in the short time the program has existed. In hearing of this latest honor, he commented on the freedom of choice a film-maker experiences within a university, remarking, "One may never quite sense the likes of it in the rest of one's professional career."

## BRITISH DESIGN AWARD FOR TAYLOR HOBSON VAROTAL TV ZOOM LENS

The Taylor Hobson Varotal 30 color television zoom lens system made by Rank Optics, a company within The Rank Organisation, has been chosen in England for a Design Award in the Engineering Section of the 1974 Design Council Awards, it has been announced by Rank Precision Industries, Inc.

Designed by a team of research and development engineers headed by E. D. McConnell, the technical manager, the Varotal 30 lens is the latest in a range of television zoom lens systems made by the Leicester-based team which has been involved in advanced optical developments for many years.

Following years of experience gained working closely with television program directors, cameramen and engineers throughout the world, the Varotal 30 was launched 2½ years ago. It is available through Rank Precision Industries in the U.S.A.

With the lens and its associated control systems, a director can achieve very wide or very narrow angles and genuine close-up effect shots. The cameraman can choose from five different control systems—three servo, one manual and a further one that combines the two types.

Use of new optical principles in the Varotal 30 achieves an 18-inch (45cm) minimum object distance and a horizontal angular field of view up to 56 degrees. The servo system has three plug-in modules for zoom, focus and iris and new demand units for both zoom and focus. A range extender on the lens gives an angular field of view of from 30 degrees to 3 degrees without shifting the focal plane or altering the center of gravity.

More than 250 Varotal 30 lens systems are in constant use throughout the world in various versions to suit the

NOW, "pre-plan" your SOUND BUDGET!  
 "READY FOR THE LAB" 16mm. (SPECIAL RATE!)

including:

NARRATION recording Sound EDITING to Picture  
 MUSIC (and clearances) All 16mm Magnetic stock  
 SOUND EFFECTS MIXING  
 ALL TRANSFERS COMPOSITE magnetic sound track



\$600.<sup>00</sup> per 400FT, 16mm reel

QUALITY SOUND INC.  
 5625 melrose avenue  
 hollywood, ca 90038  
 213/467-7154

**qsi**

# The world's best studio lighting - IANIRO.

# And only from STRAND CENTURY.

The finest, most beautiful line of studio and location lighting equipment, proven and preferred all over the world, is available here only from Strand Century. The pioneers and leading producers of advanced lighting equipment, Strand Century can supply every need — professionally and efficiently.



- |                   |                             |
|-------------------|-----------------------------|
| Fresnels          | Stands                      |
| Softlights        | Barricuda poles             |
| Location fixtures | Grips                       |
| Kits              | Color media in a vast range |

And, the most versatile and effective cyclorama lighting available



**STRAND CENTURY INC.**

A COMPANY WITHIN THE RANK ORGANISATION  
 20 Bushes Lane, Elmwood Park, N.J. 07407 / (201) 791-7000



CORPORATE HEADQUARTERS

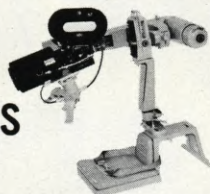
## TYLER CAMERA SYSTEMS

14218 Aetna Street, Van Nuys, Calif.  
(213) 989-4420

16mm—35mm—70mm Vibration Isolation Camera  
Mounts for Helicopters, Cars, Boats, Cranes, Airplanes.

COMPLETE FILM PRODUCTION SERVICES  
HELICOPTERS • CAMERAMEN • CAMERA PILOTS

New York (212) 431-3930	Toronto (416) 920-5424
Miami (305) 757-5988	Sydney 43-1162
Newark (201) 636-3600	London (01) 452-8090
Trenton (609) 771-9500	London (01) 223-2323



different TV cameras on the market. Exports of the Varotal 30 account for more than 80 percent of production.

This Award to the Varotal 30 by the Design Council is the third successive year in which products made by companies within The Rank Organisation have won Awards.

### INTERNATIONAL FILM FESTIVAL ANNOUNCES 1974 DATES

The INTERNATIONAL FILM & TV FESTIVAL OF NEW YORK 1974 will be held from November 4-8 at the Americana Hotel, announced Mr. Herbert Rosen, Chairman and Festival Director. Now in its 17th year, it has become through its consistently high standards the leading annual international event of the professional film and TV industry.

The Festival encompasses all aspects of production from Filmstrips, Industrial and Educational Films, Television and Cinema Commercials to Television Programs, Newsfilms, Promotional Films, Introductions and Titles, Multi-Media, as well as Mixed-Media Presentations. It provides a unique opportunity for filmmakers to meet and exchange views on the exciting developments in film today, and, at the same time, to vie for its coveted awards.

A Grand Award is presented to the most outstanding entry in each section, and there are gold, silver and bronze medals for each category under each section, as well as special achievement awards. The winners will be announced at the Awards Presentation Banquet on Friday, November 8, which was attended last year by nearly one thousand guests from all parts of the world.

As in previous years, there will be an extensive lecture program, seminars, and continuous screenings of outstanding film and TV productions as part of the Festival. An interesting feature of this year's program will be again the visits to videotape production houses and facilities, film laboratories, multi-media studios, optical houses and post-production firms.

Further details and entry blanks may be obtained from The International F.T.F. Corporation, 251 West 57th Street, New York, N.Y. 10019.

### INDUSTRIAL FILM FESTIVAL AWARDS FOR AUDIO VISUAL PROGRAMS

In its largest and most elaborate program to date, the U.S. Industrial

COMPLETE 16mm  
MOTION PICTURE  
LABORATORY

Processing ECO, EF,  
MS, Kodachrome,  
work prints

Extensive music  
libraries and  
sound effects

For the most exacting  
professional 16mm film  
processing and for truly  
personalized service,  
call John LeBlanc today.

16mm Ultrasonic  
cleaning

Complete line of  
16mm equipment,  
from cameras to  
editing equipment

Editing and Sound  
recording facilities

Scene to scene  
color correction

Color Reversal  
Prints  
Silversound  
application

Color Positives  
and  
color internegatives

We guarantee our personal  
attention to your  
every request.

WRITE FOR OUR PRICE FOLDER

ANYTHING ELSE WE CAN DO?

## PAN-AMERICAN FILMS

822 North Rampart Street New Orleans, La. 70116  
(504) 522-5364



Film Festival presented first place "Gold Camera Awards", "Silver Screen Awards" and special awards to outstanding audio visual programs entered from 12 nations in the 7th annual competition.

Over 500 film programs competed for recognition in various categories of subject matter with over 250 people from five nations witnessing the presentations.

"We The People", a 6-projector, 3-screen presentation based on quotations of famous Americans and winner of a "Silver Screen Award," was shown by its producer, Cal Dunn Studios, Inc., Chicago.

Photographic history was repeated with complimentary tintype photos made of the festival guests using the original 1860's process through the courtesy of Silver Dollar City, Missouri.

The Chairman's Special Award, top award in the festival, was presented to "Portrait of A Railroad" produced by Francis Thompson Inc. for the Burlington Northern Railroad of St. Paul, Minnesota.

The annual Back Stage award for outstanding creativity in public relations went to "Hybrid Vigor—Key to Abundance" produced for Pioneer Hi-Bred International Inc., by Joe Munroe-Photography, Orinda, California.

A new special award this year was presented by Technical Photography Magazine to Bechtel Corporation, San Francisco, for their in-plant production "The Ertsberg".

#### FIRST ANNUAL SANTA BARBARA INTERNATIONAL FILM FESTIVAL

Santa Barbara, one of the world's most beautiful cities and a major cultural center of the western hemisphere, will be the scene of a new international film competition to be held annually every fall, beginning this coming October. A panel of distinguished film-makers and educators will award 15 major trophies and cups, Honorable Mention Certificates, and cash prizes to the winners. A national film distributor will select an exhibition package from among the entries.

The competition is open to amateur and student 16mm, 8mm, and Super-8mm films of under 30 minutes in length. For information and applications send a stamped, self-addressed envelope to: Festival Director, Santa Barbara International Film Festival, P.O. Box 545, Santa Barbara, California 93102. Deadline for receipt of entry forms is July 15, 1974.

# THE FILM SCHOOL <sup>TM</sup>

Once upon a time GREAT BIG STUDIOS made all the IMPORTANT FILMS. It took lots of heavy equipment and lots of heavy people.

Times have changed.


Today it's lightweight equipment. Small crews. Independent film-makers.

The Film School is the place to learn independent film-making. Located just 30 minutes south of San Francisco ☐ Half Moon Bay. Students work with award winning professional film-makers.

With only eight students in a class, there's enough 16mm equipment to go around, and instructors have time to help you individually.

Beginners or advanced students. Day or evening classes. But most important, we care about you and how we can teach you techniques it took us years to master. Send for our free catalog:

The Film School,  
P.O. Box 907, Dept. C,  
Half Moon Bay, CA 94019  
or call (415) 726-5537.



## After it leaves your hands, put it in ours.



Photo Processors is the fastest growing film and photo lab in the Southwest. For a good reason.

We have the equipment and the professional staff to make your professional life easier.

Our advance scheduled processing techniques move your jobs rapidly through a world of quality control.

Here are some of our services:

- ★ 16 mm ECO-3 Ektachrome Processing
- ★ 16mm ME-4 Ektachrome Processing & Printing
- ★ Silver Sound Track Application for 7389 & 7390
- ★ Super 8mm ME-4 Processing
- ★ 16mm B/W Reversal Processing & Printing
- ★ Super 8mm B/W Reversal Processing
- ★ 16mm Color Internegative/Positive
- ★ Ultrasonic Cleaning
- ★ Eastman Video-Color Analyzer
- ★ Additive Color Printing—16mm
- ★ Complete Modern Sound Dept.—2 Studios, Mixing Theater
- ★ Complete Modern Custom Still Photo Finishing Dept.



**photo processors inc.**  
Box 2116A • Austin, Texas 78767 • Phone AC 512-472-6926

Golden Gate Helicopters provides professional service to professional film makers. Our pilots anticipate your cameraman's needs and get you the shots you want. And we have a list of credits to prove it. One of our pilots is a member of SAG, and can even appear in your film if you need him.

# NORTHERN CALIFORNIA'S MOST EXPERIENCED FILM PILOTS

As the exclusive representative of Tyler Camera Systems in Northern California, we have Tyler Mounts available on the spot.

Aerial shots. Panoramas. Zooms. High Angles. We provide the production values that get your film off the ground.

Call or write for more information today.



**GOLDEN GATE HELICOPTERS, INC.**

Bill Knott, President, San Francisco International Airport 415 873-3971

Feature Films • Television • Documentaries • Commercials

## FILM PREFERABLE TO TAPE

Continued from Page 1077

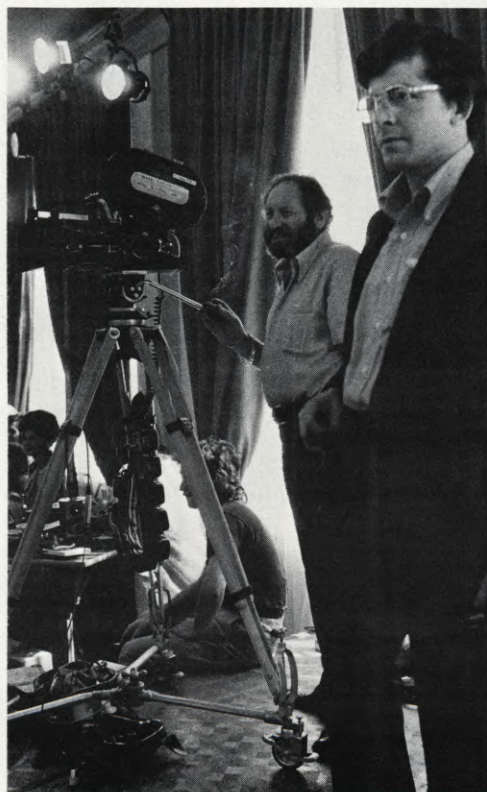
for single-system film-to-tape-to-air transfer. Recording would be from the ballroom public address system direct—simple, neat, whew!

The ballroom would barely accommodate an audience of 600 and, with this anxiously in mind, Larry asked what should be done about music. Musicians take space, precious seating space—and then some. Then, too, their sound would require separate treatment for our sound track. It was decided to prerecord appropriately-suitable music, including fanfares, on ¼" audio tape, and find talent to cue and feed the recorded music through the house sound system. Presto! Instant on-location mix with complete, balanced control during the shoot; minimal postproduction. Wragby's Mike Rogers went to work and I ceased to worry about *that*.

Snap, crackle and popping in the public address system were blithely attributed by all to the hotel's FM paging system, which could and would be switched off during the actual Pageant.

Libé laid out a game plan for the shoot which put him with an Arriflex BL, tripod-mounted, opposite the stage, doing basically the cover, wider angle synchronous footages. Chat Gunter came with his recordist's bag of tricks

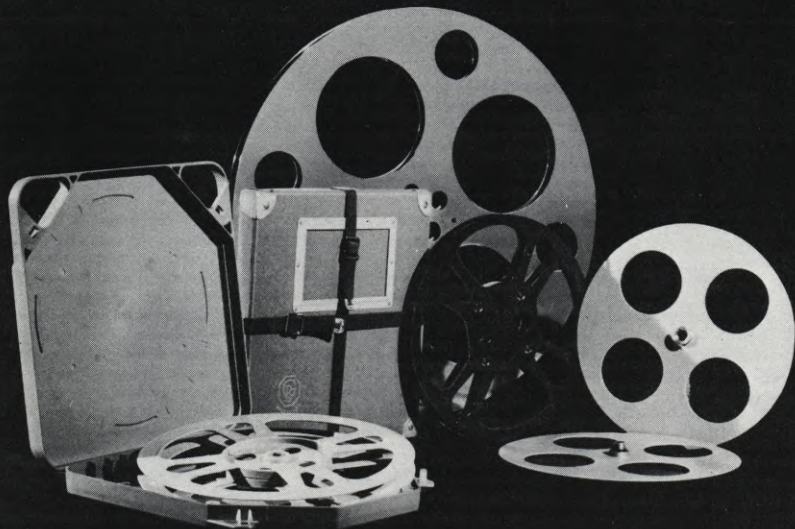
Director Libé Stril-Rever at the camera. "Miss Yankee" Pageant Executive Charles Castigliero (in foreground) checks the action.



## THE REEL WORLD KNOWS THE DIFFERENCE!

Reel perfection is a GOLDBERG tradition! Depend on us for reel quality!

- 8mm & Super 8mm Reels in steel, 200' to 2000'.
- 16mm Reels in steel, plastic and sheet aluminum.
- 8mm & 16mm cans in steel and plastic.
- Shipping Cases in fibre and plastic.
- Split Reels in steel and aluminum.
- 35mm & 70mm Reels in steel and aluminum.



**GOLDBERG BROTHERS**

P. O. Box 5345, T.A. • Denver, Colo. 80217

and wired a synchronizing slate light from his location near the public address mixer-amplifier to the camera position. Libé could push the button twice, Chat would roll tape, a push on the button to expose the light onto the film for exact syncing, and each shot would be under way. Simple, neat, great.

Snap, crackle, pop! Louder still on the Nagra than on the public address speakers, "... but the paging system's been off for over half an hour!" I *knew* it was all just too perfect... the public address system was completely unbalanced, and this in a hotel ballroom atop the hotel roof in downtown Boston... the perfect antenna for every and all electromagnetic glitching, popping and squeaking looking for a home somewhere, *anywhere!* Even on our Miss Yankee sound track.

Unbalanced audio cables are wired with the shieldwire and negative signal return lead fused together; thus, any RF or FM, together with all else electromagnetic, becomes part of your otherwise immaculate sound track, wanted or not. Balancing simply refers to keeping the shielding separate, grounding it away from the signal leads, taking all unwanted audio junk away with it. Chat Gunter set to work rewiring between Pageant Shows; by the time critical footages were to be shot the audio was nicely balanced and clean.

Camera-recorder synchronization was by crystal, and as Libé shot a contestant or group using a reasonably wide angle, I shot closeups, inserts and cutaways with the Eclair ACL, enabling frame-for-frame matching in editing.

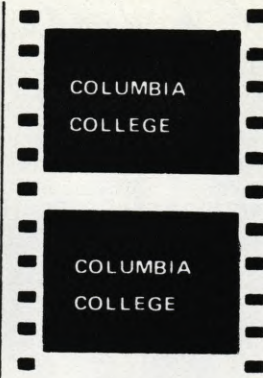
With no budget for work print, we shot Eastman 7242 magnetically-stripped film and had it flashed before processing. The results are pleasing, while the editing is with white gloves on our Atlas Console. The only projection gate the film will see will be in TV master control during the transfer to videotape. This is by no means a desirable way to have to work, but, nevertheless, it's functional in the face of limited budgets and a need to make it happen.

The 1974 Miss Yankee Pageant will be broadcast in the Boston/Worcester, Philadelphia, Cincinnati, Schenectady, and Manchester, New Hampshire markets, initially; we're looking forward to sponsors' help next time. ■

#### MOVING?

When changing your address, please notify us at least four weeks in advance. BE SURE to give your FORMER address as well as your NEW ADDRESS and ZIP CODE.

AMERICAN CINEMATOGRAPHER



Approved for Veterans

A study of the Motion Picture and Television Arts and Sciences within a degree program, taught by a distinguished faculty.

Now Registering. Write for a descriptive brochure.

## COLUMBIA COLLEGE

925 No. La Brea Ave.  
Hollywood, Calif. 90038  
851-0550

**bēbell**<sup>®</sup>  
MOTION PICTURE LAB DIVISION

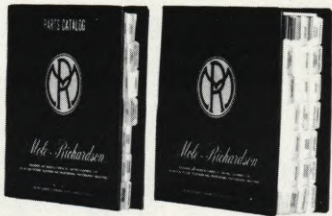
*"Post-Flashes"*  
**HIGH SPEED  
Ektachrome**

*"Post-Flashing"*

If shooting conditions require a high speed film, now you can use 125 speed Ektachrome and ask us to "Post-Flash" it when it comes in to our laboratory for developing. "Post-Flashing" will lower the contrast inherent in the film and, in addition, bring out details in the shadow areas.)

Call Herbert Braun at  
**(212) 245-8900**

**bēbell**<sup>®</sup>  
**INCORPORATED**  
416 West 45 St. New York 10036



## Mole-Richardson Co.

937 NORTH SYCAMORE AVENUE  
HOLLYWOOD, CALIFORNIA 90038

DESIGNERS AND MANUFACTURERS  
OF LIGHTING EQUIPMENT FOR THE  
MOTION PICTURE, TELEVISION AND  
PROFESSIONAL PHOTOGRAPHIC INDUSTRIES

Please send \_\_\_\_\_

Equipment Catalog @ \$10.00

Parts Catalog @ \$8.00

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Add \$5.00 per catalog for surface parcel post outside U.S.A.  
Add \$17.00 per catalog for air parcel post outside U.S.A.

## NEW NEGATIVE STOCK

Continued from Page 1075

of uncoupling, we have become free of the restraints of having to justify our overhead. Anyone who has been in the production business for any length of time should recognize that syndrome.

How many commercials are produced on a sound stage simply because the producer making it owns one? That might be a generalization, but it unfortunately is true. Like any industry, we have had a great deal of inbreeding, some of which we are now in the process of shucking off.

