

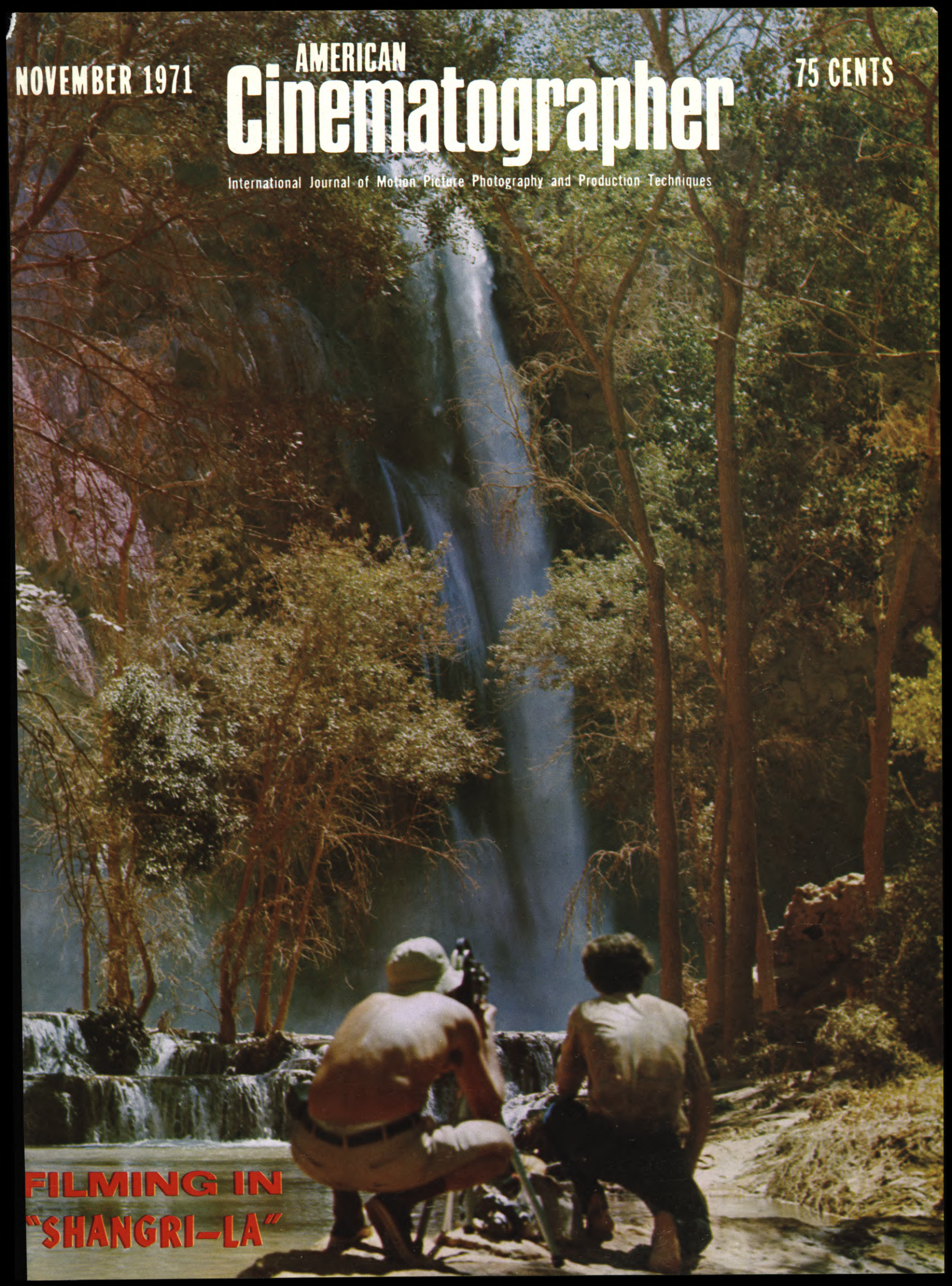
NOVEMBER 1971

AMERICAN  
**Cinematographer**

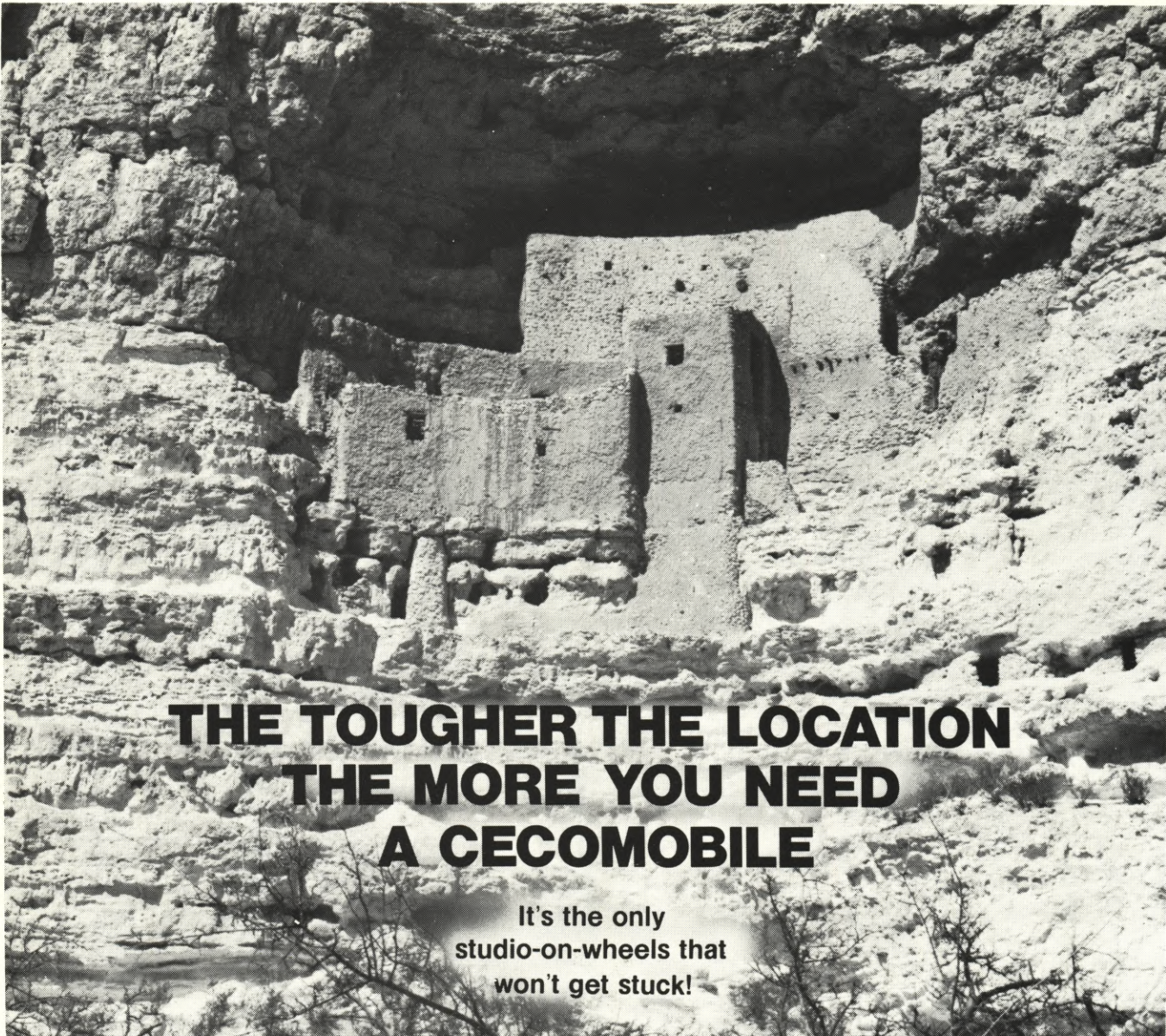
75 CENTS

International Journal of Motion Picture Photography and Production Techniques

**FILMING IN  
"SHANGRI-LA"**







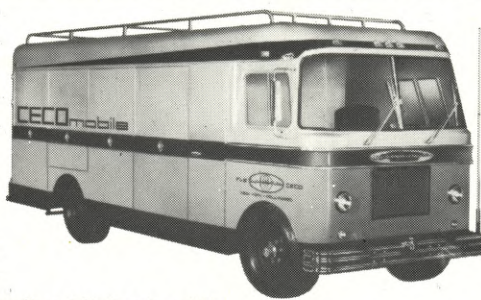
## THE TOUGHER THE LOCATION THE MORE YOU NEED A CECOMOBILE

It's the only  
studio-on-wheels that  
won't get stuck!

A stuck truck is a headache you can live without. So we built our Cecomobile with four-wheel drive. It can drive **out** of anything you can drive into: rough terrain, sand, snow, mud or water.

A generator that's stuck inside a mobile studio can be another headache. So ours is separate. Trailer-hitched, with a powered reel holding 800 feet of 4/0 cable. You can set up in one place while generating in another. It saves you time. And noise.

The rest of our Cecomobile is built to take anything you want to give it: BNC's and Arri's with blimps; tripods; accessories; 20 foot Fisher mike booms;



Nagras; fishpoles; Moviola or Fisher crab, Western and Elmack dollies (takes all at once); reflectors; stands; apple boxes; power supplies; cables; lumber; plywood sheets; parallels; etc. It will even take 1000 feet of 4/0 cable on the truck, plus the 800 feet on the generator, all on a power reel

— no hand-carrying or cranking.

One more feature: all equipment in the Cecomobile is supplied by F&B/Ceco. That means it's reliable. And it's another reason we say: The tougher the location, the more you need Cecomobile. It's the way to be **sure** you won't get stuck.

For further information, write Department CM

# F & B / CECO I N C.

A DIVISION OF F&B/CECO INDUSTRIES, INC.

EAST: 315 West 43rd Street, New York, N.Y. 10036 • (212) 586-1420

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



# The emulsion got so sticky that the lab had to unwind our exposed film by hand!

Crew with Eclair NPR shoots 50,000 feet of EF film at 110 degree temperatures in the steaming rain forest of New Guinea.

Six weeks into New Guinea's unmapped jungle, Camera-man-Director Gerry Feil and his crew found what they were looking for: a village whose inhabitants had never seen a white man and whose way of life was unaltered since the Stone Age. Nobody knew how the villagers would react; but it was obvious that whatever they did, they would do it only once. No retakes. No waiting for jams or threading film.

The footage was for an NBC TV Special called "Patrol Into The Unknown;" and this unrepeatabe moment was to be the climax of the film. Amazingly, the villagers appeared neither terrified nor hostile as the film crew walked toward them, shooting sync sound as they approached. Later, it became apparent that the villagers were reassured by the presence in the film crew of a woman — Mrs. Feil.

They weren't afraid; but they certainly were curious. Never having seen a camera before, they were quite unselfconscious about being filmed by the silent-running NPR. But later in the day, when Mr. Feil tried to get some candid non-



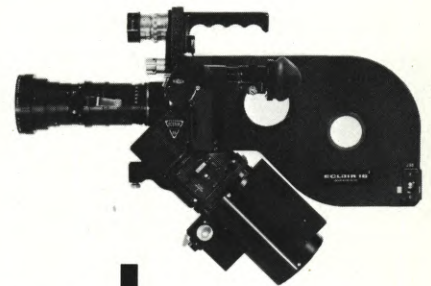
Gerry Feil loads NPR magazine in New Guinea.

sync footage with his backup camera, its whirring motor instantly caused everyone to freeze and stare at the lens.

Light conditions were uncertain and it was impractical to carry more than one film stock, so Mr. Feil decided to use high-speed EF film throughout. EF emulsion is relatively thick, and it tends to swell and soften in hot weather. But Mr. Feil had used it for an ABC TV Special on Africa with no problems, despite the equatorial heat encountered there.

Mr. Feil reports that the NPR's silent-running unobtrusiveness made it the only camera usable at the village, for both sync sound and wild footage. "If the NPR had not survived its battering en route, or if the fantastic heat and humidity had made the EF emulsion jam the NPR, it would have been a disaster," says Mr. Feil. But nothing went wrong. Back in New York, Cinelab had to unload the exposed film by hand into their processing machines. But not a frame was lost. The footage was perfectly OK — and fascinating. And historic.

For a free NPR brochure, write to Eclair Corp. at 7262 Melrose Ave., Los Angeles, Calif. 90046; or at 73 S. Central Ave., Valley Stream, New York 11580. No obligation.



## eclair

**NPR: THE SUPER 16 CAMERA**



# Suddenly, New York has a 'West Coast'

## It had to happen, sooner or later

We just made it sooner. Gave New York its own ultramodern filmmaking center to keep pace with its imaginations. A total rental-fabrication-manufacturing facility. And a multilevel soundstage complex equipped for everything from commercial to feature.

Making films in New York is a way of life. We understand it. Live it. And designed around it, drawing on years of experience on all types of feature, commercial, industrial and educational work.

## Two years, seven stories and 40,000 square feet later

(plus innumerable gallons of blood, sweat & tears spilled on 38th Street and Eleventh Avenue), we have the most complete service-oriented equipment source anywhere. Park (yes, we said park!!!) outside our door, and you'll find a building-full of experts at getting things done. Backed by a huge inventory of the world's finest camera, lighting, grip and sound equipment. Supported by some of the finest optical and machine shops to be found anywhere.

## Our vision and PANAVISION

As the building took shape, people were impressed. We were impressed. So, apparently were the Panavision people, who

named us exclusive East Coast Distributors. Which we find especially flattering, since they've long been noted for pioneering the latest in cinematography. Without compromise.

## All this equipment and no place to go

Knowing filmmaking, and filmmakers, we realized New York needed something more: a soundstage—or more realistically, a soundstage *complex*—to give motion picture professionals the facilities and flexibility they need to utilize today's most advanced cinema technology. Without a lock, stock & barrel transcontinental migration. So that any additional location or stage takes wouldn't require back-and-forth trekking.

But instead of the usual re-conversion of the sprawling ex-garages now dotting the west side, we started from the ground up. Resulting in a three-studio complex that tops anything you'll find this side of the Sacramento (and possibly even further West).

## Enough aerial photography

In the not-too-distant future, we'll be introducing New York's West Coast to the filmmaking public. But why wait? We're waiting to make you part of the excitement at

**general stage**  
nineteen **gc**  
512 West 19th Street  
New York, N.Y. 10011

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

Exclusive East Coast distributor for **PANAVISION**®



# AMERICAN Cinematographer

International Journal of Motion Picture Photography and Production Techniques

NOVEMBER, 1971

VOL. 52, NO. 11

Herb A. Lightman  
editor

Three Tyler  
editorial assistant

Milt Darnell  
production control

Jan Mazza  
advertising manager

Barbara Prevedel  
accounting

Pat Barrier  
circulation

Claudia Pollard  
research

## Editorial Advisory Board

Charles Clarke, Chairman  
Burnett Guffey  
Winton Hoch  
George Mitchell  
Kemp Niver  
Harold Rosson  
Walter Streng

## Editorial—Business Offices

1782 North Orange Drive  
Hollywood, Calif. 90028  
876-5080

## Advertising Representative

Paul Gilbert  
485 Fifth Avenue  
New York, N.Y. 10017  
(212) 884-2911

## • FEATURE ARTICLES

1110 Filming In "Shangri-La"

1114 HAVASUPAI: People of the Blue-green Water

1122 "All the Best Camera Angles Were in Five Feet of Water"

1126 HOLOGRAPHY: The Real Three-dimensional Pictures Traditional  
Photography Can't Explain

1132 The New Canon Sound Scoopic 200 Camera — A Product Report

1138 "DIRECTED BY JOHN FORD"  
Producing a Compilation Documentary Film

1144 Reflections Upon the Production of BRITAIN'S FIRST SUPER-16 FEATURE

1147 The First Los Angeles International Film Exposition

1148 Background Music By Computer

## • DEPARTMENTS

1090 What's New

1100 Cinema Workshop

1168 Questions & Answers

1170 The Bookshelf

ON THE COVER: UCLA Motion Picture Division graduate students, Derek Scott and George Williams, train their camera on magnificent 200-foot-high Mooney Falls in Havasu Canyon, Arizona, below the Havasupai Indian Reservation, during the course of producing the ethnographic documentary film: "HAVASUPAI: PEOPLE OF THE BLUE-GREEN WATER". Photograph by Herb A. Lightman.