To come back to my question: Why will the new negative be particularly important to the commercial production industry in the 16mm format? Because this country is filled with young talented production people, free-lancers of all types, directors, cameramen, sound people, gaffers, you name it. And what they generally know best is 16mm production.

Where have they come from? Our schools, private and public turn out hundreds, maybe thousands of them every year. From there many of them have sifted into industrial and educational filmmaking, television, or just free-lancing. I would guess that maybe 25 to 50 percent of the readers of this magazine alone could fit that description. I once did myself.

In addition, there aren't too many places in this country where you can go to work on location and not be able to rent professional 16mm cameras and related production equipment. What this does is open the door for producers to really uncouple and become creative services, the same way that ad agencies are streamlining.

The fact is that if a sponsor or ad agency hires me to originate a commercial on location in Phoenix, or Seattle, the less equipment and personnel that I have to transport there, the lower my cost and the more competitive I am going to be.

I know that some production house owners are going to reject that premise. They are going to believe in their hearts that they have better people on their own staffs, people whom they are used to working with. And let's be totally honest. They aren't going to be all too anxious to introduce a first-class Director of Photography, who might be a competitor tomorrow, to his clients.

My feeling is that sooner or later, these people are going to have to face some hard facts. One is that if you have a better gaffer or soundman on your staff than the free-lancer you can hire in Phoenix or Seattle, and he is worth the price of



# IN MEXICO 16 mm. FILM PRODUCTION

## cameras

✓ ARRIFLEX BL 16

✓ CP 16

✓ BOLEX EBM

✓ CP 16/A

## sound

NAGRA, IV, SN

STEENBECK EDITING FACILITIES

PALMER, BAUER, AMPEX RECORDING

PLUS EXPERIENCED CAMERAMEN, SOUNDMEN  
AND EDITORS



*Altogether* IN MEXICO'S  
biggest 16 mm.

## PRODUCTION CENTER

NOTIMEX  
INSURGENTES SUR  
No.1700  
MEXICO 20, D.F.  
MEXICO



PHONES:

524 1165  
524 1680  
524 1674  
524 1197

NTX/SPG



transporting and keeping him there, then that settles your quandary. However, every location isn't going to be devoid of free-lance production talent at least as competent as your own staff. The fact is that many of the more talented production people are free-lancing.

And as far as introducing potential competitors to clients, if you do your job well, you shouldn't have a problem. If you don't, you have a problem no matter what you do. So, why worry?

Where does that leave us? With a race between producers to see who can get to Phoenix or Seattle first to originate a 16mm color negative commercial on location using free-lance talent and rented equipment? Hardly.

I started this article by stating that we are involved in an evolution, rather than a revolution. There are still some hard questions that have to be answered about the new negative films and their use. However, even at optimum, they will, at best, become a part of the scheme of things.

As I see it, we still have four major mediums for originating commercials: videotape, 16mm color positive film, 16mm color negative film, and 35mm color negative film. I think that each of these methods of production has its own place.

In our experience with videotape, it has been highly overrated as a commercial production tool. For one, you are still tied to that much cliched umbilical cord which links video cameras to VTRs, and you still have to interface through technical directors and video engineers.

Both of these are restrictive and costly and, perhaps more important, they are time-consuming. I have worked with tape many times in the past (at one point in my career, I was a technical director), and probably will many more times. But one experience that I had recently pretty much sums it up.

An agency hit us with storyboards for a series of commercials, and a deadline which was tight enough to put a lump in your throat. I suggested to them that we originate the series on location on 16mm Ektachrome commercial film. My feeling was that working with my crew, we could get the job done in two days by shooting 20 to 30 setups daily.

They, however, were nervous about the deadline, and felt that they would have better "control" by originating on videotape. I already told you how I feel about having engineers and technical directors whispering in my ear on location, but that was easy to take compared with what happened.

It turned out that the power genera-

tor on the van made too much noise for the sensitive video cameras. (No matter how much these are improved, it stands to reason that they will always be less stable and less reliable than film cameras.) The result: we had to park the van between 100 and 150 feet away from the action.

So, there we were, with all of that wire strung out, and every time we recorded a take, everyone wanted to march back to the van, so they could feel secure about what was on the tape. Then, we usually waited for the engineer to readjust the equipment for the next setup.

*Note*  
It quickly became obvious that we weren't going to get 20 to 30 setups daily without sacrificing something to expediency. The something, we agreed, had to be what the sponsor and agency hired us for in the first place: our production expertise.

Don't get me wrong. It's just that for the time and money invested, we could have done a better creative job by originating on film. I can contrast that story with an example of what I mean.

Shortly after that experience, we got a job from the Los Angeles office of the J. Walter Thompson Company. It was to shoot a series of seven commercials for



## SPECTRA<sup>®</sup> PROFESSIONAL

Known for the company it keeps.

More professional film-makers choose the Spectra Professional than any other exposure meter. They depend on its accuracy and reliability because in the film business, where time is money and every second counts, they can't afford exposure errors. The Spectra Professional gives them the fastest, most accurate readings ever — and more . . .

- **Direct F/Stop Readings**, with Spectra's handcrafted ASA slides that read directly in the 1/50th second speed of professional cinematography (or any other speed you want).

- **Direct Footcandle Readings**, vital in lighting placement and contrast control.

- **Integrated Light Measurement** with Spectra's revolving incident-light receptor that measures

all useful light — key, fill and background.

- **Built-in Computer Calculator** that gives optional one-step readouts for any film, lens, or shutter speed.

- **Fatigue-Free Selenium Cell** insures optimum accuracy and uniform spectral response.

- **Total Systems Concept** makes the Professional a reflected-light meter, a groundglass-reading meter, a contrast-control meter — instantly . . . with snap-on accessories.

- **Superb Quality** — each Spectra meter is hand-made and individually calibrated by skilled technicians in the movie capitol of the world.

Give the Spectra Professional a screen test at an authorized dealer today.

Marketed exclusively in the United States by  
**BERKEY MARKETING COMPANIES, INC., Spectra Division,**  
Box 1060, Woodside, N.Y. 11377 and 1011 Chestnut Street, Burbank, Calif. 91502.



# Super8 Sound Crystal Camera Control for Beaulieu Super 8

Super8 Sound announces the availability of its first Crystal Camera Control. The unit is very small (1" x 2" x 2" on a 2" x 4" mounting plate) and light (6 oz.). It attaches to the grip tripod screw of the Beaulieu 4008ZM2 and 4008M3 Super 8 cameras and provides 24 fps crystal speed control for cableless filming with the Super8 Sound Recorder or any crystal sync recorder. It is accurate to plus or minus one frame in ten minutes, and requires no batteries, since it derives its power from the camera. No camera modification is necessary; the Beaulieu is already remotely controllable through existing connections. The Crystal Camera Control accepts the standard Erlson contact switch (one pulse per frame sync generator), wired with the normal 5-pin DIN plug. \$99. Controls for other Super 8 cameras, including the new Beaulieu single system Super 8 camera, are in development.

The price of the Crystal Camera Control is \$250. An inexpensive Crystal Sync Generator is also available (\$150) for recording in sync with any stereo tape recorder.

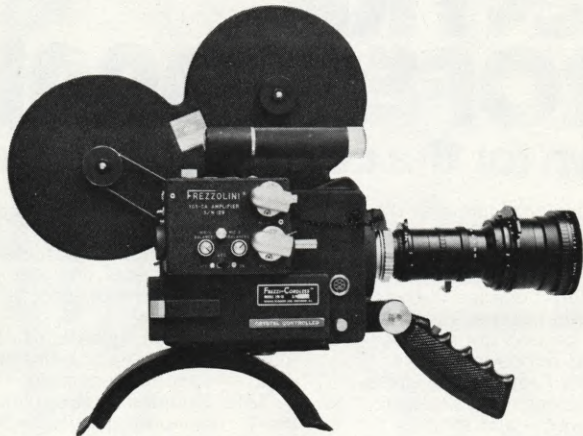
Super8 Sound is a franchised dealer for Hervic Corporation, exclusive distributors in the U.S. of Cinema Beaulieu.



Please send your orders and requests for further information to:

**Super8 Sound™, Inc.**  
95 Harvey Street, Cambridge, Mass. 02140

**"Frezzi-Cordless"™**  
professional 16mm sound camera  
*You have to SEE it to BELIEVE it*



**LET US SHOW YOU—  
TRY IT ON THE JOB!**

NO CHARGE OR OBLIGATION—PHONE OR WRITE

AUTHORIZED REPRESENTATIVE



**CINECRAFT**  
INTERNATIONAL, Inc.



**PHOTOMART**  
CINE EQUIPMENT SUPPLIERS

11 Caesar Place, Moonachie, N. J. Phone: (201) 939-0875

6327 SOUTH ORANGE AVE. ■ ORLANDO, FLORIDA 32809 ■ PHONE (305) 851-2780

Ford on location, in the San Francisco Bay area. Four were 30-second spots, and three were 60-seconds. Six were slated for daytime production, and one was storyboarded for origination at night at the Civic Center Plaza. We had 11 days until prints for these spots had to be delivered to 55 television stations.

Here's what we did. The six daylight commercials were produced on Ektachrome commercial film and, because we needed the extra film speed, the night scenes were exposed on 35mm Eastman color negative film 5254.

We scheduled ourselves to shoot one 30-second spot and one 60-second spot daily. The positive film went right to Highland Labs, in San Francisco, as soon as it was exposed. The 35mm negative film was flown to Hollywood, where it was processed overnight and returned the next morning, the same time that we received the positive film.

After the first day of shooting, we spent each morning viewing and editing film and magnetic sound tracks.

The point is that the day after we exposed our color positive film, we had it processed, edited into A and B rolls and synchronized with an edited sound track. All that remained was for us to turn that material into release prints. We decided because of the deadline for release to make a silent composite answer print and immediately transfer to videotape. We scheduled to roll interlock transfers of each spot to a VTR high band master, color corrections were done at the time of transfer, 55 dubs were made and shipped the same day. The transfer work on all seven spots was done in a two-hour session.

Does all of this mean that we never want to see a video camera again? Not true. It boils down to making the right choice of producing on film or tape or a combination of the two processes. Based on budget, production problems, deadlines and, most important, the type of look you want for that commercial on the air.

It seems to us that Ektachrome commercial film should continue to be an important tool for originating 16mm commercials. Obviously, we don't yet know all that there is to know about the new negative. However, it does appear that when you don't need the additional camera speed, the positive color film is easier to work with, and it produces a heck of a good release print for television.

As for the new negative, I hope that we have made our point. We think it is going to open some important new horizons in location production work. Change is in the air, and who would want it any other way? ■

## CINEMA WORKSHOP

Continued from Page 1016

Probably the most popular use of flashing, and the technique that accounts for its original adoption, is matching the characteristics of EF and ECO when the two stocks must be intercut. Frequently a production is shot with ECO 7252. However, there is a scene or two that requires the increased speed of EF 7241-42. When the two stocks are intercut, the EF footage exhibits its increased contrast relative to ECO. By referring to FIGURE 1, it can be seen that flashing EF reduces the contrast by bringing up the shadows. As a matter of fact, the curve of Flashed EF closely approximates that of ECO 7252.

If ECO and EF must be intercut, merely instruct the lab to flash the EF. No exposure compensation is necessary. Thus, the decision to flash can be made after the footage is shot. I believe flashing results in better EF prints, even if it is not being intercut with ECO. In any case, flashing definitely has its attributes and the cinematographer should familiarize himself with the many facets of this process. ■

### BRITISH FILM WINS GOLD AWARD AT BELGRADE FESTIVAL

**LASER HOLOGRAPHY—A NEW TOOL FOR MEASUREMENT** received a Gold award at the recent 1974 International Festival of Scientific and Technical Films held in Belgrade, Yugoslavia. It was made by the Central Office of Information on behalf of the former Department of Trade and Industry and produced by British Films Ltd.

A film of specific interest to engineers in industry, research workers and students, it demonstrates the principles and some of the applications of holography, in which a split laser-beam records on a photographic plate a three-dimensional image of the object to be measured. This technique, largely pioneered by the National Physical Laboratory, is used in different ways for the study of stress, vibration, deformation, and for non-destructive testing.

**LASER HOLOGRAPHY—A NEW TOOL FOR MEASUREMENT** was written and directed by David Cons and produced by G Buckland-Smith. The cameraman was Ron Bicker and the commentator was Gordon Davies.

The film has a running time of 25 minutes and 16mm prints are available on hire or sale from the Central Film Library, Government Building, Bromyard Avenue, London W3 7JB and its associate libraries in Scotland and Wales.

## If YOU still count f/Stops on your fingers; YOU NEED this ALL-NEW CINE WORKBOOK

**YOU CAN SOLVE ANY COLOR FILMING PROBLEM** with a simple twist of a dial on one of the four bound-in Cine Calculators. Above or below normal 24 fr/sec . . . increased or decreased shutter angle . . . neutral density, color or special effects filters . . . any light level . . . push processing . . . computed with **speed, accuracy and confidence!**

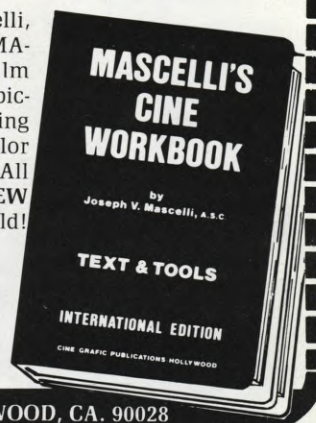
**SEE THE ALL-NEW CINE WORKBOOK TO BELIEVE IT!  
USE THE WORKBOOK TO APPRECIATE ITS WORTH!**

The **ALL-NEW WORKBOOK**, by Joseph V. Mascelli, A.S.C., author of the classic **FIVE C's OF CINEMATOGRAPHY**, includes everything needed by modern film makers to shoot technically-perfect color motion pictures! Greatest text ever . . . a complete set of working tools and cine accessories (slate, gray card, color patches, test grids, etc.) . . . and much, much more! All technical data in **both feet and metric** . . . the **ALL-NEW WORKBOOK** will **work for you**, anywhere in the world!

**NO-RISK OFFER!** Use the **WORKBOOK** for **ONLY 10 days**; and return it for full refund if you are not satisfied. **Incredible Value!** **\$20**

**WRITE FOR DESCRIPTIVE BROCHURE**

Californians add 6% Sales Tax. Foreign Orders add \$1 per book for postage, handling. **NO C.O.D.'s! NO BILLING!**



CINE/GRAFIC PUBLICATIONS • BOX 430 • HOLLYWOOD, CA. 90028

## GENERAL RAYFIN LIMITED

1860 BROADWAY (61 ST.) NEW YORK, N.Y. 10023 • 212-541-6464  
SPECIALISTS IN HORIZONTAL EDITING EQUIPMENT



# WE SPECIALIZE IN FILM EDITING EQUIPMENT AND SUPPLIES

Don't waste time looking for accessories.

Wear them!

# The B & S ASSISTANT



Need a lens, meter, insert slate, filter, spray? Just reach in any one of 12 HANDY, ROOMY POCKETS, six inside and six outside. Heavy duty, reinforced, strongly sewn BLUE DENIM made to last a lifetime. Comes in small, medium, large and extra-large, with or without lapels. Please specify size and style. Catalog No. 2677, \$34.95. Shipping and handling, \$1.50. California residents add 6%.



**Birns & Sawyer, Inc.**

1026 No. Highland Ave., Los Angeles, Ca. 90038  
(213) 466-8211  
CABLE BIRNSAW HOLLYWOOD: TELEX 673280

For quality **SERVICE** at budget prices...motion picture professionals look to **Cinecraft!**

### EDITING

MOVIOLA  
PREVOST  
STEENBECK

### SOUND

NAGRA  
FILMAGNETIC  
MAGNASYNC

### LABORATORY

TAKITA  
BELL & HOWELL  
FILMLINE



### PROJECTORS

SIMPLEX  
BAUER  
PREVOST

### CAMERAS

ARRI  
ECLAIR  
FREZZI

### ANIMATION

ACME  
OXBERRY  
PHOTO EQUIPMENT

You can keep your production costs low and your product quality high with a world of professional motion picture equipment and services available at Cinecraft. In fact Cinecraft can also solve all your filmmaking needs including rebuilt equipment and electronic or mechanical equipment repair or modification. The next time you're looking for equipment or services you can depend on, with a budget price tag, give Cinecraft a call. You'll be in professional company!



**CINECRAFT INTERNATIONAL INC.**  
11 Caesar Place, Moonachie, N.J. 07074  
Phone: (201) 939-0876 Cable: Cinecraft Moonachie

## WHAT'S NEW

Continued from Page 1008

stopped. There is no viewfinder blackout.

With all that, the Arriflex 16BL with its new Crystal-Regulated Motor and Viewfinder Control is lighter than before by about three-quarter pounds and the camera is over an inch more slender. Handling and operating convenience are significantly better.

The new combination motor and viewfinder control and information are available from authorized Arriflex dealers, or by writing: Arriflex Company of America, Box 1050, Woodside, New York 11377.

## BERKEY COLORTRAN ADDS NEW COLORS TO GELATRAN LINE

Berkey Colortran has added nine new colors to its Gelatran® color media line, according to Tom Pincu, product manager. The colors are: Flesh Pink, French Rose, Magenta, Fire, Rosy Amber, Congo Blue, Dark Blue, Alice Blue and Aqua Blue.

The addition of these colors brings the Gelatran line to a total of 31. Gelatran is ideal for motion picture, television, theatrical and still photographic applications and is available in sheets and rolls.

A new booklet of the 31 colors is now available from Gelatran Dealers, or directly from Berkey Colortran, Inc., 1015 Chestnut Street, Burbank, California 91502.

Berkey Colortran is a division of Berkey Photo, Inc., and is a major producer of lighting equipment, lighting control systems and production equipment for entertainment, educational and industrial uses.

## FLUORESCENT FILMING... REVOLUTIONARY DISCOVERY FOR THE PRODUCTION OF INDUSTRIAL AND COMMERCIAL FILMS!

DNA/Designgroup, N.A. Ltd., located at 214 East 50th Street, NYC, has just announced the development of an innovative method for filming 16 & 35mm color film just using available FLUORESCENT lights.

DNA's Director/Cameraman Michael Cooper and Producer Michael Duckman claim the new method (achieved through a camera modification and lens device) is a first in the industry, and should prove to be a boon to the

industrial-commercial and possibly feature film market.

Fluorescent lights of the cold variety, which are in most industrial and hidden camera commercial locations, cause film to take on a blue-green washout quality usually accompanied by a 60-cycle image flicker. But with DNA's new method, there is no flicker, no blue tints, no green washouts . . . just true-to-life, bright, saturated colors. This means no hot lights, no shadows, a fantastic reduction in scene set-up time, and the capability of shooting in script sequence. Ultimately, a better product is produced at lower costs without the usual disruptions caused by a film crew shooting in an office, plant, or other location.

Sample footage is available for screening.

DNA specializes in innovative designs and the production of creative communications. They are a full service company that will travel anywhere in the world on production assignments.

For further information: Write to DNA, 214 East 50th Street, NYC 10022, or call: (212) 486-1460.

#### NEW COPY STAND FOR STILL AND MOTION PICTURE PHOTOGRAPHY

The COPYPRO, a versatile free-standing copy stand engineered for the professional, is now available from the Photo Equipment Division of Sickles, Inc., Tempe, Arizona.