AMERICAN CINEMATOGRAPHER, established 1920, in 52nd year of publication, is published monthly in Hollywood by ASC Agency Inc., 1782 North Orange Drive, Hollywood, California 90028, U.S.A. **SUBSCRIPTIONS:** U.S. \$7.00; Canada, foreign, including Pan-American Union, \$8.00 a year (remit International Money Order or other exchange payable in U.S.) **ADVERTISING:** rate card on request to Hollywood or New York office. **CHANGE OF ADDRESS:** notify Hollywood office promptly. Copyright 1971 ASC Agency Inc. Second-class postage paid at Los Angeles, California.



# The new Stellavox Sp7 will become a giant in the film industry.



## All 8 lbs. of it

Up till now, perfect stereo location recording meant lugging unportable portables.

So we've come up with a rugged precision instrument, the Swiss-made Sp7. It's small—8"x10"x3". It's light—only 8 lbs. with batteries. And, despite its size, Sp7's features measure up to *any* portable you're now using.

Plus giving you several advantages you'll get nowhere else, regardless of size.

Like four standard tape speeds. 3¾, 7½, 15 and 30 ips. It is also continuously variable from 0-30 ips.

Another exclusive: Our many tape head assemblies with up to four heads. They plug in. Are quickly exchanged in the field. And each one contains the components to equalize the electronics precisely for a particular tape speed, track configuration and tape oxide. With Neo-pilot for mono

and "Sychrotone" for stereo sync recording!

Then there's our 10½" reel adapter. It gives you more recording time than any portable ever.

Plus: hands-off automatic stereo level control, dual peak indicating meters, internal powering for two condenser mikes, external AC supply and battery charger, and an internal quartz generator.

We expect this tiny Stellavox Sp7 to live up to the highest hopes of the industry. Because you don't have to be big to be a giant.

**STELLAVOX**

exclusively by

**GOTHAM**

AUDIO CORPORATION

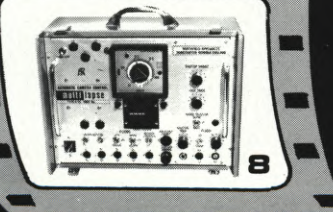
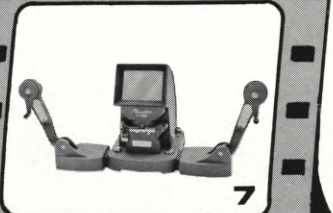
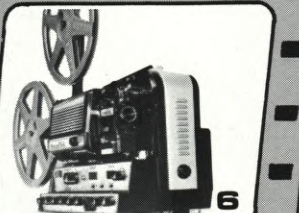
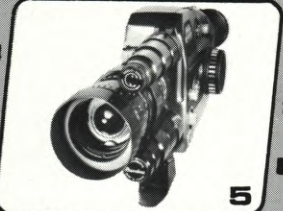
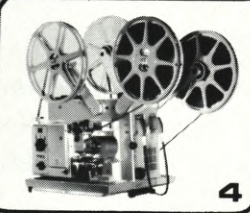
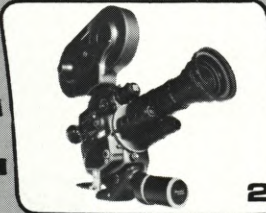
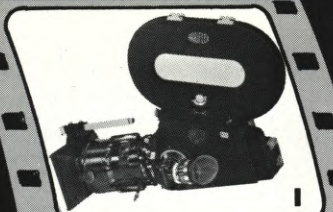
2 West 46th Street, New York, NY 10036 (212) 265-4111  
1710 N. LaBrea Avenue, Hollywood, CA 90046 (213) 874-4444



# BEL AIR CAMERA AND HI-FI

927 WESTWOOD BLVD., LOS ANGELES 90024

West Los Angeles Headquarters for ARRIFLEX



BEL AIR CAMERA has long enjoyed an enviable reputation as an unequalled source of information and counsel on all subjects pertaining to professional and advanced 8 and 16 mm cinematography. BEL AIR's thoroughly competent staff is constantly available to assist in any cinematographic problem. And every available Beaulieu, Arriflex, Sonorex, Hervic/Minette, Heurtier, and Uher product is instantly available from stock. Bel Air will be happy to send you literature on any of these superior cinema products. Please accept our invitation to visit us at any time to see our vast stocks of cinematographic equipment. Or drop us a card or phone if you prefer. You will enjoy your association with Bel Air Camera.