Sickles' new copy stand accepts cameras ranging from 16mm to 8-by-10-inch view cameras. A Super 8 motion picture camera can also be fitted to the COPYPRO. Two copy tables—a clear Plexiglas table and a translucent Plexiglas table allowing suspended and three-dimensional effects—are available with the COPYPRO, along with twin 3200°K copy lights which mount directly to the table. The twin high-intensity, low-voltage lamps provide even color temperature and move with the table to eliminate repositioning. The lights will also swing under the table to provide backlighting for transparency illumination. Optional quartz lights are also available.

Other COPYPRO features include a light-saver foot switch and a revolving camera arm that swings a full 360° to permit shooting at any angle, including wall-mounted materials. The COPYPRO operates on 110-volt, AC power and has a table size of 20 by 24 inches. Overall height is 54 inches. Maximum camera lens to table distance is 48 inches. Minimum lens to table distance

# RENT-LEASE-PURCHASE

The NEW 2, 4, or 6 plate  
Moviola  
Console  
Editors



## LAUMIC COMPANY, INC.

35 WEST 45th STREET / NEW YORK, N. Y. 10036  
SALES • SERVICE • RENTALS

For a demonstration  
or additional  
information  
contact Ted Powers  
(212) 586-7666

Isn't it nice to know we'll be around to service  
your equipment . . . **AFTER THE DEAL IS CLOSED?**®

## THE FIRST BLOO Slate YOU CAN COUNT ON.



ASC's NEW Digital Bloop Slate lights up in brilliant 1" numerals from 0-99. Bright enough to see clearly even in bright sunlight.

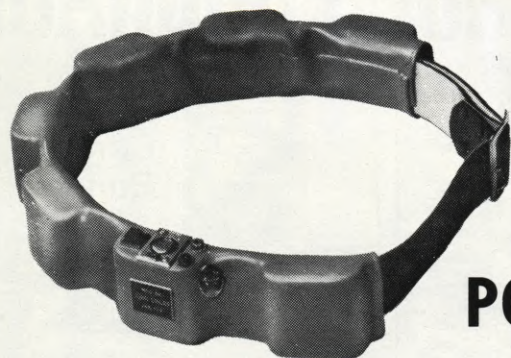
And our sensible new interchangeable plug let's you snap in a coiled cord for any equipment you're using now. Our Digital Bloop Slate is a must for sync sound filming, yet it's only \$147.95. Available ONLY from ASC.

DAVE BURNHAM is waiting by the phone to give you full details. And dealers inquiries are invited. Just call (212) 972-0825.



AUDIO SERVICES CO. 565 FIFTH AVE.  
NEW YORK, N.Y. 10017, (212) 972-0825

## "Portable Camera Power by Chiles"



### THE NEW JOHN CHILES POWER BELT

Available for all professional movie cameras including 30 volt Sungun/Built-in charger 8V to 30V — Up to 8 Amp hours.

### BALANCED RECHARGEABLE NICKEL-CADMIUM BATTERIES

WRITE OR CALL . . .

**JOHN  
CHILES**  
& ASSOCIATES

3410 GALILEE ROAD  
JACKSONVILLE, FLA. 32207  
904/398-7922  
DEALER INQUIRIES INVITED

### Do you want a superb, ready to roll 35mm. outfit for your own studio, complete and at an unbeatable cash price?

MITCHELL BNC CAMERA with 4 x 1000 ft magazines, 220 v-3 phase-50 Hz. Sync. motor and start box, fitted with . . .

ANGENIEUX 10 to 1 REFLEX ZOOM (24 : 240 mm., f2.6 - T3.8) with lens hood/ filter holder, support casting, balancing system, etc.

**\$9,999.00**

Fully serviced by our own engineers before despatch. Double exposure film test provided.

Also available : Set of 7 COOKE SPEED PANCHRO LENSES (18-25-32-40-50-75 & 100 mm.) plus Mitchell side-finder and set of matched auto-parallax focus cams.

**\$2,500.00**

MULTI-DUTY MOTOR 96 v. - DC/220 v. -AC with DC and AC start boxes, cables etc.

**\$600.00**

Many other Mitchell accessories in excellent condition available. Just tell us what you need — AC and DC motors, magazines, lenses, frame cutters, obie lights, etc.

Write to: Dennis Rosario,  
Rentacamera Ltd., 8-12 Broadwick St., London W1V 1FH, England.

is 10 inches.

Price information and brochures are available from Sickles Photo Equipment Division, P.O. Box 3396, Scottsdale, Arizona 85257.

### NEW 16MM 400-FT. MAGAZINE AVAILABLE FROM CINEMA PRODUCTS

Cinema Products Corporation announces the availability of a completely new type of 400-ft. magazine, designed and manufactured by Cinema Products, for all 16mm cameras that presently utilize the Mitchell-type magazine.

The new PLC-4 magazine is made of high-impact glass-filled Lexan® (an extremely rugged material used in the manufacture of hard hats and football helmets), which completely eliminates the problem of film spotting caused by particles of magnesium adhering to the film emulsion and then reacting in the developing bath.

The new PLC-4 is a compartment-type magazine, permitting the use of either 200- or 400-ft. darkroom cores or daylight load spools. It utilizes hinged doors which provide quick access for loading and unloading. The doors have a triple-step light trap to insure against light leaks. Two thumb-activated latches on each door guarantee positive safe closure. If a latch is not fully secured, a bright luminescent orange band is visible to alert the camera operator. The toe of the magazine is a removable aluminum insert which makes repair and replacement of the toe a simple matter.

The PLC-4 magazine is compatible with either of the conventional screw-down fastening methods or the unique Cinema Products' snap latch stud technique. The PLC-4 is priced at \$160.00.

For further information, please write to Cinema Products Corporation, 2044 Cotner Avenue, Los Angeles, California 90025.

### IMPROVED SPECIALTIES EDITOR

SPECIALTIES EDITOR now has as standard equipment a new "plug-in" power supply and replaceable "plug-in" amplifier units. This custom-built compact editing system is designed to make any bench a professional editing bench. Pressing the foot switch or hand switch transports up to three magnetic tracks, plus picture track at sync-sound speed. Releasing the foot or hand switch allows freewheeling in both directions for editing, marking, or viewing at any desired speed.

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

**SPECIALTIES EDITOR 16mm** is \$895.00 complete, less viewer. Super 8 is available on special order. For further information contact: **SPECIALTIES DESIGN & MFG. CO.**, 3429 Encina Drive, Las Vegas, Nevada 89121. Phone (702) 451-5290.

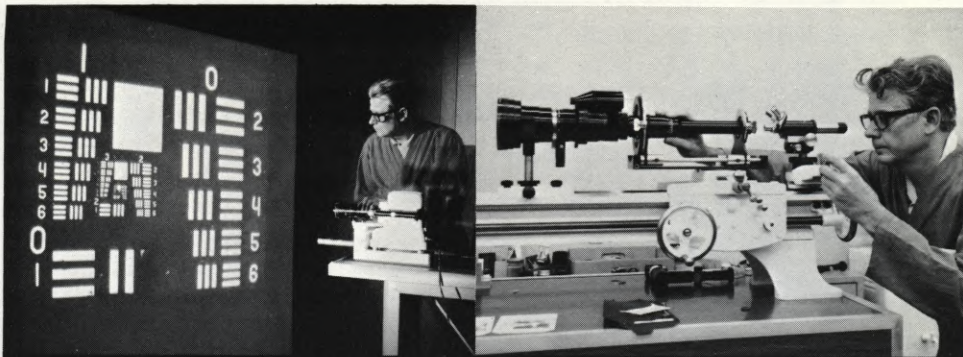
#### **MITCHELL ACQUIRES MANUFACTURING AND SALES RIGHTS TO WILCAM CAMERA**

Mitchell Camera Corporation has acquired manufacturing and sales rights to a new lightweight 16mm professional motion picture camera which will be marketed as the Mitchell/Wilcam W-2 + 4.

A single/double system sound camera designed for both news and documentary work, the Mitchell/Wilcam features all-magnesium construction, a mirror reflex shutter, and an integral reflex viewfinder that allows all primary functions of the camera to be monitored through the finder while the cameraman concentrates his full attention on the action he is shooting.

Information in the finder includes spot through-the-lens metering, an audio level VU meter which gives the monitor the sound level while viewing the action, and a filter selection indicator. A four-position filter slide in front of the shutter allows any one of four different filters to be placed into position rapidly with fingertip control—again without the cameraman having to divert his attention from the action.

The Mitchell/Wilcam is equipped with either of two amplifiers for use with the internal magnetic head—a compact 2-channel unit which conforms to the camera's side for one-man operation, or a separate 3-channel amplifier

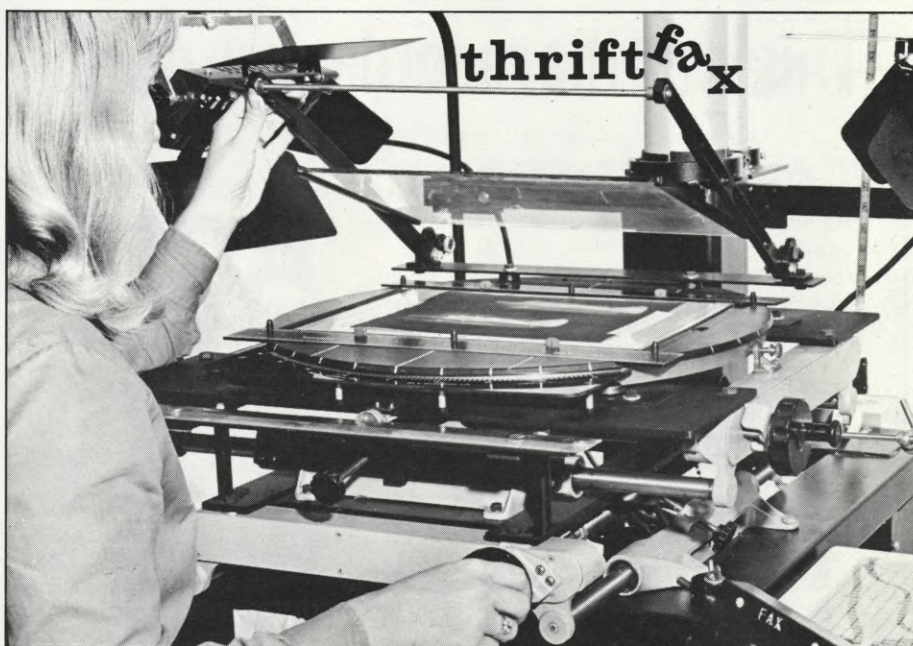


## **EXPERT ZOOM LENS REPAIRS angenieux specialists**

Emergency lens repair jobs in as little as 8 hours! The most specialized zoom lens repair facility in the world. 1973 was our 25th year of Professionalism in motion picture optics. Experts in Angenieux and virtually every type of zoom lens. Highly skilled personnel. Rapid, precise workmanship. Complete stock of parts. Creators of the OPTIMIZING process. Special 3000MM collimator (largest in the industry). Your optics collimated to ultra-precise tolerances of less than twelve thousandths of a millimeter (twice as stringent as manufacturers' tolerances)! Our clients include CBS-TV, NBC-TV, Cinemobile, Beaulieu, N.A.S.A., U.S. Navy, National Geographic, etc. Write or call our service manager, Steve Manios, for a free estimate today. You will save valuable time and money! Satisfaction guaranteed!

*Century* Precision Cine/Optics

10661 BURBANK BLVD. NORTH HOLLYWOOD, CALIFORNIA 91601 (213) 766-3715

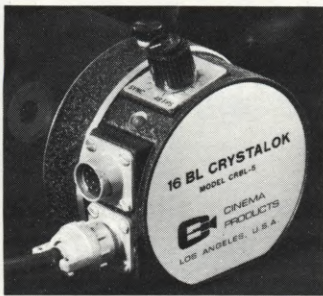


#### **for ANIMATION/TITLING/FILMSTRIP: the thriftfax camera stand:**

Accurate. Versatile. Moderately-priced. Made and guaranteed by FAX Company, producer of the first/only **combination 12/16 Field Disc**, used in the thriftfax stand — and available separately. Ask for full details. ■ Animation Cameras — Single-Frame Drives . . . Animation Supplies: Tell us your needs or ask for price-lists.

**FAX COMPANY**

374 S. Fair Oaks Ave., Pasadena, Calif. 91105-213/681-3084

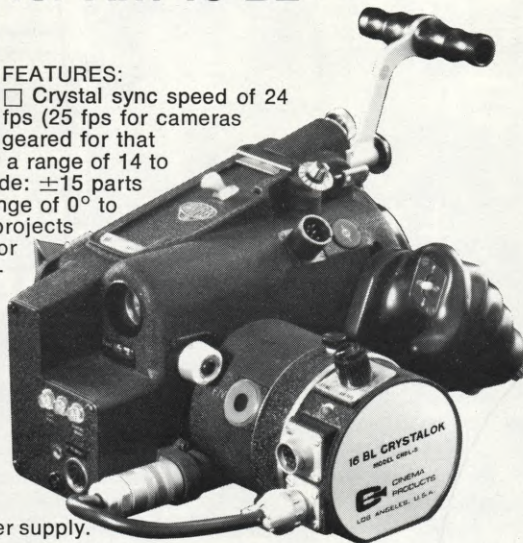


## CRYSTALOK... Crystal Motor Controller for Arri 16-BL

### FEATURES:

Crystal sync speed of 24 fps (25 fps for cameras geared for that

speed) and variable speed over a range of 14 to 48 fps.  Accuracy in sync mode:  $\pm 15$  parts per million over temperature range of 0° to 140°F.  Extremely compact, projects only 1 1/2" beyond Universal motor housing when installed.  Lightweight — weighs only 14 1/2 oz. complete with bracket and cable.  Out-of-sync warning light flashes whenever camera is not running at preset speed both in sync or variable speed mode.  The Crystallok crystal controller slips over the end of the Arri 16-BL Universal motor housing and is held in place by three thumb screws.  Uses standard Arri 16-BL 12 volt power supply.



For further information write to:

**Cinema E products**  
CORPORATION

*Technology In The Service Of Creativity*

2037 Granville Avenue, Los Angeles, California 90025  
Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

## This is all the recorder you need!

Here's a fine piece of equipment — made especially for the motion picture industry — that's right for just about any assignment. The Arrivox-Tandberg incorporates every essential capability without an ounce of fluff. And because its carefully selected features are right, it's priced right! Write for detailed literature before you buy any recorder at any price!

# ARRI

ARRIFLEX COMPANY OF AMERICA  
P.O. Box 1050, Woodside, N.Y. 11377  
1011 Chestnut St., Burbank, Calif. 91502



**ARRIVOX-TANDBERG**  
PROFESSIONAL 1/4" TAPE RECORDER

for use by a two-man crew.

The camera accepts standard Mitchell type 400- and 1200-ft. magazines and weighs only 16 pounds with the attached amplifier and a fully loaded 400-ft. magazine.

The camera is distributed in the United States by Sawyer Camera Co., Hollywood, and Mobius Cine Ltd., New York; in Canada by Photographic Analysis Ltd., Don Mills, Ontario; and is available through Mitchell's foreign representatives.

### NEW ARRI TECHNICAL SERVICE DEPARTMENT AT RANK

Users of Arri Motion picture equipment now have the benefit of a new technical after sales service department located at Rank Audio Visual on the main A4 Great West Road at Brentford, Middlesex.

Operating as a self-contained unit independent of any other Rank service section, the Arri technical department provides a comprehensive repair service on all Arri equipment and offers technical advice and guidance on the use of the Arri camera and accessory range. Technical manager Steve Ellis heads a team of technicians using the latest test gear specified by Arnold and Richter including a special test rig for setting up the exposure meter assembly on the 16BL camera.

Brentford is within easy driving distance of London and there are no parking problems for visitors bringing equipment for service. The phone number for the Arri technical department is 01-568 9222 Extension 508.

### CINEMA PRODUCTS ACQUIRES WORRALL MANUFACTURING RIGHTS

Mr. Ed DiGiulio, President of Cinema Products Corporation, announces the acquisition of the manufacturing rights, spare part stocks and tooling for the Worrall gear head, the famous studio-type tripod head for heavy professional 35mm studio cameras.

As they now do for all their other products, Cinema Products will provide spare parts and service for the Worrall gear head on a rapid turn-around basis, both in the U.S. and abroad.

For further information, please write to Cinema Products Corporation, 2037 Granville Ave., Los Angeles, California 90025.



## ANTHROPOLOGY FILM

Continued from Page 1065

nieux 9.5-95mm zoom lens. We worked on a tripod most of the time; however, the camera, which weighs less than 20 pounds, was also occasionally handheld, when we needed the additional mobility. Sound was recorded with a crystal-sync Nagra IV tape recorder.

For backgrounds and other silent sequences, we used a hand-held Canon Scoopic camera. Other equipment that we carried on location included several ColorTran portable lighting kits (including a battery-operated Mini-Pro), a dolly, various size reflectors, extra bulbs and cable, and a spot meter. Later, overseas, we also carried bulbs and adapters for both 220- and 110-volt power supplies. Most of our exterior scenes were shot with Ektachrome commercial film. When necessary, we incorporated lights with dichroic filters and reflectors to bring the scene within our television system's projection latitude. This low-contrast, color reversal film is rated for an exposure index of 16 in daylight with a Kodak 85 filter used over the camera lens and 25 when used with a 3200°K tungsten-light source.

In addition, we worked closely with KOCE-TV 50's chief engineer, Bob Moffett, and Russ McMurray, a sales and engineering representative for Eastman Kodak Company, to establish standards for originating film for our station's television transmission system.

We found that film produced for television has considerably less projection latitude (the contrast between the lightest and darkest areas on a frame of film) than movies made for theatrical release. We determined that, for our transmission system, the maximum range of brightness on any scene should be no more than 4 to 1.

We used a spot meter to obtain an accurate exposure reading of the lightest area in each scene, and limited the contrast range between that and the darkest area by using reflectors and/or other artificial illumination. In the bright sunlight, we used reflectors. Indoors, we bounced our artificial illumination off ceilings and walls, when we could, to achieve the same softening effect.

In cases where we didn't have or couldn't use adequate illumination to achieve the results we wanted, we used the faster Kodak Ektachrome EF film. This positive film is rated for an exposure index of 80 in daylight with a Kodak Wratten 85B filter over the camera lens and 125 when used with a 3200°K tungsten-light source.

All of our film was processed at CFI (Consolidated Film Industries), in Hol-

RAY MERCER & COMPANY  
SPECIAL EFFECTS - TITLES - MINIATURES

INSERTS  
STAGE & POOL  
FACILITIES AVAILABLE  
SPECIAL PHOTOGRAPHIC EFFECTS  
OPTICALS FOR TELEVISION  
& MOTION PICTURES  
663-9331

SPECIAL EFFECTS

RAY MERCER & COMPANY  
SPECIAL EFFECTS - TITLES - MINIATURES

TITLES

RAY MERCER & COMPANY  
SPECIAL EFFECTS - TITLES - MINIATURES

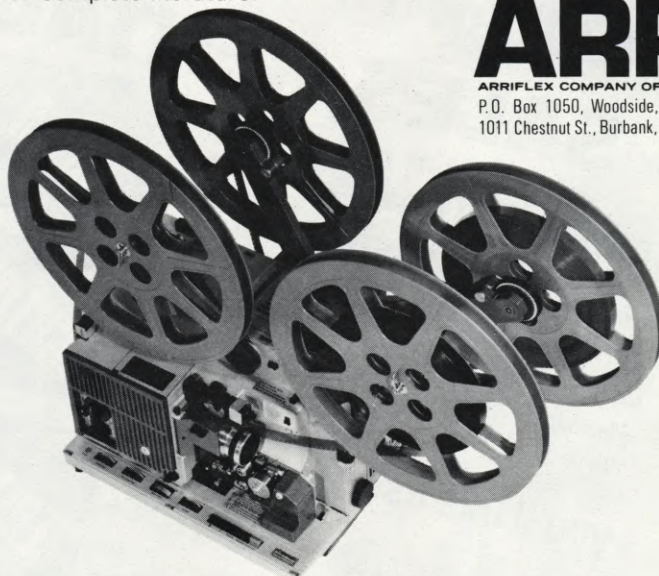
4241 Normal Ave.,  
Hollywood, Calif. 90029  
663-9331

## You need this special projector!

For single and double-system recording; re-recording; film-to-film transfers; tape-to-film transfers; double-system interlocked previews; quick access projection; scratch track production. And for dozens of other special purposes that only the Sonorex 16/16 Interlock Projector can do. Write for complete literature.

# ARRI

ARRIFLEX COMPANY OF AMERICA  
P.O. Box 1050, Woodside, N.Y. 11377  
1011 Chestnut St., Burbank, Calif. 91502



**SONOREX® 16/16**  
INTERLOCK SOUND PROJECTOR



**ECO - 7390** The ultimate film reproduction in sharpness, color & silversound

**ECO - EF 7389** Excellent low contrast print rendering with silversound for TV or projection.

16mm EKTACHROME ECO 7252

16mm ULTRASONIC CLEANING

16mm ME-4 PROCESSING

16mm CREATIVE EDITING (Kem Table)

16mm COLOR WORKPRINTING (1 Day Service)

16mm CONFORMING A&B ROLLS

16mm RELEASE PRINTING 3400K - 5400K

16mm CREATIVE SOUND PRODUCTION (Interlock)

16mm OPTICAL SOUND TRANSFER

16mm POSTFOGGING OF EF

16mm SILVERSOUNDTRACK APPLICATION

16mm TITLES & ART WORK

16mm OPTICAL PRINTING

## CHANNEL 8 COLOR LABS

905 JACKSON STREET/P.O. BOX 1410

TAMPA, FLORIDA 33601/813/229-7781

**nice** CUSTOM MODIFICATION AND MANUFACTURING

**EQUIPMENT HEADQUARTERS**

**CAMERAS**

for **SALES, RENTAL**

and **SERVICE**

at the best possible price!

**SOUND**

Don't spend a dime before you contact our Bob Kaplan. Call or write and he'll quote the best possible price on the equipment you need. We're great on servicing too. Try us and save!

**LIGHTING**

you'll like us!

**EDITING**

**national cine equipment, inc.**

"THE NICE PEOPLE ON LONG ISLAND"

4140 Austin Blvd., Island Park, N.Y. 11558

call: (L.I.) 516-889-4600 (N.Y.) 212-799-4602

lywood. We had them post-flash the Ektachrome EF film prior to processing. This made the color contrast on the processed original very similar to the results we were getting with Ektachrome commercial film. As a result, it was far easier to intercut scenes without jarring differences in contrast.

We also found that it helped to overexpose Ektachrome EF film that was going to be intercut by at least half a camera stop. The more contrast in the scene, the more we overexposed—up to 1½ camera stops.

During the filming of the prototype show, which was entitled "The Unique Nature of Man", we also established a procedure for originating all of our film on single-perforated Ektachrome EF film stock. This served two purposes.

It gave us an easy way to use any of the footage originated for the cultural anthropology series for documentaries and news programs. With the single-perforated film stock, we can add a magnetic stripe, record a sound track on it, and intercut with other original Ektachrome EF film designed for direct projection. We use the latter for almost all of our news and most of our documentary work.

The use of single-perforated stock for all camera originals also served another purpose. All of our dailies are made on double-perforated stock. This made it easy for even non-film personnel to distinguish between workprints and originals.

While it was highly unlikely that any one in the film department would mistake an original for a workprint, some of the people on the KOCE-TV 50 staff are primarily electronics-oriented. We didn't want one of them to mistakenly handle or project an original when he was looking for a workprint.

We also established our other post-production procedures during the making of "THE UNIQUE NATURE OF MAN". After processing, all of the original film was copied onto workprints. We edited these as to content and format after which we turned them over to an editorial house. They conformed our originals to the edited workprints. Our edited soundtracks were mixed at a sound studio in Hollywood. CFI then made a composite (including sound) on Eastman Ektachrome R print Film 7389 (we now use Eastman Ektachrome print film 7390 for this purpose). After the first answer print was color-corrected and accepted, one Xenon release print was made for television projection.

We then combined, on videotape, this release print with material originated in our studio. Meanwhile, the

original A and B rolls and the original "outs" were indexed by subjects and places, and were stored in a vault under environmentally controlled conditions. While the procedure was fairly elaborate, it provided us with technical quality combining the best features of film and tape.

In addition, it safeguarded our original film. This gave us the flexibility needed to re-edit and update the course later without having to go back on location. It also provided the means for us to build a stock film library, which should be of great value.

Most of the footage we originated for the cultural anthropology course can be used for many other purposes. For example, a news director working on a documentary about Africa will find plenty of useful footage in our library. And so will an economics professor developing a curriculum on subsistence living conditions. The possibilities are unlimited.

While stock footage of this type often can be obtained from commercial sources, the economic, technical, and aesthetic advantages of operating our own library are substantial. We have a fast referencing system; we have first-generation film and second-generation masters (most stock libraries provide fourth-, fifth-, and sixth-generation copies); and it obviously costs less both in dollars and time to use our own resources.

These were all things that we kept in mind when, following the success of the prototype show, we received additional funding from the community college district and the National Endowment for Humanities to complete the production of the entire course.

Under the academic guidance of Dr. Merry we took to the international highways with high expectations, big ambitions, and many of our basic ground rules well-defined. We soon learned, however, that there was still a lot to learn. Lesson one was to always take with us all of the film—and then some—that we anticipated using. Film distribution in many places overseas simply isn't up to our domestic standards.

We also discovered that keeping the film for periods ranging up to four months, even in the hotter, most humid climates, was no insurmountable problem. We found that we could home-base in air-conditioned hotel rooms practically everywhere we travelled. These rooms become our raw stock and exposed film repositories while we worked on location.

When air conditioning wasn't available, we substituted for it by using an

**American Cinematographer** 

## REPRINT

FILMING "2001—  
A SPACE ODYSSEY"  
SUPER-8—  
THE STATE OF THE ART  
SUPER-16  
VIDEOTAPE & FILM

*All in one place—no advertising*

AMERICAN CINEMATOGRAPHER  
P.O. Box 2230, Hollywood, Calif. 90028

Please send me \_\_\_\_\_ copies of the  
FOUR-IN-ONE reprint @ \$5.00 ea.,  
postpaid.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

California residents please remit 6%  
Sales Tax. (30¢ per copy). Foreign  
buyers please pay by International  
Money Order or U.S. Funds.

## MICROFILMED

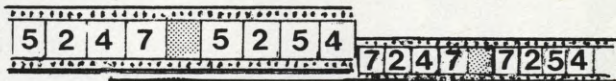
BACK ISSUES OF  
AMERICAN CINEMATOGRAPHER

1921 through 1967 available

## UNIVERSITY MICROFILMS

EDITORIAL SERVICES  
300 N. ZEEB RD.  
ANN ARBOR, MICHIGAN 48106

For



take

or

Whatever -

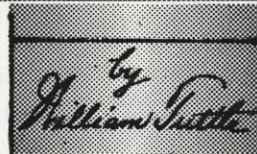
"the most *natural* appearing Make-up  
I have ever photographed -- the flesh tones  
look *real*." - Howard Schwartz, A.S.C.

YOU WILL AGREE - WHEN YOU SEE  
--- THE NEW ---

## Custom Color Make-up

Write

P.O. BOX 56  
PCFIC. PALSADS.  
CA. 90272



or Call

(213)  
454-2355

WILLIAM TUTTLE COSMETIC PRODUCTS



**RANK PRECISION INDUSTRIES**  
411 EAST JARVIS AVENUE  
DES PLAINES, ILLINOIS 60018  
(312) 297-7720

# A QUESTION OF IMAGE

Taylor Hobson designed the Cooke Varotal to meet the demands of directors and cameramen in the international film industry. With the Cooke Varotal you can shoot your subject only 0.33 m (13 in) away from the front glass. At this distance you can zoom perfectly from an angle as wide as 58° to 12° narrow. Think of how you can use the lens for tight shots on confined sets. And at infinity the 58° widest angle gives you shots which are made all the more spectacular by Cooke Varotal definition. The light transmission factor can be held at a remarkable 80% which gives you a T stop of T/3.1 at f/2.8.

We could have designed the Cooke Varotal with smaller, simpler and lighter weight mechanics—the optics would have been just as brilliant. But we refused to compromise on durability when we thought about the fairly rough-and-ready treatment that motion picture equipment is sometimes prone to. So the Cooke Varotal is designed to withstand maximum shock. It can also withstand extremes of temperature and humidity. Mechanics are on the principle of rolling action, not sliding friction, which means they are free from wear and backlash for the Cooke Varotal's entire working life.

ice chest. However, we never put ice in the chest. It was too cold. Instead we used a half a dozen or so cold bottles of soda or water to keep the film cool.

As it was, we still had plenty of problems with condensation. One solution was for us to take four to five hours before production to acclimate our equipment and film to the outside temperature. That often required us to forego the comfort of air-conditioning while we were driving in a rented vehicle to a location.

If we kept our equipment in an air-conditioned car, condensation would usually form the second it hit the hot air outside. One result was that the film would get wet and sticky, and would sometimes buckle. When this happened, the only remedy we found was to open the magazine in the film loading bag and leave it there until it warmed up to the outside temperature.

But there were times when we just couldn't get away from it. While we were working in Ghana, the temperature climbed to 120°F, and the humidity seemed to stay at a steady 99 RH. We were blanketed in moisture all the time. Our film got so wet that the self-threading Canon Scoopic camera had to be hand-loaded.

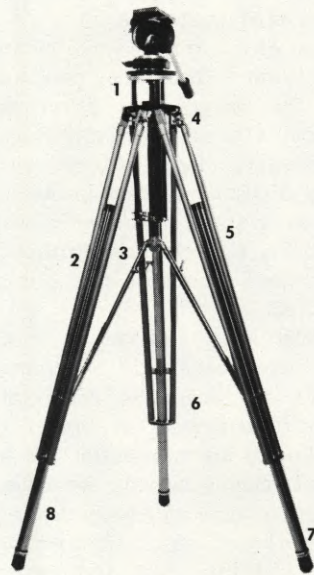
With it all, we found that the humidity didn't damage the film. In fact, when the project was over, and we had an opportunity to view the footage that we exposed under what we thought were "impossible" conditions, we were amazed at the uniform quality.

Among these impossible conditions was the dirt and dust that we found everywhere in Africa. Our can of compressed air was indispensable for keeping our film magazines, cameras and lenses clean. However, we didn't fully appreciate how important an accessory the compressed air can was until we were working in an area where the flies were so thick that we literally had to blow them away while we changed film magazines.

We also learned through experience how to simplify and reduce problems with customs officials. The fact is that we were generally traveling with a great deal of equipment—13 full caseloads. Customs officials had every right to want to carefully inspect every item we carried into and took out of a country. After all, much of our equipment was worth a great deal of money in most of the places we visited.

Our key was proper preparation. Before we left the United States, we inventoried everything in each case. Then, we duplicated descriptive lists of everything in every case. The list for each case included the quantity, the

# FOBA TRIPOD



The new Foba tripod is an all-metal professional motion picture tripod with a Pro Jr. flat-top plate which accepts Pro Jr., O'Connor models C and 50 and Miller F fluid tripod heads. Made in Switzerland by precision craftsmen, the Foba features unique, tubular adjustable legs which allow the tripod to be used in standard or baby positions. Foba comes complete with triangle-type leg locks and elevating riser plate. Maximum height is 62"; with riser, 73". Minimum height, 18½". Weight, 16 lbs.

## FEATURES

1. Adjustable riser plate.
2. Patented individual adjustable legs.
3. Triangle-type leg locks.
4. Individual or simultaneous adjusting of legs.
5. Modularly constructed for easy repair or parts replacement.
6. Weatherproof.
7. Combination rubber and spiked tipped legs.
8. Flexible leg adjustment for shooting on uneven terrain.

Price: **\$315.00**

(Note: Price does not include Miller F Fluid Head shown in photograph.)

Available Exclusively From:

**alan gordon enterprises inc.**

1430 N. Cahuenga Blvd. Hollywood, Calif. 90028

(213) 466-3561 / (213) 985-5500

TWX: 910-321-4526 • Cable: GORDENT

# COOKE VAROTAL



## Shoot 'Em Up!

### GO AERIAL WITH ASTROCOPTERS LTD.

We'll help you get all those dramatic aerial shots — with no time or money wasted.

We've a fleet of modern helicopters at your disposal and experienced pilots who know their way around the sky.

We supply complete camera systems and vibration-free mounts to assure you of superior motion picture and still photography every time.

When you're ready to go cloud-hopping, fly with the pros. Astrocopters Ltd. We love a good shoot'em up.

Professional Aerial Photography. Service for all of California.

**Astrocopters Ltd.**  
Oakland International Airport  
Oakland, CA 94614  
CALL - DAY OR NIGHT  
415 635-6880



description, model numbers, our Telecommunications Center identification number, the serial number, the replacement value and the country where it was manufactured. These lists accounted for every filter and each roll of film that we carried.

We also took pictures of every item lined up outside of the case it was going to be loaded into. The cases were numbered for easy identification. Then, we taped a copy of the picture and the detailed list of items inside the cover of each case. When we arrived at a port of entry, we provided custom officials with copies of the lists, and an explanation.

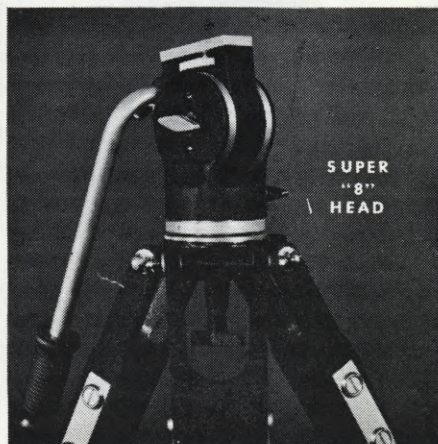
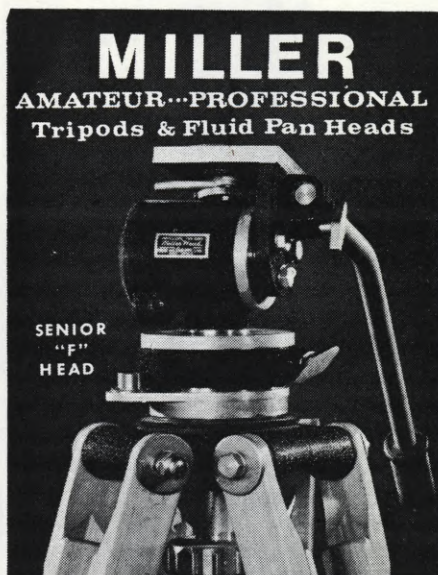
In most instances, they would open each case, and sort through it. Then, they would ask us to show them one or two items on each picture. For that reason, it was extremely important for us to make certain that the cases were repacked the same way everytime. However, on the average, we got through customs in one-fifth of the time that it would normally take with as much goods as we carried.

Another point is that while it cost more than air freight, we always carried all our equipment with us as excess baggage. That way, we knew that it would arrive when we did. Also it always took much less time to get through customs that way. However, the most important reason for traveling with our equipment was to assure that we would have it when and where we were scheduled to film.

We also carried almost all of our exposed film with us. We felt that was safer than trusting exposed negatives to foreign mails and customs. We didn't want to chance something being lost or fogged by an x-ray machine. And we couldn't justify spending the money to ship our film through an importer-exporter—which would have been our first choice.

There was one exception to this rule. During the midst of a four-month trip we wanted to shoot some test film to check the operation of our cameras. We shot several 100-foot test rolls which we mailed in ordinary prepaid Kodak mailers, like those used by tourists for processing. These were delivered unopened within two to three weeks.

The cameras were working fine. In fact, considering the heavy use our equipment received under difficult conditions, both cameras held up extremely well. The only incident occurred when a turret malfunctioned while we were filming at a remote location. And even then we were able to repair it with the tools we found in the trunk of our rented vehicle. We continued to use the turret mount with that jury-rigged re-



### SENIOR "F" HEAD

- Complete control for smoother panning in both horizontal and vertical position.
- No shake or jitter.
- Full 360° horizontal movement.
- Varied use with: Bell & Howell—Bolex—Arriflex—Cine Special—F & B Auricon—Telescopes, etc.
- Either right or left hand operation.
- No backlash.
- Adaptable to all types of tripods.
- WHATEVER CAMERA you use—you will get better results with a MILLER HEAD.

### AT LAST A NEW FLUID PAN HEAD FOR SUPER 8 CAMERAS

- Camera mounting screw 1/4".
- Pan and tilt packed with special fluid and factory sealed.
- Height 5", weight 32ozs.
- Ball Leveling tops available.
- Miller Equipment is used throughout the world by leading photographers, film and television studios.

Write for a free Brochure and prices on all Miller tripods and accessories.

DEALER INQUIRIES WELCOME.

CANADIAN DISTRIBUTOR

*Leo's*  
**CAMERA SUPPLY LTD.**



1055 GRANVILLE STREET  
VANCOUVER 2, B.C.  
TELEPHONE: (604) 685-5331

## TWO EXTREMES

the angénieux extreme wide angle  
R7, 5.9mm, f/1.8  
provides the highest quality images  
across a 94° angle

the angénieux extreme high aperture  
M1, f/0.95, 25mm  
provides the highest quality images  
at low light levels



R7



M1

"the professional standard of  
excellence for discerning  
cinematographers  
throughout the world"

**angénieux corporation of america**

440 Merrick Rd., Oceanside, N.Y. 11572 • (516) 678-3520  
13381 Beach Ave., Venice, Calif. 90291 • (213) 821-5080

pair for another four to five weeks, until we went home. The point is that the selection of good equipment and a conscientiously carried out maintenance program paid off handsomely with time and money saved on location.

In many ways, the most interesting work that we did—but also under the most restrictive conditions—was in Egypt. This was some months prior to the most recent Middle East war. Everywhere we went, security and tension were at maximum levels. We literally had to ask our government guide before we could even point a camera at anything.

We found that in many ways Egypt was the mother lode of anthropological lore. Most fascinating were our visits to the various pharaohs' tombs, where we found that brilliant decorative colors had often survived the ravages of time, since the sun never reached them. Lighting was a potential problem inside the tombs, where we filmed burial crypts, sacrificial rooms, doorways, hieroglyphics on the walls, and so on. At best, there were some low-wattage lights strung along the ceilings, and these were fluorescent.