1. The ARRIFLEX 16BL camera is a self-blimped, lightweight, professional 16mm camera, "sound convertible" for double system/single system recording. All cameras are equipped to accept the Arri single system recording module. All Arriflex 16BL cameras feature built-in 60Hz control signal generator, running light, and automatic electric claspstick with manual scene marker. The famous Arri precision registration pin movement, mirror shutter, reflex finder system with provision for interchangeable finders, standard type A finder, automatic closure eyepiece, ground glass with TV safe action markings, and customer's choice of zoom lens are standard equipment. Arriflex 16BL cameras may be optionally factory equipped with the "APEC" Arri Precision Exposure Control and the Arri Zoom Motor Control. Our competent staff members will be happy to describe these advanced creative film maker's features for you.
2. The BEAULIEU R16B(PZ). One of the world's most advanced 16mm motion picture cameras. Has built-in power zoom with continuously variable zoom speed from 3 through 15 seconds and positive stop/start with manual override, coupled to the fine Angenieux 12-120 mm "auto" zoom lens. Mirrored shutter allows all the light to pass alternately to the brilliant reflex viewfinder and to the film. Fully automatic exposure control with manual override. Ultra-accurate speed control from 2 to 64 frames per second. Nickel cadmium battery screws into (and forms part of) camera handgrip — eliminating the need for battery pack hanging over the shoulder or battery belt attached around the waist. Ability to accept most standard "C" mount lenses, and (with the use of lens adapters) an extensive range of still camera lenses, is only a part of the outstanding features that make the Beaulieu R16B(PZ) the favorite choice of the TV-news film and documentary cameramen, and the "new cinema" producers. Available accessories include a 200 ft. magazine, 60 cycle sync generator, 500 mA and extra heavy duty 1000 mA ni-cad batteries, battery chargers, cases, etc. Inspect the BEAULIEU R16B(PZ) at Bel Air Camera where ALL your questions can be answered. Consider this fine instrument for your next sync/sound production.
3. The UHER 1000/N Neo Pilot 1/4" Sync Tape Recorder, specifically designed for sound film synchronization is ideal for use with the Beaulieu, Arriflex, Eclair, and similar first line cameras. Its lightweight 7 1/2 lbs., small and compact 11x9x3 1/2 inch size, and the ready accessibility of its operating controls in the ever-ready shoulder case, make it the perfect unit for on-location sound filming. An assured frequency response of 20-20,000 Hz at a stroboscopically controlled speed of 7 1/2 i.p.s. combined with a full-track recording, produces precisely synchronized sound without variation. Ruggedly built and fully climatized. Has interruptible automatic photo-electric level control, interruptible low frequency filter, sync signal test button, battery condition test button, off-the-tape monitoring, built-in monitoring speaker, and adjustable CCR or NARTB record equalization. Mixer jacks, 600 ohm balanced, for adding sound sources. Operates on self-contained batteries, car battery, or 110/250 volt AC power. Complete with microphone, 5 Ni-Cad batteries, AC Power Supply/Charger, case, and camera connecting cable.
4. The SONOREX Double/16 Sound Projector offers sound capabilities that far exceed those of a conventional 16mm machine. It permits single system optical playback and magnetic record/playback; it provides double system record and playback in perfect sync, and has extensive facilities for transfer, mixing, recording, and re-recording. Picture steadiness is better than 1/1000th of picture height. The projector uses a 24 volt-250 watt Halogen lamp, a 1:6.9 ratio shutter, and a fast lens for a light output of approximately 500 lumens. A solid state amplifier with a power output of 20 watts continuous into 8 ohms has inputs for microphone, phono, and balanced +6db line. Outputs include built-in monitor, separate main speaker, balanced +6db line, and unbalanced adjustable line. Film-end and film-break safety switches are built in. Standard accessories permit multi-screen, multi-media, and similar special presentations, as well as multi-projector interlocks. Transfers from 1/4" tapes to 200 mil sound tracks on 16mm magnetic film may be made on the Sonorex. This projector is a "must see" for all serious film makers.
5. The BEAULIEU 400BZM2 Zoom Macro represents the ultimate in advanced Super-8 motion picture cameras. The 400BZM2 has double system synchronous sound capability (with automatic tape recorder start/stop control), continuously variable power zoom from 2 through 12 seconds, motorized macro focusing as close as 1 millimeter from the front element of its Angenieux f:1.9 zoom lens (focal length 8 to 64 mm), without the need for added accessories. The 400BZM2 accepts all standard C-mount lenses. And all 35mm still camera lenses as well (when used with suitable C-mount adaptor). The super-luminous 27X magnification viewfinder functions with a mirrored guillotine-type shutter (set at 45 angle), which alternately directs ALL the light on to the film or into the viewfinder. The viewfinder is equipped with a fine-grain ground glass focusing screen. The variable shutter allows fade-ins and fade-outs. Self-resetting footage counter and resettable frame counter (1-100). Continuously variable film speeds from 2 through 70 frames per second. Single frame and remote control filming is provided for. Self-contained 250 mA nickel-cadmium battery is readily recharged with a dual voltage 30 mA charger. Uses standard 50 ft. Super-8 cartridges. A Super-8 with which you can produce motion pictures of true professional quality.
6. HEURTIER Super-8 STEREO SOUND Projector. This all new Super-8 projector — an innovation in Super-8 sound projectors — features a unique and revolutionary STEREO SOUND system. The Heurtier ST 42 STEREO's integral magnetic sound system provides professional STEREO SOUND quality, and is supplied with dual speakers, two microphones, and a headphone set. Its "twin head" magnetic recorder (using the main track stripe and balance stripe for recording), can be used for simultaneous full stereo recording, or recording on either one of the two tracks separately — with complete "sound mixing" control. Among other features, the ST 42 STEREO projector offers sound superimposition, sound transfer, echo effects, a built-in public address system, an 18-frame sound/picture separation, and an INSTANT START heavy duty flywheel for the best possible sound recording and playback quality. The ST 42 STEREO sound projector is ruggedly constructed and attractively designed. It provides rock-steady, critically sharp pictures, with a choice of projection speeds at 18 and 24 f.p.s., forward and reverse. PLUS . . . 800' reel capacity; SOM Berthiot 17-28 mm zoom lens, f:1.3; and completely automatic film threading from reel-to-reel. Also available is the HEURTIER ST 42 MONO Super-8 sound projector, which is basically similar in design and construction features to the ST 42 STEREO sound projector model EXCEPT that it does not record STEREO sound. The ST 42 MONO's integral single magnetic track sound system provides Hi-Fi-quality monaural sound.
7. HERVIC/MINETTE 16 mm and Super-8 Viewer-Editors. Large, brilliant projected image (16 mm: 3.2"x4.2"; Super-8: 2.9"x3.8'). Four sided optical prism (instead of shutter) prevents flicker. Sturdy all-metal 16 mm body weighs 8 lbs., all-metal Super-8 weighs 5 1/2 lbs. Uses 6 volt 10 watt projection bulb. Optional 16 mm rewinds (2000 ft. capacity, weight 5 lbs.) fold for storage. Super-8 has built-in folding rewinds, 400 ft. capacity. Hervic/Minette Viewer-Editors feature a film pressure plate which maintains picture sharpness whether film is in motion or stationary, plus a frame marker, focusing and framing controls, and dust-proof glass screen. Hervic/Minette 16 mm & Super-8 Viewer-Editors are precision made, smooth operating, of professional quality, and are built for many years of service. (Illustration shows 16 mm model).
8. MULTILAPSE — a remarkable instrument for time-lapse cinematography. Operates the camera, lights (flood or strobe flash), motors, background curtain, etc., at intervals from 4 frames per second to 1 frame every 45 hours! Entirely automatic, it may be left unattended for days, making time lapse exposures every 4 1/2 minutes, or any other of many selected intervals. Has "shutter hold" to expose several frames at a time, exposure counter, shutter thrust adjustment, flash charge outlet for strobe batteries, fine adjustment for flash synchronization, and many more features not found in any other instrument designed for time-lapse operation. Fully portable, operates on regular 100/120v AC power source. Requires no accessory elements — operates with your normal equipment. Literature sent on request — but you really should come in to Bel Air Camera and see the MULTILAPSE for yourself.

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

Please send me literature on the cinema products checked below.

1.  2.  3.  4.  5.  6.  7.  8.

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

BEL AIR CAMERA AND HI FI WILL BE PLEASED TO QUOTE COMPETITIVELY ON YOUR SPECIAL REQUIREMENTS.  
 WRITE OR PHONE (213) 477-9569 OR (213) 879-9616



### ARRIFLEX 16S/B

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

### ARRIFLEX 16M/B

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

### ARRIFLEX 16BL

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

### ARRIFLEX 35 2C/B

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

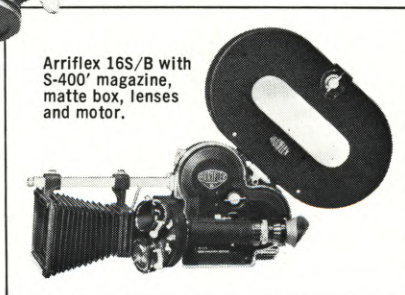
# Arriflex has all the

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

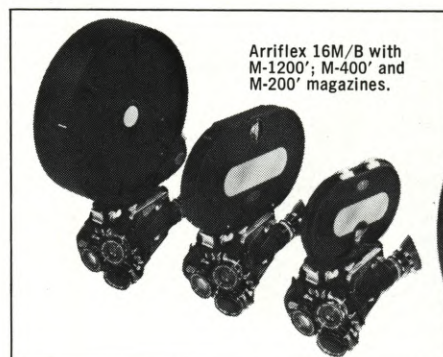
Arriflex has all the 'answers' for theatrical, TV, sports, news, documentary and research filming. There's no question about it. That's why Arriflex is the preferred motion picture equipment with professionals all over the world. Join the ranks.