We also found that the influence of our government guide, plus some small tips given along the way, was all we needed to arrange to bring a battery-powered Mini-Pro lighting unit into the tombs with us. We loaded our cameras with Ektachrome EF film, and didn't even have to "push" it.

Many of our best opportunities weren't planned. We took advantage of the flexibility that Dr. Merry gave us in Egypt, for example, to follow up on a tip about a residence operated by a medical doctor for native artisans. We found the place just outside of Cairo, where there were people practicing carpet weaving, hand-sculpturing, and other crafts which have been native to the area for millennia.

There, like everywhere else we worked, we have to be careful not to become "the ugly Americans". We came to realize that while we were seeing and filming strange and wonderful things, these were all commonplace to the natives. The fact was that on most locations, we were the novelty.

Because of this, we had to tread carefully and with great sensitivity for people's feelings. Once someone thought that we were going to put them on exhibit, we lost the rapport needed for people to act naturally in front of our cameras. In South Africa, for example, a government official brought us to a native "medicine man", where we exposed some interesting film. But our cinematographer felt that the value of

# WESTERN Cine

COLOR  
POSITIVE  
RELEASE  
PRINTING

INTER-  
NEGATIVES  
with  
COLOR  
CORRECTION

## COMPUTERIZED PRINTING

Western Cine color duplicating is the better way to achieve the fine results you expect! Our computerized lab equipment permits wide flexibility that enables you to do more with your film. . . color correction, variable fade and dissolve lengths, zero cuts and R/F cueing.

And because the duplicating process is completely programmed and computerized, better quality control and economy result.

### COMPLETE LAB SERVICES

COLOR PROCESSING  
EKTACHROME COMMERCIAL EF & MS  
LIPSNER-SMITH ULTRASONIC FILM  
CLEANING ON ALL ORIGINALS  
COMPLETE SOUND RECORDING,  
OPTICAL PRINTING TRACKS  
OPTICAL PRINTING 16mm to 16mm  
and 35mm to 16mm  
INTERLOCK PROJECTION  
8mm PRINTING

Send for Producers' Net Price List



**WESTERN Cine**

DENVER  
312 So. Pearl St. - Denver, Colo. 80209

HOLLYWOOD  
Cine Craft  
8764 Beverly Blvd. - Hollywood, Calif. 90048

## THE UGLY LEO-POD



All Weather Construction  
Weighs Less Than 5 Pounds  
One Time Adjustments  
Make the Leo-Pod Custom  
Fit for ALL Cameramen

BOTH HANDS FREE FOR  
ZOOM, IRIS, FOCUS OR  
SOUND ADJUSTMENTS

Model 125A—\$106.00  
ARRIFLEX, MITCHELL, AURICON  
Model 125B—\$106.00  
BOLEX, BEAULIEU  
Model 125EP—\$106.00  
ECLAIR w/PERFECTONE, CANON  
MODEL 125E—\$147. (ECLAIR NPR)

## UNIVERSAL DC POWER



1750A      \$395.00  
30V-16V-12V-8V  
1750B-30V    \$315.00

# LEOPOLD

ENTERPRISES SOUTH INC.  
305-764-1315  
P.O. BOX 4543  
FT. LAUDERDALE, FLA. 33304

the interview was reduced by the government official who appeared to be trying to put words in the medicine man's mouth.

In India, we had the opposite problem. We found a booming theatrical film industry. The people's appetite for films—everything about them—could only be described as insatiable. As a result, practically every time we set up a camera on a tripod and looked like a movie crew, we attracted a crowd.

And it didn't end there. People fought for position in front of our cameras. Sometimes they demanded that we pay them. In those cases, we always knew that we had been preceded into the area by camera-happy tourists. Most of the time, people simply wanted the opportunity to appear in a movie, any movie.

Sometimes we took advantage of this fascination that the crowd had for our cameras by documenting it on film. After all, that was part of the topical culture. And we did much of our filming from the perspective of a visiting student. But there are many instances when we just didn't want people on film.

We were mainly there to see and document the ancient architecture and bas-reliefs. It turned out that the only way to do this in many places was to be furtive. In those cases, we concealed the Canon camera until we were ready to shoot. Then, we operated the camera hand-held and pretended that we were tourists. That generally bought us some time before a crowd gathered.

It is ironic that with all of our travels, one of our most interesting and exciting assignments was in Laguna Hills, California, just a few miles down the freeway from KOCE-TV 50. The attraction there was the Stanford Outdoor Primate Facility (which is temporarily operating on the site of a commercial wild animal park).

Anthropologists from Stanford University are studying the social interactions of a "group" of wild chimpanzees there, and they are correlating their data with information collected at the Gombe Stream Research Centre in Tanzania, where wild chimpanzees roam freely.

At the hub of these studies concerning mankind's closest relative is anthropologist Jane Van Lawick-Goodall, who wrote the best-selling book, "In The Shadow of Man", based upon her years of research and observation at Gombe Stream. We spent two weeks at the Laguna Hills facility, documenting the social interactions of the chimps there, and discussing the project with Mrs. Van Lawick-Goodall and other anthro-

## THE LONG RANGER

The cine lens with  
the longest zoom range  
in the world. (20:1)  
The angénieux 12-240mm, f/3.5\*  
provides wide shots  
to extreme close-ups  
at long distances.

\*f/4.8 at 240mm



with "Orientable" viewfinder

"the professional standard of  
excellence for discerning  
cinematographers  
throughout the world"

angénieux corporation of america

440 Merrick Rd., Oceanside, N.Y. 11572 • (516) 678-3520  
13381 Beach Ave., Venice, Calif. 90291 • (213) 821-5080



**all under one  
umbrella  
MOTION PICTURE  
EQUIPMENT  
SPECIALISTS**

the **BRENNER CINE-SOUND** organization covers every aspect of Cinematography equipment. Under our umbrella we have a unique team of personnel and services, backed by many years of expertise related to Sales, Service, Rentals and Repairs.

■ Whether your requirements are: Cameras, Lenses, Motors, Magazines, Tripods, Power Supplies, Lighting, Editors, Meters, Projectors, Tape Recorders or Screens **BRENNER CINE-SOUND** has it in stock with product names such as:

Angenieux	Eclair	Neumann
Arriflex	Electro-Voice	O'Connor
Arrivox	Guillotine	Oxberry
Beaulieu	Magnasynch	Permacel
Beyer	Maier-Hancock	Revox
Bolex	Miller	Sennheiser
Canon	Minerva	Shure
Cinema Products	Moviola	Spectra
Colortran	Nagra	Sonorex
		Zeiss

For more information on Motion Picture Equipment, Sales, Service & Rentals, call or write

5215 Wisconsin Ave., N.W., Washington, D.C.  
20015 (202) 244-3800

**BRENNER  
CINE-SOUND**

Div. of Ritz Camera Centers

Please mail me additional information:

Service    Sales    Rentals

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

pologists.

If the assignment was interesting, it was also tedious. Because the chimps were located on a small island, the closest we could get to them was 75 to 80 yards. Unfortunately, that put us smack in the middle of a reserve where lions were as thick as pedestrians on Times Square.

We worked from the back of a station wagon most of the time, using the Eclair camera with a 500mm telephoto lens. We kept one eye on the chimps—waiting for something to happen—and the other on the lions.

Most of the social interactions we were interested in occurred between 6:30 a.m. and 9 a.m. and between 4 p.m. and 7 p.m. In other words, during the cooler, darker hours of daylight, when the sun was rising or setting.

And that wasn't our only problem. The chimps were all dark-colored and the dirt on the island was very light in hue. The range of contrast between the animals and their background was considerable. There were also some variables. For example, a number of large open boxes were spread around the island to provide shelter and also an opportunity for the chimps to put something between themselves and the others.

That produced some particularly interesting visual observations that we wanted to record; however, what usually happened was that when a chimp or two entered one of the boxes, they literally disappeared in its shadow. What we did in all of those circumstances was switch to Ektachrome EF film, which we overexposed by one to two stops. We found that by overexposing, we decreased the apparent range of contrast recorded on the film.

Not only did this provide Dr. Merry with some extremely interesting footage to integrate into the curriculum, we also produced a 23-minute feature on the Stanford Outdoor Primate Facility. That film is also currently being used by Stanford University.

We would be dishonest if we didn't admit to some regret when the production of the film for the cultural anthropology class was finally completed. It gave us some rare opportunities to go to unique places and see rare things with our own eyes. However, we had the satisfaction of knowing that when we were finished, Dr. Merry was going to share what we saw and heard with thousands of other people right in their own living rooms. That, in a sense, is what instructional television is all about. That, and the next assignment. As for us, we can't think of a better place for young filmmakers to be. ■

**RUSSELL  
FILM  
LABORATORIES**



P.O. BOX 6938  
4805 LENOX AVENUE  
JACKSONVILLE, FLA. 32205  
(904) 389-2316

Russell Film Labs is a film processing and sound recording facility that maintains the world's finest processing equipment and employs experienced and dedicated men to run it. Our performance record proves we can do the job, whatever it may be, quickly and professionally. You see, quality is very important to us because we own as well as run the company. We personally see that things are done right. That's why we can so strongly stand behind what we do. Put us to work for you. Next time you're looking for a lab, call Russell Films.

Here are some of the services offered:

- processing
- recording
- editing
- printing



## SMITH-VICTOR Model K71 HI-FI STUDIO KIT



The K71 is a deluxe professional kit that consists of 3 lights with a total of 1800 watts, 3 10-foot black stands, 2 barn doors, 2 scrims and a convenient carrying case. These lights provide high quality lighting for photography or T.V. and are ideal for Key, Fill or Punch Lighting.

**MODEL K71 KIT \$357.50**

Write for specifications and prices on our complete line of Studio Kits.

AT YOUR PROFESSIONAL DEALER

**SMITH-VICTOR CORP.**

Griffith, Indiana 46319

## SUPER 8 SYSTEMS INC.

Sound Movie Center

4016 GOLF ROAD • SKOKIE, ILLINOIS  
60076

Latest Equipment  
In Our New  
Laboratory

### Laboratory Services

- ... Editing
- ... Sound Stripping
- ... Sound Transfers
- ... Fullcoat Masters
- ... Duplicate Mag Sound Prints

### Equipment Sales & Rentals

- ... Kodak, Nizo, Bauer, Canon
- ... Microbrite
- ... Optasound
- ... Super 8 Sound
- ... MKM

### Production Department

- ... Educational
- ... Industrial
- ... Commercial

We are the only facility in the Midwest offering sales, rental, laboratory and production services under one roof.

(312) 677-9051

## LIGHT CONTROL MEDIA

Continued from Page 1085

### DIFFUSION

Lee Filters has three types of diffusion materials. Heavy Frost, which covers most cinematographic requirements, is a tough frost material that can be used with any light source. It consists of a .003 base and is coated on both sides. For use in frames, Lee Filters has a similar material on a .002 base. The third diffusion filter available is Lee Blue Tinted. This has built into it a 1/8 Blue, which changes the color temperature by 200° K.

### SPUN GLASS

Actual spun glass is a thing of the past, for reasons of health and safety. Lee Filters now offers a Polyester Spun which has all the same light control qualities as spun glass, but is harmless to the skin. Additionally, we supply this material in two densities: Full and Half-strength. This product does not discolor under the intense heat of quartz lighting.

### SILK DIFFUSION

For the cinematographer who needs a silk-type material, Lee provides a product which looks like, and has all the advantages of, actual silk—but is made of woven glass fiber. Consequently, it is flame-proof and very tough.

### HELP IS NEAR

As one cinematographer to another, and in line with the service policy of Lee Filters, I shall be happy to answer any questions or help with whatever problems may arise relative to light control media. Simply contact me as follows:

David Holmes, Managing Director  
Lee Filters Ltd.,  
Central Way,  
Walworth Industrial Estate,  
Andover, Hants SP10 5AN,  
ENGLAND

Telephone: Andover 66245 (STD 0264)

Cables: LEEFILTERS ANDOVER ■

### To Classified Advertisers

Copy deadline for classified advertising is the 1st of month, preceding publication date. Mail copy and remittance to cover cost to

**AMERICAN CINEMATOGRAPHER**  
1782 No. Orange Dr.  
Hollywood 28, Calif.

## FILM STOP WATCHES You can count on!

... dust and water resistant, jewelled movement stop watches record elapsed and accumulated time. Big, easy to read, shock-proof and antimagnetic, self-compensating — all contain unbreakable main springs!



The FILMETER with a jewelled pin lever movement, comes with a fiberglass case; reads 16/35mm footage (Catalog No. 2624), \$39.95.

The STUDIO, with a 7-jewel lever movement comes with a nickel-chrome case and accumulator dial. Reads 16/35mm footage (Catalog No. 2625), \$59.95.



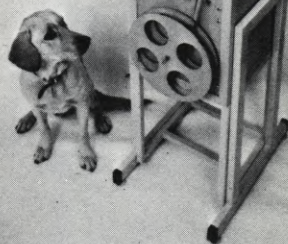
Accessories available for both watches include the "THIRD HAND" velcro wrist band kit for mounting as a wrist watch and a RUBBER NOISE SUPPRESSOR and SHOCK ABSORBER COVER.

## Birns & Sawyer, Inc.

1026 North Highland Avenue, Dept. C, Los Angeles, California 90038, (213) 466-8211, Telex 673280. Cable: BIRNSAW HOLLYWOOD.

The  
Sound  
Engineer's  
Best  
Friend...

The R106UV  
DOGGEDLY  
RELIABLE



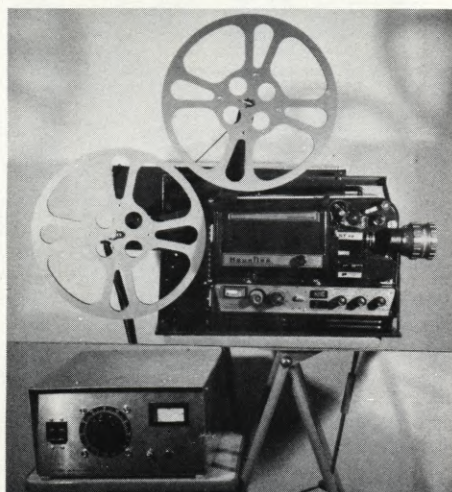
Complete line of magnetic film recorders, projectors and interlock systems. Available in 16 mm, 35mm, 16/35mm, 17.5/35mm and Super 8mm.

WEST: Alan Gordon Enterprises, Inc., Hollywood  
MID-WEST: Victor Duncan, Inc., Detroit, Chicago, Dallas  
EAST: The Camera Mart, Inc., N.Y.C.  
Braun Electric Canada, Ltd.

**MULTI-TRACK MAGNETICS, INC.**

ONE RUCKMAN ROAD, CLOSTER, NEW JERSEY 07624-201-768-5037

# XENON Super-8 Projector



## Heurlier ST 42

Big screen projection

5 MODELS: INCLUDING  
STEREO AND AUTOMATED  
REMOTE CONTROL:  
PRICES START AS LOW AS \$2800.00

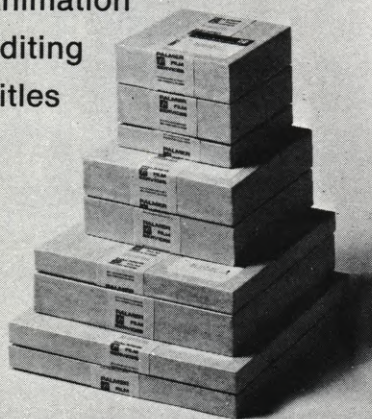
*Valley Projection*


10214 RIVERSIDE DRIVE  
NORTH HOLLYWOOD, CALIF. 91602  
842-3576

SUPER-8 SYNC-SOUND HEADQUARTERS

## mail order service

- Laboratory
- Recording
- Music Scoring
- Special Effects
- Animation
- Editing
- Titles



 Write for details.

**W. A. PALMER FILMS, INC.**  
611 HOWARD STREET • SAN FRANCISCO, CA 94105  
*San Francisco's complete 16 mm film service*

## WORLD CUP 1974

Continued from Page 1081

Director and will see the film all the way through until it is completed.

With him was a cameraman from Canada, Tony Ianugiolo, who was also interested in filming the Alberta All-Girls Drum and Bugle Band which played before the game and during the interval, to the delight of the 80,000 crowd and to provide a happy foretaste of the Montreal Olympics to come.

In the centre, immediately in front of the VIP's, would be the Producer of the Film, Morton Lewis, also an experienced sports cameraman. He was offered the use not only of Arnold & Richter's latest prototype 16SR camera, but also of Bobby Arnold as his assistant. An offer he couldn't and didn't refuse.

On the ground, immediately behind each goal, would be Eric van Haren-Noman and Mike Delaney, using Eclair NPR cameras with 10:1 zoom lenses.

Eric is a Dutchman, long resident in Britain where he mainly works, who has a charm all of his own. It was he, who during the attack on the Israeli team at the Munich Olympics, infiltrated a building overlooking the besieged headquarters and shot much of the exclusive material shown on ABC. In the days prior to the Final of this event, when they were under enormous security protection, Eric infiltrated the Dutch team, travelling and living with them and filming them as they trained and waited for the final. When the team arrived at the Stadium for the Final it was he who was first off the coach.

Because of the co-operation Eric had received from the Dutch team we were able to use this as a precedent with which to confront the German Team and another of our cameramen, Harvey Harrison, a veteran of all five major events with Michael, was able to strike up a friendship with Helmut Scheon, the German Team Manager who opened their team doors to Harvey to film them training, relaxing in their hotel and finally to travel with them on the coach to the Stadium. He, too, was first off the team coach. Both, in newsreel parlance, were "scoops," for no other photographer got so close to the teams.

Mike Delaney, another of Michael's veterans, and who like Eric also speaks French and German (Eric also speaks Dutch, of course) infiltrated the very private domain of the President of FIFA (The World Soccer Authority) after Morton Lewis and Michael had laid the groundwork by the simple means of knocking on the door of Sir Stanley Rous's hotel room.

**16mm • 8mm • Super 8**  
EKTACHROME PROCESSING  
**Color & b&w**  
POSITIVES AND NEGATIVES  
**Super 8 Optical  
and Magnetic Sound**

## COMPLETE FILM SERVICES

- 35mm Color
- 16mm wet gate blow-ups  
to 35mm—fully corrected.
- 35mm to 16mm—16mm to 8mm or Super 8
- Processing—Printing—Editing
- Sound Transfer—Sound Striping
- Super 8 to 16mm

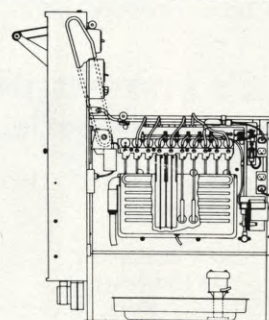
## SAME DAY SERVICE

24 Hour Processing  
Coast to Coast Service  
Send for Price List



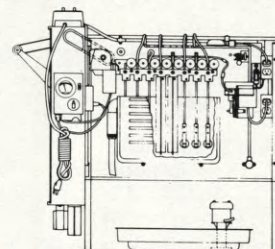
1138 No. La Brea  
Hollywood, Ca. 90038  
(213) 467-1118

**AMERICAN  
FILM INDUSTRIES, INC.**



WE HAVE BEEN MAKING MOTION PICTURE FILM PROCESSORS FOR OVER TWELVE YEARS - AND STILL OFFER THE LOWEST PRICED AUTOMATIC CONTINUOUS PROCESSORS. WE HAVE INTRODUCED MODELS TO HANDLE EKTACHROME COLOR. FORMATS FOR B & W INCLUDE SUPER 8, 16 & 35 MM. ALL MODELS PROCESS BOTH NEGATIVE AND REVERSAL. PRICES ARE VARIED TOO - \$695 FOR THE MARK II TO \$2425 FOR THE MARK VII - AND THOSE ARE READY TO RUN PRICES!

Write or call for free brochure



**H.G. CRAMER CO.**

ROUTE 3, BOX 24A  
SARASOTA, FLORIDA 33580  
TELEPHONE: 813/355-4470

# Cine-Slave

Inner Space Systems  
Has put More  
Different Kinds  
of Motion Picture  
Cameras Under  
Crystal Control  
Than any  
Manufacturer in  
the World.  
(ISS also makes the  
only complete  
sync system)

Write for brochure

Inner Space Systems  
102 W. Nelson St., W.A.S.T.E.  
Deerfield, Wisconsin 53531  
608-764-5900



## BEHIND-THE-LENS FILTER HOLDERS

For ANGENIEUX ZOOM lenses on 16mm & 35mm Arriflex and Eclair cameras. These are sold in kits with four and five holders each, with gel cutter, tweezers, spare gel container and other convenience features.

Type BTL35A - for 35mm cameras -  
Four holders with kit . . . . . \$75.00

Type AE3GS - for 16mm cameras -  
Five holders with kit . . . . . \$65.00  
Four holders with kit . . . . . \$55.00

Prices include AIRMAIL SHIPMENT same day to anywhere in U.S.A. & foreign.

With foreign orders, include International Money Order.

Ask for brochures.

GUARANTEED to meet with your complete approval or money refunded.

CUSTOM MADE BY  
**CUSTOM PHOTOGRAPHICS**  
P.O. Box 25007 Portland, Oregon 97225  
PHONE 503-292-5569

Michael had put it to Sir Stanley that he (Michael) was always one for pushing his luck and asking for maximum facilities, so could he please put a cameraman "in Sir Stanley's pocket" for the day? To Michael's delight, Sir Stanley agreed and made room for Mike Delaney in his car taking him through all the security barriers where cameramen should not have penetrated. Mike was on hand to film Sir Stanley greeting the President of the German Democratic Republic, Prince Bernhardt of the Netherlands, Prince Rainier and Princess Grace of Monaco, Dr. Henry Kissinger and other VIP's.

Having pushed our luck that far, and gotten away with it, we pushed a little further (and failed!) when we asked Sir Stanley if he would mind being "bugged" with a Nagra SN. Regrettably, he declined. Wisely, as it turned out, for even Sir Stanley was frisked to see if he was armed.

Harvey Harrison and Ron Collins were to set up at opposite goal lines, Harvey with a 600mm Kilfit and Ron with a 640mm Novaflex pistol-grip-focus lens of which he is very fond and is particularly adept at using. They were to film close-ups of attacking players as they approached. With their coverage, the play pattern of the game could be interposed with personalities and humanised. Expressions of anguish, of determination, of anxiety and happiness were all captured by these cameras.

Also at the far ends of the pitch were two fixed position cameras, equipped with 5.7mm lenses, placed close to the goal-nets and switched on and off remotely.

To complete the number of cameramen along the base lines were Harry Hart and Mike Davis, with Kilfit 400-600-800-1200mm Combi-lens outfits, concentrating upon the defenders at the far ends of the pitch.

Along the side of the pitch, towards the corner flags, we had Terry Gould with a Photosonics IPD and Atze Glanert (a local) with a Millican, both shooting high speed at 98, 250 and even 500 f.p.s. They were both equipped with 10:1 zoom lenses but Terry, having a reflex camera, also carried wide-aperture lenses available in case the light turned bad.

Whereas all other cameras used ECN 7247 these two cameras used 7254 which at the present state of the art, is capable of a greater degree of forced development.

In addition to the slow-motion coverage (and before the game commenced), Terry was assigned to climb up into the topmost part of the topmost stand and shoot a wide angle establishing shot,

# ECCO 1500

## Anti-Static Film Cleaner



Amazing ECCO 1500 lubricates, cleans and conditions film easier and faster—dries instantly! Contains carefully compounded chemicals to remove oils and grease, stops dust-attracting static. Film stays cleaner longer, pliable longer. ECCO 1500 actually conditions the film, eliminating the need for waxing—ideal for green prints, to prevent sticking, jumping, chatter and other projector problems. Also helps continuous-run film. See your supplier.

write for literature

SHOCK / STATIC PROOF / FREE

EST. 1951

**ELECTRO-CHEMICAL**  
PRODUCTS CORPORATION

89 WALNUT STREET  
MONTCLAIR, N.J. 07042

# CHAPMAN CRANES

WORLD FAMOUS HERCULES  
CAMERA CRANES STATIONED  
IN ENGLAND, SPAIN AND  
ITALY FOR RENT OR SALE

# Leonard

STUDIO EQUIPMENT

12940 Raymer  
North Hollywood  
Calif. 91605  
(213) 877-5309



### HOLLYWOOD'S OLDEST FILM SCHOOL

NOW ACCEPTING ENROLLMENTS  
FOR OUR NEXT

### MOTION PICTURE COURSE

CAMERAS • SOUND RECORDING  
LIGHTING • EDITING • EFFECTS  
COMPOSITION • SCRIPTING • ETC.

Two Week Courses— Evening Classes

### DANNY ROUZER STUDIO

7022 Melrose Avenue, Hollywood, California 90038  
Request Brochure HC (213) 936-2494



### ANIMATION

Cartoon - Technical - Titles  
for producers with modest budgets

call or write for literature and prices

### WILLIAM FOX PRODUCTIONS

4111-A West Olive Ave., Burbank, Calif. 91505



### CAMREX

### REVOLVING PRISMS

For unusual movie and TV effects. Makes multiple images of any scene. Additional effects by using colored gels over individual facets of prism. Screw-in type. Specify 5 or 6 image. 72mm for Angenieux 12-120 and Canon Scoopic

**\$51.00**

58mm \$34.50  
55mm 31.50

52mm \$28.50  
49mm 27.50

SPECIAL!

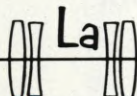
### DOUBLE POLARIZER

Continuously variable light acceptance to total extinction by turning front element (double polarizer). Many effects possible. For Angenieux 12-120, Canon Scoopic and other 72mm threaded lenses.

**\$39.95**

Buy any two and save 10%

Satisfaction Guaranteed



### La Grange, Inc.

1139 No. Highland Ave., Hollywood, Calif. 90038  
8022 Monticello Ave., Skokie, Illinois 60076

Camera Craftsmen, Inc.

6 Murray St., New York, N.Y. 10007

using a 5.7mm lens, taking in the entire stadium including that magnificent roof.

Further along the touch line, on each side of the centre, were two more 10:1 zoom-equipped cameras responsible for general play coverage. These were Ken Goddard, a Pathe News veteran and Richard Hoffman, a local.

It was interesting to note how Michael integrated the local technicians into his close-knit team from London. He assigned them to points covering the general play, which they were all experienced at doing, but preferred to put his regulars on the very long lens shots which all require a certain feel and the known ability to follow focus with a fast-moving subject.

The only cameraman to be on the far side of the pitch was Tong Coggins, also with a 600mm, concentrating on crowd close-up cut-aways. With his back to the game all the time, he had to ask what the score was at the end of the game.

The four sound crews were due to have a busy day, too.

All were equipped with Nagra IV 2 recorders, each with 6 microphones of different types, including Sennheiser 415 & 805's and Audio radio microphones.

The radio microphones were sometimes used to bug people, with their permission, where there was room for one man only. In those cases the cameraman would do the bugging while the sound recordist picked up the signal from as close as he could get.

Typical of this was the German team coach arriving at the stadium. Only the cameraman was on board, but Rene Borisowitz was waiting in the entrance tunnel and picked up good sound from within the coach.

All the Eclair NPR cameras were fitted with motors capable of both crystal-sync and variable speeds.

Joe Dunton's assignment was to take a clean feed from the Radio and TV output, to which he added crystal-sync. This track backed up whatever anyone else was doing during the entire event from the preliminaries to the postgame gaiety.

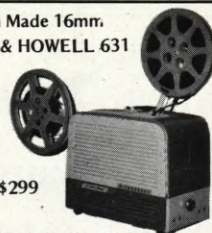
Joe also shot wild sound with a second recorder of foreign language commentators during the game.

Roy Charman and Ken Weston had roving commissions on the ground and wherever they went they found a crystal-sync camera to work together with.

For those of us who had newly arrived on the unit, Michael briefed us on some of the technical aspects.

Firstly, all cameras on the ground close to the play were to be run at 40 f.p.s. Slowing the movement down by this much makes it easier to view

British Made 16mm.  
BELL & HOWELL 631



\$299

Secondhand  
2000' Cap.  
Sound/Silent  
750/1000 Watt  
Lamp  
110 Volt AC  
Without Speaker  
Carriage  
Paid to N.Y.

HILTON, 7, West Hill,  
DARTFORD, Kent, ENGLAND.

### PROJECTORS

Interested in buying an outstanding re-conditioned 16mm projector?

Each projector is sold at unbeatable discounts with a money back guarantee. Write for free price list and reprint of an article from "Filmmakers News Letter" on "Buying a Used Projector".

HECHT MOVIE EQUIPMENT CO.  
Box 443 Ellenville, N.Y. 12428 (914) 647-6334

For Professional Equipment in  
**PHILADELPHIA,**  
it's  
**O. H. HIRT, INC.**  
39 N. 11th St. • Phila, Pa 19107  
(215) 923-0650

### PROFESSIONAL SUPER-8 SERVICES

- \* Ektachrome developing to ASA 500
  - \* workprints with edge numbering
  - \* A&B printing for dissolves and fades
  - \* sound striping and transfer
  - \* professional laminated VITATONE striping
  - \* Pre-striped Prints
  - \* Low Contrast Masters
  - \* Reductions  $\leq$  Blow-ups  $\leq$  Silent  $\leq$  Sound
- SEND FOR NEW PRICE LIST

**NL** (213) 462-6814

### NEWSFILM LABORATORY, INC.

516 No. Larchmont Blvd.  
Los Angeles, California 90004

### IN FLORIDA IT'S

### WARREN SOUND STUDIOS

With the largest and most completely equipped facility to serve the motion picture industry in the Southeast.

### COMPLETE 16 & 35MM SOUND PRODUCTION FACILITIES

- Mixing • Dubbing • Transfer (Magnetic & Optical) • Interlock Screening
- Editing • Location Sound • Sound Effects and Music Libraries

### WESTREX / NAGRA / RCA EQUIPMENT

Send for our descriptive brochure

**WARREN SOUND STUDIOS**  
35 N.E. 62nd Street • Miami, Florida 33138  
Phone: (305) 754-9539

**FILMING FACILITIES**  
**ASIAN FILMS**  
 72, JANPATH, N. DELHI-1  
 Cable : Moviphoto,  
 New Delhi (India);  
 Telephone : 47995



**BLOW-UP**  
**HIGH QUALITY**  
**35MM NEGATIVES**  
**FROM YOUR 16MM ORIGINALS**  
 (OUR ONLY BUSINESS)

Stock Shots Enlarged to Match-in with  
 your 35mm Negative  
 Complete Pictures Transferred to 35mm

Call—Adrian at (213) 463-3178

**CINESERVICE, INC.**  
 1459 North Seward Street  
 Hollywood, California 90028

**color by de luxe**  
**de luxe general**  
 Motion Picture Laboratories  
 Let us improve your image

Hollywood Chicago New York  
 (213) 462-6171 (312) 569-2250 (212) 247-3220

**IN CANADA**  
**locations**  
**services**

**CINETEL**  
 (403) 328-1346  
 NINE

1242 Fifth Avenue So.,  
 Lethbridge, Alberta T1J 0V5

**SPECIALTIES EDITOR**  
 3 magnetic tracks plus picture  
 at sync sound speed

Synchronous motor  
 Foot or hand control  
 Automatic clutch  
 Mixer-amplifier  
 Large light well

3429 Encina Drive  
 Las Vegas, Nev 89121 (702) 451-5290

**SPECIALTIES**  
 Design & Mfg. Co. Inc.

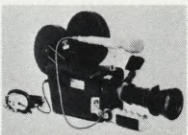
**\$895**  
 COMPLETE  
 LESS VIEWER



**IN SAN FRANCISCO**  
 and Northern California  
**CP-16 HEADQUARTERS**

The CP-16 Single System/Double System 16mm camera has become THE TV news camera. • SALES GSA-authorized. We'll come to you • SERVICE 24-hour service available • RENTALS Send for our catalog of new 16mm production rentals

**ADOLPH GASSER, INC.**  
 5733 Geary Boulevard • San Francisco, Calif. 94121  
 Telephone: (415) 751-0145



fast-moving action, smooths out any erratic pans and matches the apparent speed of the action to that of the top cameras, which were to operate at 24 f.p.s. He explained that all the rest of the crew had been skeptical about this ploy, but after seeing rushes, had agreed that it works. The advantage was particularly noticeable on the very long telephoto lens material.

The film was shot on 16mm for eventual blow-up to 35mm for 1.85:1 presentation. While it was important to try to watch the head room, Michael was not particularly worried because, as he explained, the laboratories charge exactly the same for doing an optical blow-up from the entire frame as from a part of it, or for split screens, fades and dissolves—and, at a dollar and a bit per foot, he wasn't concerned if they had to work for their money. In the final film, Michael said, he intends to use this "free" facility to the maximum.

The cameramen were to concentrate on certain personalities and when they were running on a player, should stay on him, even if he lost possession of the ball because joy or disappointment and anguish on a face can be usable in the final cut.

If following play with somewhat wider lenses, they should not be afraid if the ball is kicked out of shot. Better that way than that they try to follow it, because it provides a useful cutting point. If necessary, they could whip-pan back to the play, the pan to be cut out subsequently at the editing stage. If a camera was on a man as he scored a goal it should stay on the man for his facial expressions and the adulation of his colleagues rather than follow the ball into the net because, as he said, the top cameras were there for that.

Every now and then cameramen should take a brief shot of a clock so that the editor may readily check where any particular roll of film belongs in the game. To go further, the slates which HAD to be shot at the beginning of each roll were also equipped with a clock, so that the identification was comprehensive.

One interesting point was that for these camera set-ups on the running track at the edge of the pitch it was necessary to provide spreaders, not to protect the track or to stop the legs from sliding, but to spread the load so that some of the springiness which affected camera steadiness (particularly where very long lenses were used) could be eliminated.

"Any-angle" viewfinders were in great demand. When shooting on the ground it makes possible a lower tripod height without the cameraman's having

**CPT**  
 CPT FILM LABORATORY

... is a lot more than just another 16MM processing house. CPT lab offers a full range of lab services and post production facilities. Conveniently located in central North Carolina near major colleges and universities, major research institutes, and national and international sporting events, CPT offers producers working the area or out of town, who want the "personal touch", such services as: one day service on processing and workprinting of ECO (in by 9-out by 5), post-flashing of EF/B, scene-to-scene color corrected answer and release prints, silver sound tracks on 7390 or 7389, complete sound facilities for multi-channel mixing, transfers, live recording, plus editing services, screening rooms, and animation photography. Write or call for price list and catalog of services.

639 Wellons Village  
 Durham N.C. 27703 919/688-7265

**QUALITY 16mm PRINTS**  
 OUR SPECIALTY

Satisfied customers coast to coast  
**B&W • Kodachrome • Ektachrome**  
**Color Interneg • Positive**

**TEKNIFILM, INC.** 1923 N.W. Kearney St.  
 Portland, Oregon 97209  
 (503) 224-3835

**SHOOTING IN CANADA?**  
 Contact Jim Grattan for top equipped crews. Single and double system.

**GRATTAN PRODUCTIONS**  
 1440 St. Catherine Street, West  
 Suite 507, Montreal 107, P. Q. Canada.  
 (514) 878-9638

**CENTRAL FLORIDA**  
 ... and everywhere  
 director/cinematographer  
**RODNEY E. CAVIN**  
 (305) 838-8326 P.O. Box 507  
 Altamonte Springs Florida 32701

**IN CANADA**  
 Editing a cinch with the **KEM** time saving Film Editing Tables (4, 6, and 8 plate models).  
 Phone or Write:  
**UBRO FILM TECHNICAL SALES & SERVICE**  
 19 Sealcove Drive, Etobicoke 652  
 Toronto, Ontario, Canada (416) 621-2679

**FilmLab SERVICE, INC.**  
**FULL SERVICE 16MM. LABORATORY**  
 INTERNEGATIVE  
**EASTMAN COLOR**  
 POSITIVE

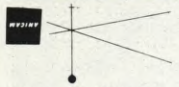
- PROCESSING — ECO — EF — B&W
- ADDITIVE COLOR PRINTING
- EDITING • SOUND SERVICE
- EDGE NUMBERING • VACUUMATE
- ULTRASONIC CLEANING
- FILMSTOCK • SUPPLIES

**CALL COLLECT (216) 881-4510**  
 4019 PROSPECT AVE CLEVELAND, OHIO 44103

**BOLEX ACCESSORIES**

- 24-Frame Sync. Camera motor—115V
- Var. Speed Battery Camera motor—24V
- 400-ft. Magazine w/400' counter in camera
- Intervaltimer—Range 1½ sec. to 36 min.
- Animation motor for new single-frame shaft

Write for New Bolex Accessory Catalog.  
**STEVENS ENGINEERING CO.**  
 Dept. A, 340 Newport Blvd.,  
 Newport Beach, Calif. 92660



## ANICAM

ANIMATION  
PHOTOGRAPHY

16mm & 35mm:

2 to 32 Field, Titles, Filmstrips, Slides  
Motion Pictures from Slides **KIM BUEHR**  
6331 Homewood Ave., Hollywood, CA 90028  
(213) 465-4114

### LINWOOD DUNN, ASC

Former Head of RKO Studio Effects Dept.

### CREATIVE SPECIAL EFFECTS

Theatrical • Industrial • Educational

Complete Advisory and Technical Services

#### From Story Ideas to Theater Screen

West Side Story—My Fair Lady  
It's a Mad, Mad World—Hawaii  
The Bible—Thoroughly Modern Millie  
The Great Race—Darling Lili—Catch 22  
Expo 67-70—Airport—Song of Norway  
Cousteau's Living Sea Museum  
Concert for Bangladesh—Space Theaters

#### FILM EFFECTS of Hollywood

1140 N. Citrus Ave.,  
Hollywood, Calif. 90038  
Phone: 469-5808 Cable: FILMEFX

### MOTION PICTURE EQUIPMENT

CORPORATION

McALISTER CAMERA DOLLY  
HOLLYWOOD SCENE DOCK  
GRIP EQUIPMENT  
5428 SATSUMA AVE.  
NO. HOLLYWOOD, CAL. 91601  
(213) 766-4397

## INSURANCE

WE INSURE ALL TYPES OF  
MOTION PICTURE, TELEVISION  
AND DOCUMENTARY FILMS  
COVERAGES FOR

Special Equipment Floaters • Negative  
Floaters • Cast Insurance • Third Party  
Property Damage • Producer's Errors and  
Omissions • Workmen's Compensation  
• Comprehensive Liability

Call (day or night) (213) 466-8351

TRUMAN VAN DYKE COMPANY

6922 HOLLYWOOD BLVD. • SUITE 202  
HOLLYWOOD, CALIFORNIA 90028



PROFESSIONAL  
UNDERWATER  
PHOTOGRAPHY

(415) 841-0555

At Giddings Enterprise  
6853 Buckingham Blvd., Berkeley, CA 94705

### MOVIES FROM SLIDES

Dissolves, Pans, zooms to areas as small as 1/4",  
using computerized Oxberry Animation Stands.  
Send for information, free film chart, pocket  
slate, field guide and sample film.