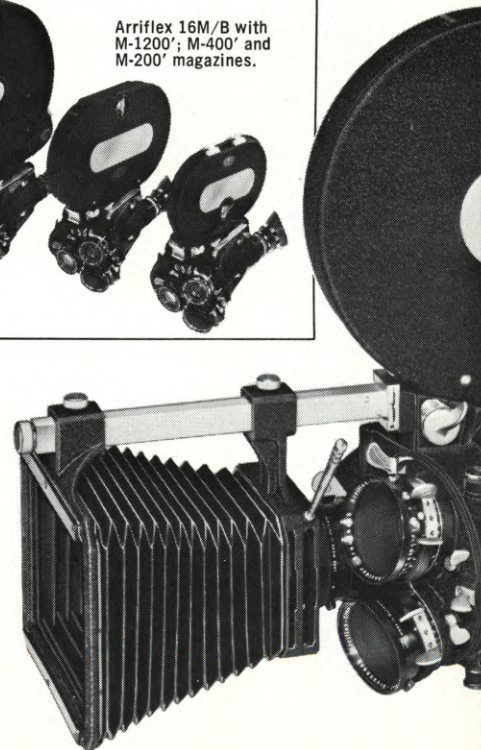
ARRIFLEX 16S/B



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



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

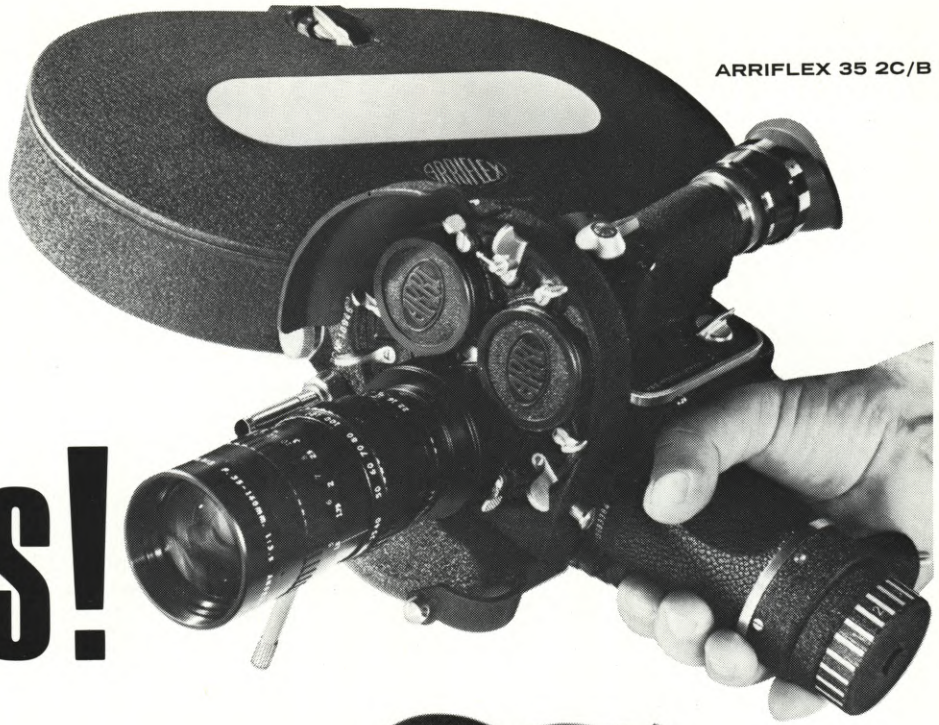




## ARRIFLEX 35BL

This new, SILENT, hand-held light-weight 35mm represent a major technological achievement in motion picture camera design. As an all-purpose production camera, the 35BL provides the filmmaker with new efficiency, mobility and creative freedom. It is destined to be the leading 35mm production camera of the 1970's. Orders accepted now for 1972 delivery.

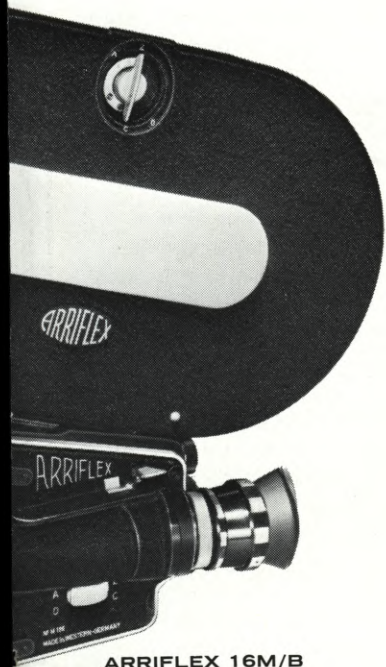
ARRIFLEX 35 2C/B



# answers!

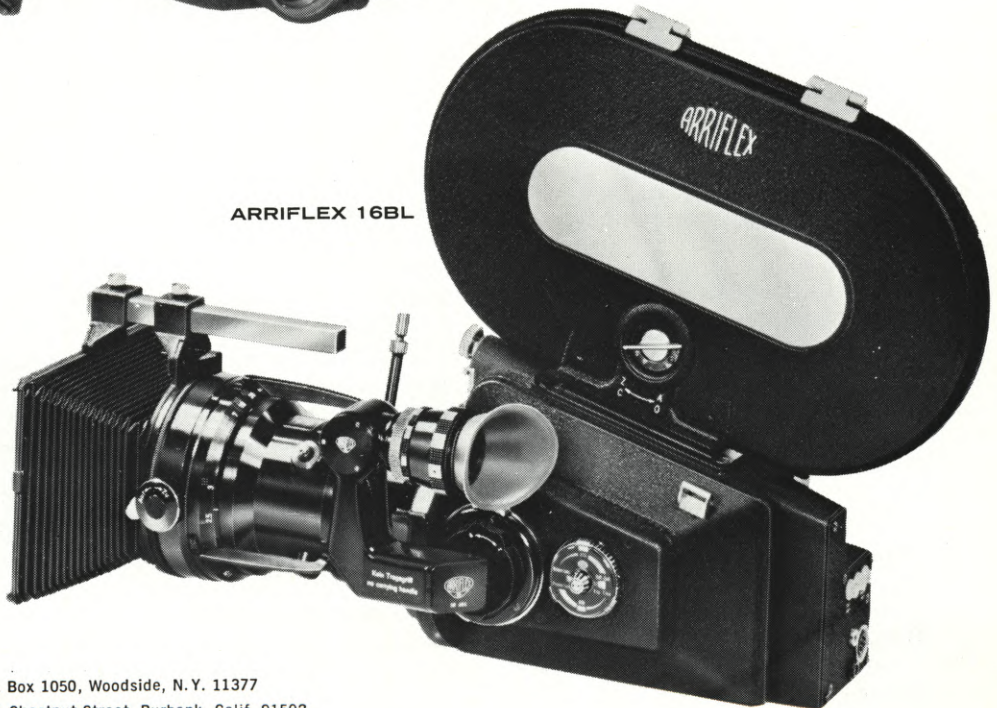


ARRIFLEX 35BL



ARRIFLEX 16M/B

ARRIFLEX 16BL

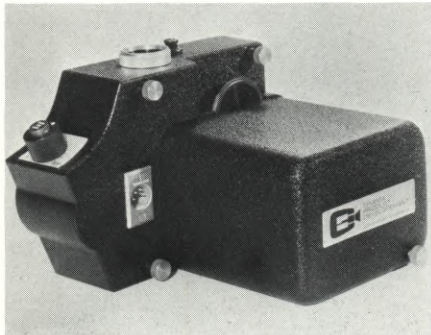


**ARRIFLEX** COMPANY OF AMERICA P. O. Box 1050, Woodside, N. Y. 11377  
1011 Chestnut Street, Burbank, Calif. 91502



# WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE



## NEW CRYSTAL CONTROL FOR MITCHELL CAMERAS

Cinema Products announces the development of a new *crystal controlled motor* for the *Mark II* and *S35R* Cameras.