ANIMATED PRODUCTIONS, Inc.  
1600 Broadway (212) CO 5-2942  
New York, N.Y. 10019

## BOLEX

CANADA  
CARSEN

W. CARSEN CO. LTD  
31 SCARSDALE ROAD • DON MILLS  
ONTARIO • CANADA • M3B 2R2

to bend down awkwardly for the entire period. I also found one useful when shooting a Press Conference when I found I could shoot over people's heads without having to stand on a chair.

Auxiliary monocular viewfinders were used by most cameramen using the very long lenses. These enable the camera operator to find the shot with his left eye and centre it into the picture area before using his right eye for focus and accurate composition. One needs to be a bit "ambi-eyestorous" on this type of shooting.

And so the briefing went on. An hour of sports filming wisdom methodically presented to ensure the best possible coverage.

The kick-off of the match was to be at 4 p.m. and with the amount of equipment we had to install we were there seven hours beforehand, at 9 a.m., which proved to be a sensible move. Experience again.

As we approached the deserted stadium at an hour when the only sounds were those of the birds and the breeches of submachine guns being clicked as the security guards also checked their equipment, we were stopped along the most direct route and told we were not allowed through. But, we explained, there was still seven hours to go. No, that road was reserved for ambulances, fire engines and emergency services for the day and that was that. German police are very inflexible and not a bit like a British Cop who knows when a blind eye is good for Police/public relations.

Not once, but twenty and many, many more times our passes, complete with colour photographs were checked. In addition, we had to wear a bib with the date on it, as proof that we had authority to be there on the day—plus an individual serial number, so that if it was stolen the thief would assuredly be apprehended if he tried to use it.

For the day of the Final, Michael prepared two little surprises for our fellow pressmen. Out of all the bibs of the previous three weeks, he had shirts made for the entire film crew and to impress the Police on the ground, large arm bands with "FIFA" printed boldly on them. Every time that afternoon when a policeman looked at us as though we should not be in that position we pointed to the FIFA arm band, said "Offizal Film" and looked straight back at him as though we could be there. Surprisingly enough, even in Germany this seemed to work. Michael explained that he had kept this trick up his sleeve for the Final so that other TV and Newsreel cameramen who had been following the Series, did not copy. A

Covering FLORIDA  
like the SUNSHINE—



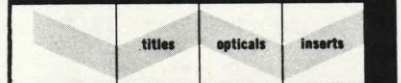
COMPLETE RENTAL SERVICE

## PHOTOMART

CINE EQUIPMENT SUPPLIERS  
6327 S. ORANGE AVE. • ORLANDO, FLA. 32809

Phone (305) 851-2780

## WESTHEIMER Company



Joseph Westheimer, A.S.C.

TITLES, TRAILERS, INSERTS AND OPTICAL EFFECTS

FOR MOTION PICTURES AND TELEVISION

HO 8-8271

736 Seward St., Hollywood, Calif. 90038

If it's worth saying  
it's worth saying into  
a Shure Microphone

A COMPLETE

## 16mm MOTION PICTURE LAB.

OVER 32 YEARS EXPERIENCE

Use Specialists to Make Your Color Prints

Pioneer in 16mm color negative-  
positive printing and processing •  
Color additive printing • Edge  
Numbering • Cutting Rooms avail-  
able • Same day service on Koda  
and B&W reversal dailies  
"Clients throughout the entire  
world"

CRC Mark of Quality

## Color Reproduction Co.

7936 Santa Monica Blvd. (213) 654-8010

Hollywood, Calif. 90046

## DIGITAL

Universal Synchronizing Unit crystal  
syncs any 8, 16 or 35MM camera,  
interlocks any projector with any record-  
er. Use this \$300 Unit to build interlock  
mixing systems with your recording  
equipment! Write for brochure. Digital  
Film Equipment, 1205 West Drew,  
Houston, Tex. 77006. 713-528 5090

# FOR THE FINEST REFLEX BNC SEE CSC

## CANADA

Exclusive Distributors in Canada for:  
ARRIFLEX Motion Picture Equipment  
NAGRA Tape Recorders  
IANIRO Lighting Equipment.

Write for price lists and brochures.

BRAUN ELECTRIC CANADA Ltd.

3269 American Drive (416) 677-3243  
Mississauga, Ontario, Canada L4V 1B9

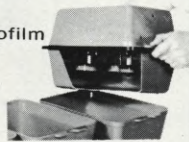
## AUTOMATIC DAYLIGHT PROCESSOR

- Processes up to 200 Ft.
- Super 8 to 105mm
- Movie—X-Ray • Microfilm
- Motor Driven—Portable
- Film Dryers Available
- Guaranteed

Write for Free Literature  
OUR 27th YEAR

Micro Record Corp.

487-14 South Ave., Beacon, N.Y. 12508



## COMPLETE LABORATORY AND POST PRODUCTION SERVICES



**FOTO-KEM  
INDUSTRIES, INC.**

"Motion Picture Center"

GERRY BRODERSEN • LOU  
VINCENT • REGINALD DUNN

- Fast service on developing ECO, EF and Color Dailies • Specializing in custom quality color-16mm and 35mm.

## Cutting Rooms & Facilities For Rent

876-8100

3215 Cahuenga West  
Hollywood, Calif 90028

# IN CANADA

Complete 16mm & 35mm color & b&w processing and printing. Eastman COLOR Ektachrome processing. Magnetic sound striping for 16mm-8mm and Super 8mm. Vacuumate film treatment. 16mm Optical Transfers.

QUEBEC 1085 St. Alexander St., Montreal, Quebec  
FILM LABS Telephone (514) 861-5483

## NOBODY makes BETTER 16mm COLOR POSITIVE PRINTS — than TEKNIFILM!

- Small enough to give you PERSONAL ATTENTION
- Large enough to meet your DEADLINES—40,000 ft./shift



**TEKNIFILM, INC.**

1923 N.W. Kearney • Portland, Oregon 97209  
Telephone 503/224-3835

TRY US ON YOUR NEXT PRINT ORDER

## PROJECTORS

Interested in buying an outstanding re-conditioned 16mm projector?

Each projector is sold at unbeatable discounts with a money back guarantee.

Write for free price list and reprint of an article from "Filmmakers News Letter" on "Buying a Used Projector".

HECHT MOVIE EQUIPMENT CO.  
Box 443 (914) 647-6334  
Ellenville, N.Y. 12428

lesson learned in Mexico.

In a way, the match was an anti-climax. I have often thought how privileged is a cameraman to be THERE at such a special event, but really, when one has to work and concentrate on one's own set task, the 80,000 stacked in tiers in the stands and the 500 millions watching at home on TV have a much better view of the game.

We were all in position by the time the crowd was assembled; our chaps were first off both team coaches; the cameraman assigned to cover the solid gold cup arriving was caught out when the armoured car carrying it arrived an hour early, but the accompanying guard obligingly called the armoured car back by radio and the cup was redelivered for the benefit of the film.

The VIP's arrived in what we British would call the "Royal Box". Most I spotted, but regrettably I only saw Elizabeth Taylor in the local paper the next morning. Ah well, you can't win them all.

The match itself, to a cameraman, was just like the last one I did, and the next one: 22 players and three officials, plus a few team managers, trainers and reserves, all to have my undivided attention for 90 minutes.

When I returned home I was asked if it was an exciting match. I honestly have to say "I don't know." Those who did not have to concentrate as hard as I did on so many things tell me it was and that Germany won 2-1.

There was a slight change of plan at half time. Harvey Harrison, who was shooting attackers with a 600mm lens from one of the base lines, came to me during the interval holding his hand over his right eye. A piece of grit or glass had blown into it before the match and now he could hardly see. Could we change places? So for the second half I saw a different angle from that of the first half. Meanwhile, Harvey was rushed off to hospital, with blue lights flashing and, for all I know, may well have been the only person to use that specially reserved road.

So I had two aspects of the film to worry about, but with the 600mm lens that I had, it was not too difficult to fit it all in.

After the match, while all the hand-held cameramen were following the delirious winning team and the dejected losers "hanging in rags" around the ground, I was able to take my original camera, on a tripod, and almost at my leisure set up properly for the cup presentation. This is normally a routine shot, but on this occasion it was almost as though the German team knew that we wanted to start the film with the

## RECHARGEABLE BATTERIES

Highest Energy • Lightest Weight • Most Compact

IF YOU HAVE TO CARRY BATTERIES  
DEPEND ON BATTERIES . . . OR DESIGN WITH THEM  
YOU'LL APPRECIATE YARDNEY SILVERCEL!

Send for information.  
COMMERCIAL/INDUSTRIAL SALES  
82 Mechanic St., Pawcatuck, Conn. 02891

**Yardney**  
ELECTRIC CORPORATION

## Shooting in Fort Lauderdale?

Complete Mobile Unit / Motion Picture & TV Lighting / We also service the Southeast & Midwest. Call us!  
Jim Latham & Bert Bertolami

Advance Producers Services  
PO Box 6444 (305) 989-2151  
Hollywood, Florida 33021

## OXBERRY

Division of Richmark Camera Service, Inc.

Tel. [212] 585-0730

Cable OXBERRY, N.Y.

516 TIMPSON PL., BRONX, N.Y. 10455

## OPTICAL PRINTERS

LIQUID GATE

ANIMATION  
& FILMSTRIP  
EQUIPMENT

## KINGSWAY: CANADA'S POST-PRODUCTION EQUIPMENT SPECIALISTS.

Featuring  
STENBECK • BAUER  
PRECISION • MURAY

For more information on all our fine equipment contact:



Kingsway Film Equipment Ltd.

821 Kipling Avenue, Toronto, Ontario  
M8Z 5G8 Phone: 416-233-1103

CANADA'S largest and most complete  
rental house

## CINEVISION

2000 Northcliffe Ave.  
Montreal, Quebec  
(514) 487-5010

2264 Lakeshore  
Bld. West  
Toronto, Ontario  
(416) 252-5457

## CALL A PROFESSIONAL Cine-Craft, Inc.

A full service laboratory for  
16mm, Super 8, Regular 8  
Any quantity Best prices

8764 Beverly Blvd., Hollywood, Calif. 90048  
(213) 652-7357

Write for free brochure

## flip schulke underwater films

in association  
with Black Star  
Productions, Inc.

Complete facilities for all types  
of expert underwater and  
topside filming and production.

For Information:  
Benjamin J. Chapnick  
450 Park Avenue South  
New York, N.Y. 10016  
(212) OR 9-3288  
Miami, London

For Bolex Cameras :  
 • Long Telephotos & Accessories  
 • Angenieux 12 to 120s & 9.5 to 95s

**LENS SUPPORTS**  
 write for brochure  
 Din Film Associates  
 9 Worster Ter., Weymouth, MA 02188

**CANADA'S LARGEST  
 LAB AND SOUND  
 FULL SERVICE  
 ORGANIZATION**

**BELLEVUE Pathé**

MONTREAL  
 2000 Northcliffe Ave.  
 Montreal, Que. H4A 3K5  
 Tel. (514) 484-1186

TORONTO  
 9 Brockhouse Road  
 Toronto, Ont. M8W 2W8  
 Tel. (416) 259-7811

\* A DIVISION OF ASTRAL BELLEVUE PATHE LTD./LTEE

**Charles Ross INC.**

Sole distributor of Mole-Richardson  
 Company Products in Greater New York

**Major Records**  
 REG. U.S. PAT. OFF.

**PRODUCTION MUSIC**

Complete 132 Album collection of  
 Production Music for editing, scoring,  
 and post production of films, video-  
 tapes and TV programming. Write for  
 catalog describing 3,000 selection li-  
 brary. Re-recording and clearance for  
 use of library available at economical  
 rates for producers.  
 Also 16 Album Production Sound  
 Effect Library available containing  
 over 500 different Sound Effects.

Send for Free Catalogs  
**THOMAS J. VALENTINO, INC.**  
 Established 1932  
 151 West 46 St. (212) CI 6-4675  
 New York, N.Y. 10036

**DON RENN** UNDERWATER AND  
 WILDLIFE FILM  
 SINCE 1948.

Arriflex  
 Eclairs  
 Photo-Sonics  
 Millikens  
 +  
 Cooke  
 Zeis  
 Kinoptic  
 +  
 Individually  
 Water Corrected  
 Lens Dome Ports  
 = The finest  
 underwater  
 equipment  
 available in the  
 world today  
 Underwater  
 lights, gener-  
 ators, boats,  
 equip., rental,  
 stock footage

295 W. Enid Dr., Key Biscayne, Fla. 33149  
 (305) 251-6990 or 361-2366

aftermath of the final match as well as to concentrate on personalities, for after the captain had received the cup, kissed it and held it up high, as is traditional, he, in turn, presented it to the next player who also kissed it and held it aloft, and presented it again . . . and so on right through the team. It was as if they knew that a title background scene was required of them.

All that remained at the Stadium that evening, was to pack up all the equipment (fortunately every case was clearly labelled and numbered) and can up the last of what would add up to 50,000' of rushes.

That night the supporters had their final moments and there were far more supporters involved with the 1974 World Cup Football Championship than players.

By late evening, we still had crews out, with the fans, on the town—and if our chaps didn't actually go into the Fountains of Munich they were at least there and shooting.

We were all together that night in the Mathaser House Beerhall. So it seemed, was half of Munich and between the combined effects, all those litre steins of beer and our lights, we had another sequence which will make our film an entertainment and something different from that seen on T.V.

**MOVING?**

PLEASE NOTIFY US  
 6 WEEKS IN ADVANCE

Miss/Mrs./Mr.  
 Name (please print)

New Address Apt. No.

City State Zip

MAIL TO  
**AMERICAN  
 CINEMATOGRAPHER**  
 P.O. Box 2230  
 Hollywood, Ca.  
 90028

ATTACH LABEL HERE for address change or inquiry. If you are receiving duplicate copies of AMERICAN CINEMATOGRAPHER, please send both labels. If moving, list new address above.

R-2 Reflex Auto-  
**COLLIMATOR**

Focus Testing Equipment is made by  
**RICHTER CINE EQUIPMENT, ESSEX, N.Y. 12936**  
 for people who care about image quality.  
 Cost? Less than one good lens or  
 one out-of-focus scene.

**UHLER MOTION PICTURE  
 FILM PRINTERS**

35, 16, and 8mm. Contact continuous, and optical  
 reduction and enlarging for color and B&W films.  
 Please write for information and prices:

Uhler Cine Machine Cable: Uhlcima  
 15762 Wyoming Ave., Detroit, Mich. 48238  
 (313) 861-4663

**JOHN BARRY**  
 (INC., Birns & Sawyer Australia)  
 SALES SERVICE RENTALS

104 Reserve Rd.  
 Artarmon-Sydney  
 Ph (02) 439-6955  
 Cables Birnsaw, Sydney  
 Telex 24482

**WATER FILTER**

• Filters 24,000-50,000 gallons  
 of crystal clear water • 100%  
 clear negatives without wiping •  
 Solid Brass Construction  
 Factory direct to you from \$34.95

**Crystal Water Filter Co.**  
 59-08A Woodside Ave., Woodside,  
 NY 11377 (212) 426-2540

VIET NAM IS COVERED BY

**AFC ADVERTISING & FILM Co. Ltd.**  
 235 HAIBA TRUNG SAIGON 3  
 PHONE: 98787

• NEWS AND DOCUMENTARY  
 • PROFESSIONAL SERVICES FOR  
 FEATURE FILM  
 • ADVERTISING FOR US. PRODUCTS

**saba camera  
 SERVICE**

**ECLAIR AND ARRIFLEX**  
 Motors, Lenses, Etc.  
 FACTORY TRAINED BY ECLAIR  
 (213) 489-1551  
 6572 Santa Monica Blvd.  
 Hollywood, Calif. 90038

**ANDROMEDA FLIGHT**  
 Aerial Cinematography  
 Aerial Film Production & Design

HELICOPTER · JET · FIXED WING  
**PHIL GREENE** (415) 388-8340  
 336 Ridgewood Ave., Mill Valley, CA 94941



# BUY - SELL - SWAP HERE

## STUDIO PRODUCTION EQUIP.

ARRI 16S outfit, three Schneiders, two magazines, wild motor, batteries, cases, \$2895. Frezzi-Cordless 571-AC outfit, 12-120 V30 finder, three magazines, MA-11, \$2995. Must Sell! SANDAR FILMS, 822 Second Avenue, Williamsport, PA 17701.

MAKO underwater housing for Arri "S", thru the lens focusing and viewing, \$400. NCE fluid tripod, baby legs, case, \$450. 254mm F4.5 Tele-lens "C" mount, \$100. P.O. Box 7276, Tampa, Fla. 33603. (813) 229-2410.

ARRIFLEX SB/MB bayonet lock to "C" mount lens adapter, \$119.50. NATIONAL CINE EQUIPMENT INC., 4140 Austin Blvd., Island Park, LI, NY 11558. (516) 889-4600.

A.V.E. "Transportable" Interlocker-Rusher #159 35mm sound projector with 4" lens. Has been completely checked by A.V.E. Optical and Magnetic playback, solid state amplifier, 2-cases. Price \$1,950. Contact: Mr. Howard Swift, THE DOW CHEMICAL COMPANY, 2030 Dow Center, Midland, Michigan 48640.

ARRI 35 BL, 5 prime lenses, matte box, lens, blimp, scales, 2-400' mags, cases, like new. \$27,500 or best offer. 1779, AMERICAN CINEMATOGRAPHER.

FANTASTIC SLOW MOTION: IPD Photosonics Action Master 12-120 zoom, battery and case. Good condition. Best offer. 1780, AMERICAN CINEMATOGRAPHER.

OXBERRY Optical Printer 1500 series Aerial Image beam-splitter, \$29,000. PHOTOGRAPHIC EQUIPMENT SERVICE, 695 Main St., New Rochelle, NY 10801. (914) 235-2720.

OXBERRY 16mm Filmmaker, loaded with accessories including automatic dissolve and table, \$14,000. PHOTOGRAPHIC EQUIPMENT SERVICE, INC. 695 Main St., New Rochelle, NY 10801.

NEWSREEL AND DOCUMENTARY CAMERAMEN: 12-120 Angenieux zooms with 1" finders (AV 30), \$1,350 each; with 3" finders \$1,220 each; with 7 1/2" finders (ACV) \$1,250 each. 17-68 Angenieux zooms with finders \$660 each. 12.5-50 Angenieux zooms with finders, \$750 each. Mitchell 400' x 16 magnesium magazines, \$124.50 each. Mitchell-type 400' x 16 magnesium magazines \$96 each. Auricon MA-11 magnetic heads \$490 each. All equipment brand new and under factory warranty. Call or write Allen Rosenstein, VIDEO CAMERA SERVICES, 471 Eleventh Avenue, N.Y., NY 10018 (212) 524-6517.