The new motor features sync speeds of 24 and 25 fps, forward and reverse, with an accuracy of  $\pm 15$  parts per million over a temperature range of 0 - 140°F. Warning tone indicates out-of-sync condition. It also has variable speed capability from 1/2 fps to 36 fps.

It is designed to work from any battery in the range of 24 to 36 Volts. Nominal current drain at full load is 3 Amps.

Motor will work inside standard Mark II/S35R blimp with modification to motor blimp housing.

For further information write or call Cinema Products at 2044 Cotner Avenue, Los Angeles, Calif. 90025. Telephone: (213) 478-0711; Telex: 69-1339

## AUTOMATIC GYROSCOPICALLY STABILIZED MOTION PICTURE CAMERA SYSTEM

This lightweight self-contained device was designed to secure commercially acceptable films in many areas which preclude the use of a manually operated camera.

The deck of an Unlimited Class Hydroplane racing boat is a good example of one such difficult area.

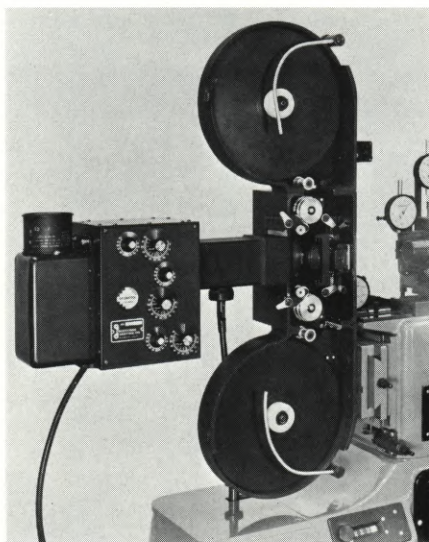
The camera is stabilized in two freedoms of movement, pitch and roll. Variants can be supplied with a remotely controlled base which will rotate the camera 360 degrees along the horizontal axis.

The prototype is constructed of welded steel tubing and is stressed to

withstand a minimum of fifty "G" shock loads. This unit weighs 32 pounds and requires 115 Vac, 400 cycle, 3-phase power which is supplied by a transistorized inverter. The camera and the gyro motors can be operated from a single 12 or 24 Vdc source.

The system can be made adaptable to any electrically-operated camera which is capable of operating in high stress environments.

For further information, contact: Frank Gudaitis Enterprises, 25 Riverside Avenue, Mastic Beach, N.Y. 11951, (516) 281-7113.



## MANUAL ADDITIVE COLOR LAMPHOUSE

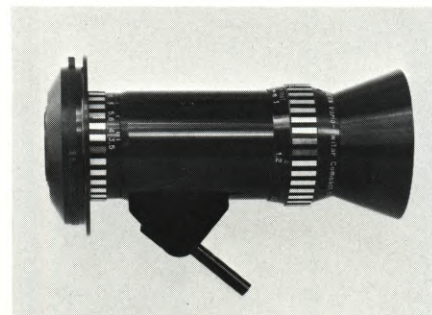
A manually-operated additive color lamphouse for motion picture film step printers widely used in laboratory, optical and special effects printing is introduced by Producers Service Corp. Known as the PSC/Opcomatrix, it is designed for use with Acme printers and can be adapted to other makes. It can be quickly, easily installed on the Acme printer in the lab, replacing the subtractive lamphouse. Models for 16mm/35mm are available from stock. Models for all other formats in optical printing as well as for continuous printers are available on special order.

The new unit provides for independent, precise control of the three color primaries. It provides for 120 steps of .025 log exposure in each primary with

separate control of "trims and lights." The field illumination for all formats is exceptionally uniform. Exit optics employ a unique lenticulated system.

The problems normally encountered with subtractive lamphouses such as filter fading, aging, non-reproducibility of filters as well as inconvenience to the operator and lack of control are eliminated. Consistent print quality is readily maintained and substantial savings in operating time and film are effected.

The light source is a pre-focused 650 watt Tungsten-Halogen lamp chosen for longevity and uniform light output. The lamphouse operates normally at 100 volts. Cooled by axial-flow fan. It is compact and light weight. Available for sale or lease from Producers Service Corp., 1200 Grand Central Ave., Glendale, California 91201.



## VARIO-SWITAR COMPACT ZOOM LENS AVAILABLE FROM BOLEX

The Vario-Switar compact 16mm zoom lens, which combines the advantages of a zoom and turret camera, is so compact that it can be mounted on the turret of the Bolex H-16 reflex cameras together with other lenses, including the Switar 10mm extreme wide angle.

This versatile compact lens has a 5:1 zooming range—from 17mm to 85mm—with a one-inch handle for fast zooming. When combined with the Switar 10mm lens on an H-16, the filming range of the camera is from 10mm to 85mm or 8½:1. When combined with the Macro Yvar 150mm lens, the filming range is from 17mm to 150mm or 9:1. The lens can be used alone, thereby forming a compact 16mm zoom camera. In combination with the Bolex bayonet mount H16-SB and H-16 SBM models, the Vario-Switar offers not only a compact zoom camera, but extreme ease of lens interchange.

The diaphragm openings on the new Vario-Switar compact range from f/3.5 to f/22. The lens can focus from 3½ feet to infinity. The lens is focused through

Continued on Page 1162





# The Case of the Ship-shape Shipper

(OPEN AND SHUT)

Shirley the shipper had some shattering problems with her plastic shipping cases. She suffered fractured fingernails, fits of temper fiddling with lackluster latches, and mysterious disappearances of one part or another. And, she could ship only reels in her uncanny cases. In the nick of time, Goldberg Brothers came to the rescue with the new GB Plastic Shipping Cases, and Shirley is saved. So are her fingernails, fits, freight bills, and films.

The new GB case comes in one unit, held together with steel pin hinges and easy-to-get-to spring locks. You can see when they're open and you know when they're closed. Inside, GB gives you handy spacers which allow you to ship a reel alone or a reel in a can. That's a GB exclusive. The whole GB case comes in tough, impact resistant plastic, with handy handles and nesting slots molded right in. And, it will stand on its own merits if you want to store it in library book fashion. GB Plastic Shipping Cases for one-reel 16mm come in 400, 800, and 1200 ft. reel and/or can sizes, with more sizes to come. Also available from GB are a full line of fiber cases, and reels and cans to complement your cases. With GB, one call does it for all your case, can, and reel needs. You can see why Shirley switched.



**GOLDBERG  
BROTHERS**

3535 Larimer / Box 5345 / Denver, Colorado / Phone (303) 244-2436



You Can Get It At **BROOKS CAMERAS**

## *Beaulieu* R16B

THE AUTOMATIC 16mm  
REFLEX IN A CLASS BY  
ITSELF!

Available with Angenieux  
12-120mm F2.2 Auto. Lens  
**\$2174<sup>50</sup>**

Or with Angenieux  
12.5-75mm F2.2  
Auto. Lens  
**\$1999<sup>00</sup>**

● Gossen light meter housed right in the reflex viewing system, measures light intensity coming directly through the lens. It electronically controls a miniaturized motor that instantly rotates the Angenieux lens's diaphragm ring to the correct aperture setting.

● 45° angled mirrored shutter eliminates the need for a prism between the lens and the film plane. This reciprocating shutter alternately directs 100% of the light onto the film or 100% of the light onto the reflex viewfinder screen.

● Weighs 10½ lbs. when equipped with 200-ft. daylight-load magazine, sync pulse generator, Angenieux 12-120mm zoom F2 lens, and 500MA nickel-cadmium battery.

● Powered by a rechargeable nickel-cadmium battery that is built into the camera handgrip. A fully recharged spare can be installed in seconds.

● Variable film speeds anywhere between 2 and 64 fps plus single frame shooting. Remote control by cable or radio. Viewfinder eye piece adjustable to individual eye sight.

### We also carry the *Beaulieu* 4008ZM2 Super 8

● Motorized macro focusing to 1mm from lens. Variable motorized zoom from 2 to 12 seconds. 2 to 70 fps filming speeds. 27X reflex viewing screen. Built-in double-system sync sound capability. Automatic tape recorder start/stop control.

**\$899<sup>00</sup>**

Prices  
Subject  
To  
Change

WE TAKE TRADE-INS  
CHARGE ACCOUNTS INVITED

**CAMERAS**

# Brooks

**(415) 392-1902 • 45 Kearny Street, San Francisco 94108**



**Whatever you shoot in Canada,  
we'll help you bring it  
back alive.**



Canada is where visiting U.S. and foreign cinematographers can really create. Secure in the knowledge that their film lab and sound studio work is in the skilled hands of Bellevue-Pathé. With facilities in Toronto, Vancouver and Montreal, we handle everything. From overnight dailies to release printing in all formats. Organizations like Paramount, Warner Bros. and Saggiattarius entrust original work to us. Recent release printing includes such titles as M.A.S.H., Tora Tora, Italian Job, Best House in London, If, Great White Hope, Che, Justine. Our service covers Eastman Colour (35, 16 & Super 8), Ektachrome (16mm, ECO-3<sup>+</sup> & ME-4) and B&W (35, 16 & 8). Plus the most advanced sound recording facilities. Motion pictures or television — whatever you shoot in Canada, we'll help you bring it back alive.

**the international service**

Canada's largest film laboratory and sound studio organization.

**BELLEVUE** *Pathé*  
LIMITED

**Bellevue-Pathé  
VANCOUVER**  
(Formerly Trans-Canada Films  
Ltd.)

916 Davie St.  
Vancouver 1, B.C.  
Tel. (604) 682-4646

**Bellevue-Pathé  
TORONTO**  
(Formerly Pathé-Humphries  
of Canada Ltd.)

9 Brockhouse Road  
Toronto 14, Ont.  
Tel. (416) 259-7811

**Bellevue-Pathé  
MONTREAL**  
(Formerly Associated Screen  
Industries Ltd.)

2000 Northcliff Ave.  
Montreal 260, Que.  
Tel. (514) 484-1186



# LIGHTING THE SHOW FOR OVER 30 YEARS!



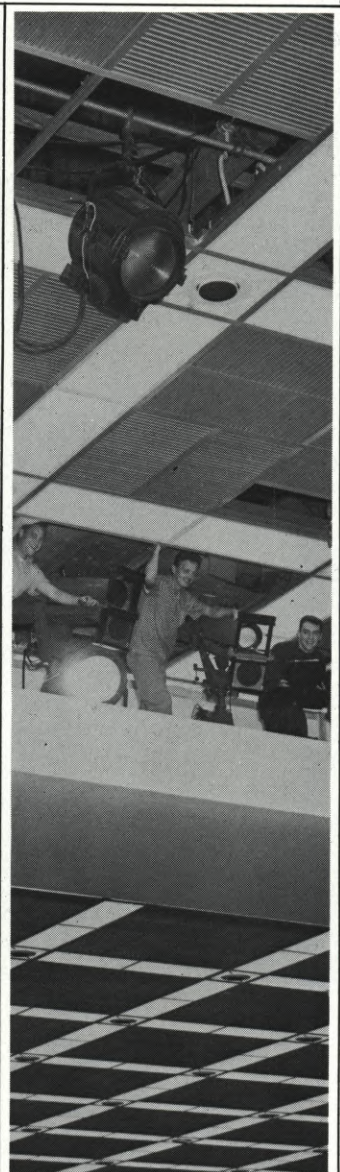
In 1956 thousands witnessed the *This Is Your Life* Network Show honoring Ernest Breech. Lighting was by Jack A. Frost.



Tons of Frost lighting equipment traveled to Havana for this 1958 Steve Allen TV Show. Today Frost experts are still lighting "the show" wherever temporary lighting and power are needed.



Frost has been creating artistic lighting effects for special exhibits, such as this Flower Show, for over a quarter of a century.



The first Auto Show in Detroit's Cobo Hall started right with lighting by Frost and Frost is still lighting these important shows.

## Just call the EXPERTS/JACK A. FROST

HOME OFFICE  
234 Piquette Avenue  
Detroit, Michigan 48202  
Phone: Area 313. TR. 3-8030

COBO HALL OFFICE  
1 Washington Blvd., Rm. 3143  
Detroit, Michigan 48226  
Phone: Area 313. WO. 2-1255



Canada's  
largest and most complete  
rental house

**CINÉVISION**

in

**Montreal and Toronto**

**PANAVISION**

*Exclusive Canadian distribution.*

Panavision Silent Reflex

Panavision Hand Held Blimps

Anamorphic Lens

Spherical Lens —

Choice of 16 STD lens from 15-1000 mm.

New! Zooms — 23-460 mm (20-1)

20-120 mm ( 6-1)

**CAMERAS**

SPR Reflex BNC

Arriflex 16 and 35

Arriflex Blimps 400'  
and 1000'

Eclair 16

**SOUND**

Nagras

Sennheiser

Electro Voice

**CINEVISION MOBILES**

Specially constructed to carry  
camera, lighting, sound and  
grip — all in one vehicle.

**LIGHTING DIVISION**

Complete line of — and  
dealers for: Mole Richardson,  
Colortran, Sylvania,  
Westinghouse, Roscolene

**GENERATORS**

AC and DC Blimped  
up to 1200 amp.

**SOUND STAGES**

Canadian Distributor for:  
Schtler and Wolf Products  
and Samcine-Limpet Mount

**CINÉVISION**

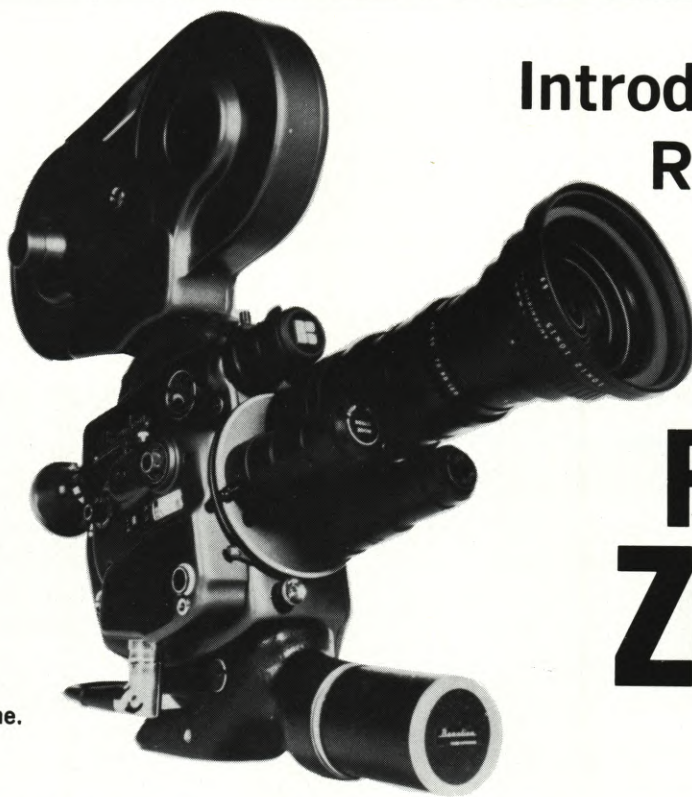
LTEE

2000 Northcliffe Ave. ■ Montreal, Quebec ■ (514) 487-5010

244 Simcoe Street ■ Toronto, Ontario ■ (416) 362-6611



F&B/CECO/SOS presents  
**A FREE *Beaulieu* SEMINAR**  
**NOVEMBER 19th FROM 9 A.M. TO 6 P.M. IN**  
**HOLLYWOOD, 7051 SANTA MONICA BLVD. and**  
**NEW YORK, 315 WEST 43rd STREET, N.Y.**  
**CONTINUOUS DEMONSTRATIONS**  
**REFRESHMENTS**