CIR SPLICERS (Same as Guillotine) demos, like new, slightly shop worn, 16mm straight/diagonal or 35mm straight, \$122.40 each. 16mm straight, \$117. each. Send check to SOS PHOTO CINE OPTICS, INC., 315 West 43 St., New York, NY 10036.

AMPEX-AG-440-B 1/4 inch tape recorder. Console mount, with casters. Servo motor. 2 channels. 4 speed, 3-3/4, 7-1/2, 15, 30 IPS. Includes extender boards, and all factory updates. Flawless condition, \$3400. TECHNOLOGY FILM CO., 2414 Harbor Blvd., #102. Costa Mesa, CA 92626 (714) 979-5140.

TFF-16 horizontal editing consoles, 16mm, two pictures, three sound start at \$3500. IKE JEANES, P.O. BOX 539, Blackburg, VA. 24060.

ECLAIR NPR 9.5-95 Angenieux zoom, Dove eyepiece, Ciblo motor, manual bloop option, two magazines, Eclair cases, \$5500. ARATOW (415) 655-5794.

## STUDIO PRODUCTION EQUIP.

OXBERRY Animation Stand, master series, loaded with extras, 16mm, 35mm and D.F., \$24,000. PHOTOGRAPHIC EQUIPMENT SERVICE, INC., 695 Main St., New Rochelle, NY 10801.

FOR SALE: 2-16mm CAMERAS. CINE KODAK SPECIAL I, 100' magazine. Like New. Three lenses: 15mm f2.7, 25mm f1.9, 63mm f2.7, carrying case, instruction booklet, split screen mattes, Cine-Special tripod, filters, Kaleidoscope attachment. Complete-ready to use. BELL & HOWELL FILMO 70 DE. Beautiful condition. Three matched, T stop lenses: 0.7 inch f2.1, 1 inch f1.9, 4 inch f4.5 with matching turret finder lenses. Carrying case, filters, instruction booklet, B&H metal tripod, range finder, take-up knobs, reverse crank, iris vignette attachment, Filmo focusing microscope, Filmo-Goerz reflex focuser. Complete. BEST CASH OFFER TAKES THEM, both or separately. CHAS. G. CLARK, ASC, AMERICAN CINEMATOGRAPHER.

AURICON Cinevoice conversion, three 400' Mitchell magazines, Angenieux 12-120, Frezzi 1000 DX light-weight power inverter MA 11-C with filmagnetic head. ElectroVoice 655C, 2 RCA DK6-B microphones. Call ANACAPA PRODUCTIONS. (213) 556-3611 Mon.-Fri., 8-6.

SIEMENS 2000 16/16 projector; edge track; 15" speaker, carrying case, like new, \$1995. LUNDBERG (415) 846-5851.

RECORDERS, cameras, lenses, film and video equipment, surplus to our production needs. Write or call for long list, we will take trades. NORTHWESTERN INCORPORATED, 011 S.W. Hooker St., Portland, OR 97201 (503) 224-2456.

NAGRA sync sound in Central California. Send stamped envelope to Box 399, Santa Cruz, 95060 or call (408) 426-5978.

OXBERRY Optical Printer 1500 series Aerial Image beam-splitter, \$29,000. PHOTOGRAPHIC EQUIPMENT SERVICE, 695 Main St., New Rochelle, NY 10801.

BEALA motor almost new. Debugged by Beauvealla himself. Absolutely reliable. \$1800. BRILLIG PRODUCTIONS, 57 West 56th St., New York, 10019 (212) 541-6161.

ANGENIEUX 25-250mm lens, Arri mount, shade, case, \$3,750. Angenieux 20-80mm lens, C mount, for Bolex or Beaulieu, new, \$249. Nagra III 1967, crystal, slate, ATN, case, \$1,600. Moviola UL-20-CS 16/16 upright editor, \$1,995. L&W 16mm Analyst projector with single frame to 24 fps speeds, \$475. B&H 302 magnetic optical 16mm projector, \$575. Nikon FTN camera, 4-Nikkor lenses, cordless motor drive, \$975. Animation compound, 12-fields, full features, brand new, \$895. B&H 400' 16mm magazines, new surplus, each \$125. See our full page ad of bargain items elsewhere in this magazine issue. COMQUIP, INC., 366 S. Maple Ave., Glen Rock, N.J. 07452. (201) 444-3800.

CLOSING our motion picture division. 8-plate Kem Universal editing table—latest sync model with two-16mm picture modules, three-16mm sound modules. Will assist in moving and setup, \$11,500. 16mm Magnasync 400, type 15 like new, \$950. Bolex Rex V with 25mm Switar, 50mm Macro, \$500. MST motor with battery case, \$75. 150mm Macro-Yvar, \$125. 20,000 ft. ECO 7252 one year old frozen, \$22 per 400 ft. core. Victor A. Michael, KEMEX EXPLORATIONS, RD #1, Box 80, Muncy, PA. 17756, (717) 437-2119.

## STUDIO PRODUCTION EQUIP.

BEAULIEU R16B 12/120 Angenieux, 200 ft. mag., support plate, sync cable, pistol grip, custom aluminum case, mint condition, firm \$1475. ED LACHMAN, 434 East 58th St., New York, NY 10022, (212) PL 2-4038 or 249-8888 ans.

MOVIOLA UL-20-2S-16mm one picture, and two sound heads. Footage and minute/second counter. Used approximately 40 hours. Mint condition, \$3400. TECHNOLOGY FILM CO., 2414 Harbor Blvd., #102, Costa Mesa, CA 92626. (714) 979-5140.

COOKE KINETALS, last existing inventory sale, 9mm, 12.5mm, 37.5mm, 50mm, 75mm, 100mm (Arri C Mount) Discounts—off list price. Contact: ED LACHMAN (for Rank Precision Ind.) 434 East 58th St., New York, NY 10022 (212) PL2-4038 or 249-8888 ans.

AURICON Pro 600, magnetic and optical sound heads, Auricon AMP, 2 magazines, Bertiot Pancinor 17.5/70 f/2.8 zoom, Auricon E6 mike and all cables—all for \$1500. VISNEWS, 10 School Rd., London NW10, Attn: Paul Davies.

BELL & HOWELL Model "J" printer, super high light head, 2000' torque take-ups, roller gate and DC voltage supply. Excellent condition. \$5000. YALE LABORATORY, 1509 No. Gordon, Hollywood, CA 90028 (213) 464-6181.

ECLAIR ACL Maxic pkg. (2-400' magazines) + 12-120 Angenieux. Never used. \$9000. C. HOTZ, 2339F No. Geneva, Chicago 60614 (312) 750-4066.

ARRI S PACKAGE: 12-120 Angenieux, 400' magazine, Torque motor, Power cable, battery, variable speed motor, case, \$3995.

ARRI 35 SOUND PACKAGE: Camera, Blimp, CP crystal motor, Angenieux 25-250, motorized zoom, 2-400' magazines, Arri case, \$6750.

ARRI 35 2C PACKAGE: 3 standard lenses, variable speed motor, 2-400' magazines, matte box, sunshade, case. Like new! \$4995.

AURICON PRO 600: 2-400' magazines, case, IMMACULATE! \$975.

CP16 PACKAGE: 12-120 Angenieux, 2-400' magazines, 2 batteries, case, \$4975.

ECLAIR ACL PACKAGE: 2-200' magazines, battery, case, \$4975.

ECLAIR ACL PACKAGE: 2-400' magazines, battery, case, PERFECT! \$6995.

ECLAIR CM3 PACKAGE: 3 lenses, 4-16mm magazines, 3-35mm magazines, case, \$1975.

ECLAIR NPR PACKAGE: (completely rebuilt), 2-400' magazines, CIBLO motor, \$3995.

ECLAIR NPR PACKAGE: 2-400' magazines, 12-120 Angenieux, BEALA crystal motor, \$5495.

ARRI 35 2CBGS brand new w/constant speed motor, \$3675.

CANON SCOOPIC 16mm underwater system complete, \$1195.

ECLAIR ACL 400' magazine (demo like new), \$1495.

IMAGE DEVICES INCORPORATED, 811 NW 111 St., Miami, Fla 33168 (305) 751-1818.

RATES: Ads set in lightface type 40¢ per word. Minimum ad, \$4.00. Text set in lightface capital letters (except 1st word and advertiser's name) 50¢ per word. Modified display format (text set in boldface type, capitals or upper-and-lower-

case) \$4.00 per line. Send copy with remittance to cover payment to Editorial Office, American Cinematographer, P.O. Box 2230, Hollywood 28, Calif. Forms close 1st of month preceding date of issue.

## STUDIO PRODUCTION EQUIP.

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

CUSTOM 16mm news and documentary twin-motor sound camera with Auricon movement, magnesium body, reflex viewing, sync pulse, Pan-Cinor 2.8 20-60 zoom, 400-1200 foot Mitchell magazine, shoulder pod, power supply, two cases, all cables and many accessories. Priced at \$1500 for quick sale. IMAGERY WEST PRODUCTIONS, P.O. Box 5313, Walnut Creek, CA (415) 939-7591.

BOLEX H-16 EBM Electric, 12-120 Angenieux, 2-400' mags, sync, battery & charger, filters, \$3841 new. \$2750. RAYMOND RIGGS, 2700 Classen Blvd., Oklahoma City, OK 73106 (405) 524-1461.

## RENTAL

KEM rentals in Hollywood. HORIZONTAL EDITING STUDIOS. (213) 461-4643.

MOVIOLA M-77 6-plate, M-85 4 plate, & M-84 2 plate Horizontal Editing Machines are available for immediate rental. Daily, weekly or monthly. Please inquire about our fantastic rental towards purchase plans. Financing plans are available. Less expensive than renting, and you own the equipment in one or two years. For detailed information or to place an order, call or write Stuart Mann or Ted Powers. LAUMIC CO., INC., 35 West 45th St., New York, NY 10036 (212) 586-7666.

STEENBECK RENTALS delivered to your premises. West Coast (213) 931-6151, East Coast (301) 299-7259.

NAGRA recorders and accessories, in any condition. We pay top prices for used Nagra III or Nagra IV. AUDIO SERVICES CO., 565 Fifth Avenue, NYC. (212) 972-0825.

## MISCELLANEOUS

We find anything recorded between 1885 and 1945. Our price includes re-mastering. THE SOURCE—sound library and research service—Box 202, Evanston, Ill. 60204.

## POSITIONS AVAILABLE

VICTOR DUNCAN, INC. has opening for camera repair technician. Must have practical background in mechanics, electronics, optics. Call Robert Burrell. (313) 371-4920.

## SERVICES AVAILABLE

GORDON YODER, INC. gives 48 hour service on Filmo filter slots. Also quick service on Auricon, Filmo, Canon Scoopic, and Angeneau zoom lens repairs, 2840 Reward Lane, Dallas, Texas (214) 357-3045.

GORDON YODER, INC. repairs all types of conversions.

WASHINGTON, D.C. production assistance, pre-production facilities. TRANSMEDIA INTERNATIONAL, LTD., 1100 Seventeenth Street, N.W., Washington, D.C. 20036.

PROFIT is easy when your films find a new market in foreign language versions. Using native-speaking professional talent, we can provide a type transliteration of your script or a fully mixed track. TRANSMEDIA INTERNATIONAL LTD., 1100 17th St., N.W., Washington, D.C. 20036. (212) 872-1118.

## SITUATIONS WANTED

WRITER, producer, director, cinematographer, editor, animator, teacher. M.A. (Cinema) Seven years experience. AMERICAN CINEMATOGRAPHER, 1783.

## WANTED

Original ideas wanted for short subjects. MRS. RENEE SCHWARTZ, 30th Fir, 200 Park Avenue, NYC 10017.

WANTED: NAGRA (any model), especially SN series, or other portable recorder with accessories. Also desire regular and wireless mikes. J. H. WICKENS, 411 E. 10th St., New York 10009 (212) OR3-1777 Evenings and weekends or (212) RA6-6832 Days.

WANTED: Good, clean, used, Arris, Eclairs, Scoopics, zoom lenses, Nagra III and IVs, tripods. Call Hy Roth, (212) 586-1420.

WANTED: Used OMAC 16/35mm color processor KEN DAVEY PRODUCTIONS LTD., 695 Sargent Avenue, Winnipeg, Canada (204) 774-1629.

## BIG SAVINGS

### 16mm CAMERA STOCK

Black & White Sports Special!

ASA 200 reversal with mag stripe.

100' Roll ..... 2.95 4 Rolls .... 11.25

400' Roll on core . 10.95 1200' Roll . 31.50

FRESH ASA 64 or ASA 500 Reversal

Single or Double Perf.

100' Roll ..... 3.95 4 Rolls .... 14.95

400' Roll on core . 13.95 1200' Roll . 37.95

16mm GAF Ansochrome Color

Daylight ASA 200 Double Perf.

100' Roll . . . 3.99 200' Roll . . . 7.49

Tungsten ASA 25

Double Perf. Shooting or Printing Stock

100' Roll 2.95, 400' 10.99, 1200' 31.95

GAF Factory Color Processing 5.50-100'

Check with us for outstanding

buys in cameras and lab equipment.

\* We ship all orders within 24 hours.

\* All prices include FREE delivery in U.S.

\* Please send check with order.

\* Calif. firms add 6% sales tax

**FREESTYLE SALES CO.**

5124 Sunset Blvd., Hollywood CA 90027

Phone (213) 660-3460

## OPTICAL PRINTER

35mm SLIDES OR 16mm (8 or 58 optional) \$752

ANIMATION MOTOR ..... \$148

AUTOMATIC PRESET SEQUENCER ..... 358

BOLEX H8 SUPER 8 CONVERSION ..... 139

ANIMATION CELL PUNCH ..... 165

**J-K CAMERA ENGINEERING**

5101 San Leandro St., Oakland, Calif. 94601 (415) 531-5070

## NARRATION

Research and narration for your film done by professionals at a reasonable rate.

L&M ENTERPRISES  
BOX 251, Tarzana 91356 344-3375  
(closed Mondays)

## TRANSFERS—

16mm—\$15 per hour

2 cents per foot for

stock on titles

Cells or boards

\$1.50 per line

## SPECIALS ON MUSIC

Moviola Sales

Service and

Rentals

## FILM ASSISTANCE

1949 N.E. 147th St.,  
Miami, Fla 33161

# American Cinematographer REPRINT

June, 1968

FILMING "2001—  
A SPACE ODYSSEY"

December, 1969

SUPER-8—THE STATE  
OF THE ART

June, 1970

SUPER-16

October, 1972

VIDEOTAPE & FILM

ALL IN ONE PLACE



\$5.00

(Dealer Discounts—Inquire)

AMERICAN CINEMATOGRAPHER  
P.O. Box 2230, Hollywood, Calif. 90028

Please send me \_\_\_\_\_ copies of the  
FOUR-IN-ONE reprint @ \$5.00 ea.,  
postpaid.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

California residents please remit 6%  
Sales Tax. (30¢ per copy). Foreign  
buyers please pay by International  
Money Order or U.S. Funds.

World's standard  
**FREZZOLINI** means **Craftsmanship**

Model LW-16  
TV newsfilm  
& documentary  
professional  
sound-on-film  
16mm camera.



MADE IN U.S.A.

Available with/without  
advanced automatic iris  
powered from camera.

Featuring BACH AURICON  
movements. World-famous  
for reliability and  
serviceability.

Manufactured in the Frezzolini® plant, it's the lightest camera available. Perfectly balanced for hand-held shooting, all our cameras can be equipped with the newest Angénieux lenses & viewfinders. In addition, we can re-manufacture your existing Auricons into the latest Frezzi-Cordless® format at substantial savings. Camera finishes in colors or white or standard black. For camera demonstration or consultation write or phone Jim Crawford, Vice-Pres. Engng.

General Research Laboratories



DIVISION OF

**Frezzolini Electronics Inc.**

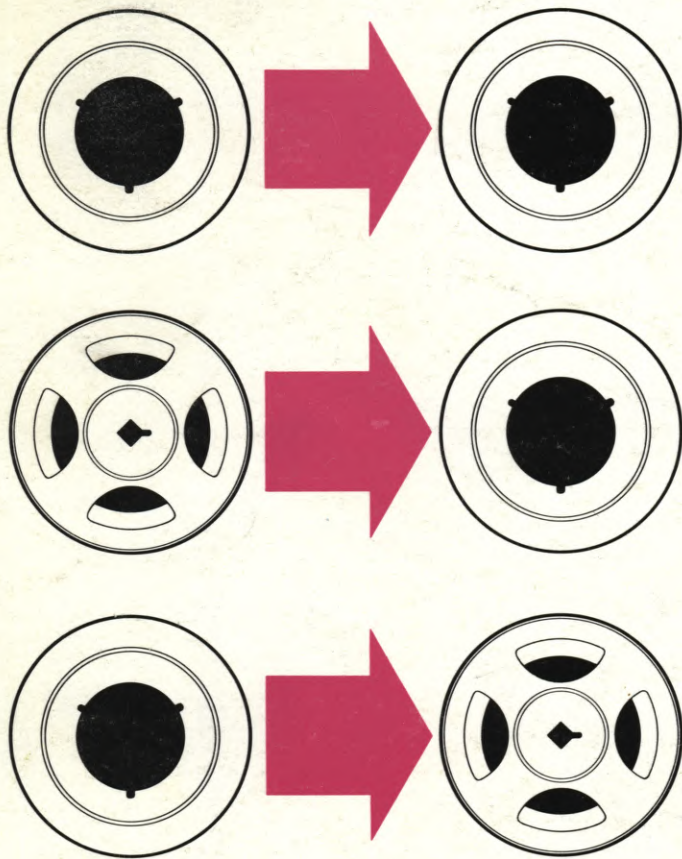
7 Valley St., Hawthorne, N. J. 07506

PHONE: (201) 427-1160



CALL BILL DAVIS TODAY . . . At 202/783-2700

# tape to tape, film to tape and tape to film transfers



**OUR MOST MODERN HIGH-SPEED DUPLICATING EQUIPMENT WILL PRODUCE 3 COPIES OF A 60-MINUTE PROGRAM IN 6 MINUTES FLAT . . . WHICH TRANSLATES INTO FASTER DELIVERY AND BIGGER SAVINGS TO VIDEO TAPE PRINT BUYERS.**

#### **VIDEO FACILITIES:**

- Small Studio With Lights—
- Two Norelco PC100 Color Studio Cameras
- Video Viewing Room.
- 2 Ampex AVR-1 Video Recorders.
- 1 Ampex VTR-2000 Video Recorder.
- 3 Ampex 1" .7800 Video Recorders.
- 1 IVC 1" Video Recorder.
- 1 Sony 1/2" Video Recorder.
- 1 Sony 1" Video Recorder.
- Ampex AVR-1 Editor.
- Editing Program Computer.
- Norelco Telecine Chain.
- Norelco Audio Console.
- Grass Valley Double Re-entry Effects Switcher.
- Vidtronics Video Color Film Recorder.
- Ampex Tape High-Speed Duplicator.
- CBS Color Corrector—
- Sony 3/4" Videocassette Duplicator.

*And Much, Much More.*

**byron** COLOR-CORRECT®

**SOON . . . CBS LASER BEAM  
COLOR RECORDING**

65 K Street, Northeast, Washington, D.C. 20002 202/783-2700  
World's Most Sophisticated Video Tape and Film Laboratories