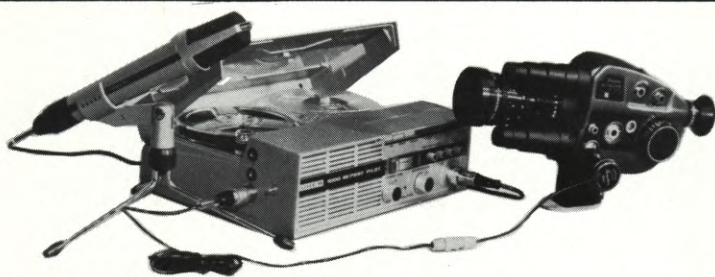
Introducing the  
**R16B(PZ)\***

**\*with  
 BUILT-IN  
 POWER  
 ZOOM**

**OTHER FEATURES**

- Fully Automatic Exposure Control System
- Mirrored Shutter
- Lens Interchangeability
- Camera Body: Weight 4¼ lbs.

Plus, a full range of professional accessories, including a "sync" generator and 200 ft. daylight-load 16mm magazine.



Beaulieu 4008ZM2 shown in use with 60-cycle sync pulse generator and Uher 1000/N Neo-Pilot ¼" synchronous tape recorder.



Beaulieu 4008ZM2 shown in use with 60-cycle sync pulse generator.

**F&B/CECO/SOS**

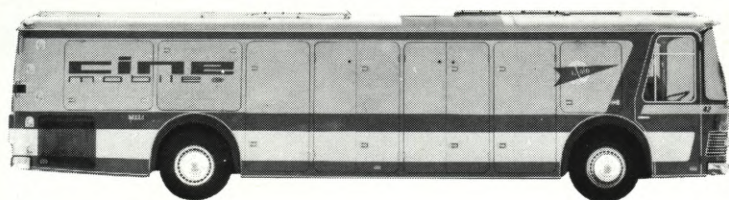
7051 SANTA MONICA BLVD., HOLLYWOOD, CALIF. 90038 — (213) 466-9361  
 315 WEST 43rd STREET, NEW YORK, N.Y. 10036 — (212) 586-1420  
 40 KERO ROAD, CARLSTADT, NEW JERSEY 07072 — (201) 939-5250



DIRECTOR-DIRECTOR OF PHOTOGRAPHY-MEMBER A.S.C.

# BILL FRAKER SAYS:

**CINEMOBILE IS WORTH ITS WEIGHT  
IN GOLD, WE ARE ABLE TO FILM  
40 TO 45 SETUPS PER DAY  
AND MAKE UP TO 6 BIG LOCATION  
MOVES PER DAY ON A FEATURE.  
THE CINEMOBILE ADDS 2 HOURS  
DAILY TO PRODUCTIVITY.  
I WILL NEVER GO ON LOCATION  
WITHOUT THE CINEMOBILE.**



*Bill Fraker.*

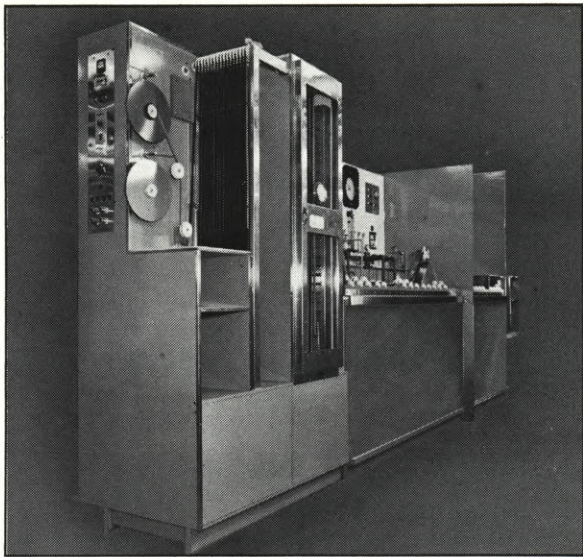
**cine  
mobile**™

ACADEMY  
AWARD  
WINNER  
1970



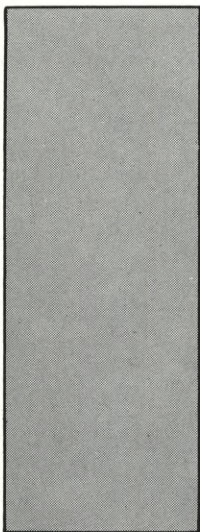
**THANK YOU FOR YOUR SUPPORT**



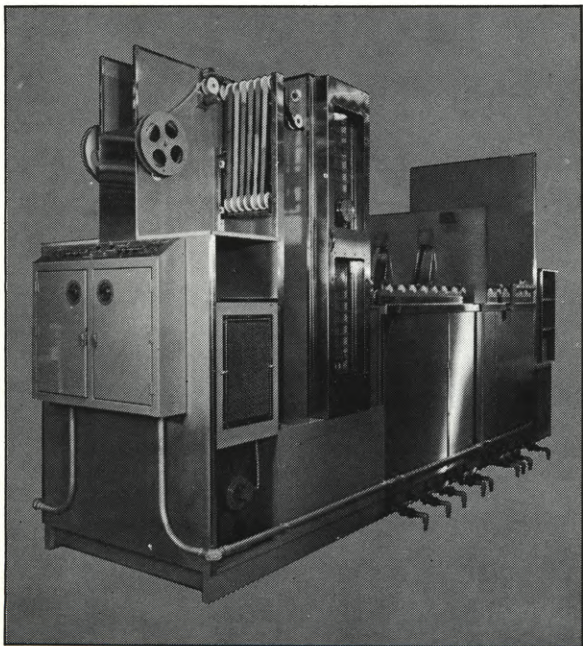
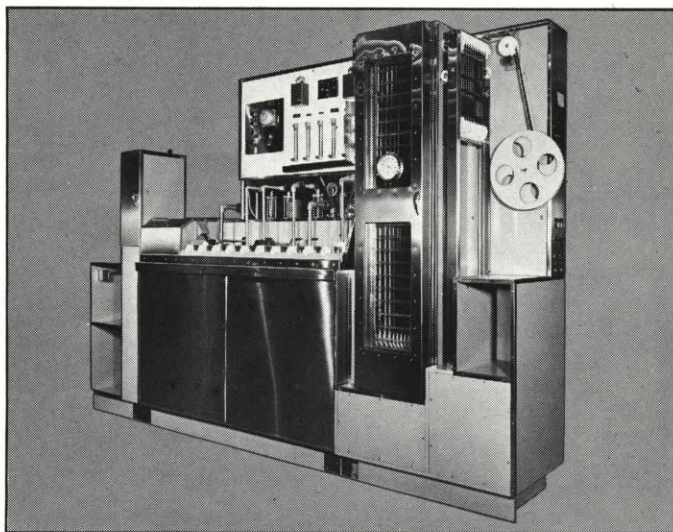


**You choose  
the film —**

**we'll furnish  
the processor**



- B&W Negative
- B&W Positive
- B&W Reversal
- Ektachrome
- Kodachrome
- Kodacolor
- Anscochrome
- Negative Color
- Positive Color
- Microfilm
- Super-8mm
- 16mm
- 35mm
- 70mm



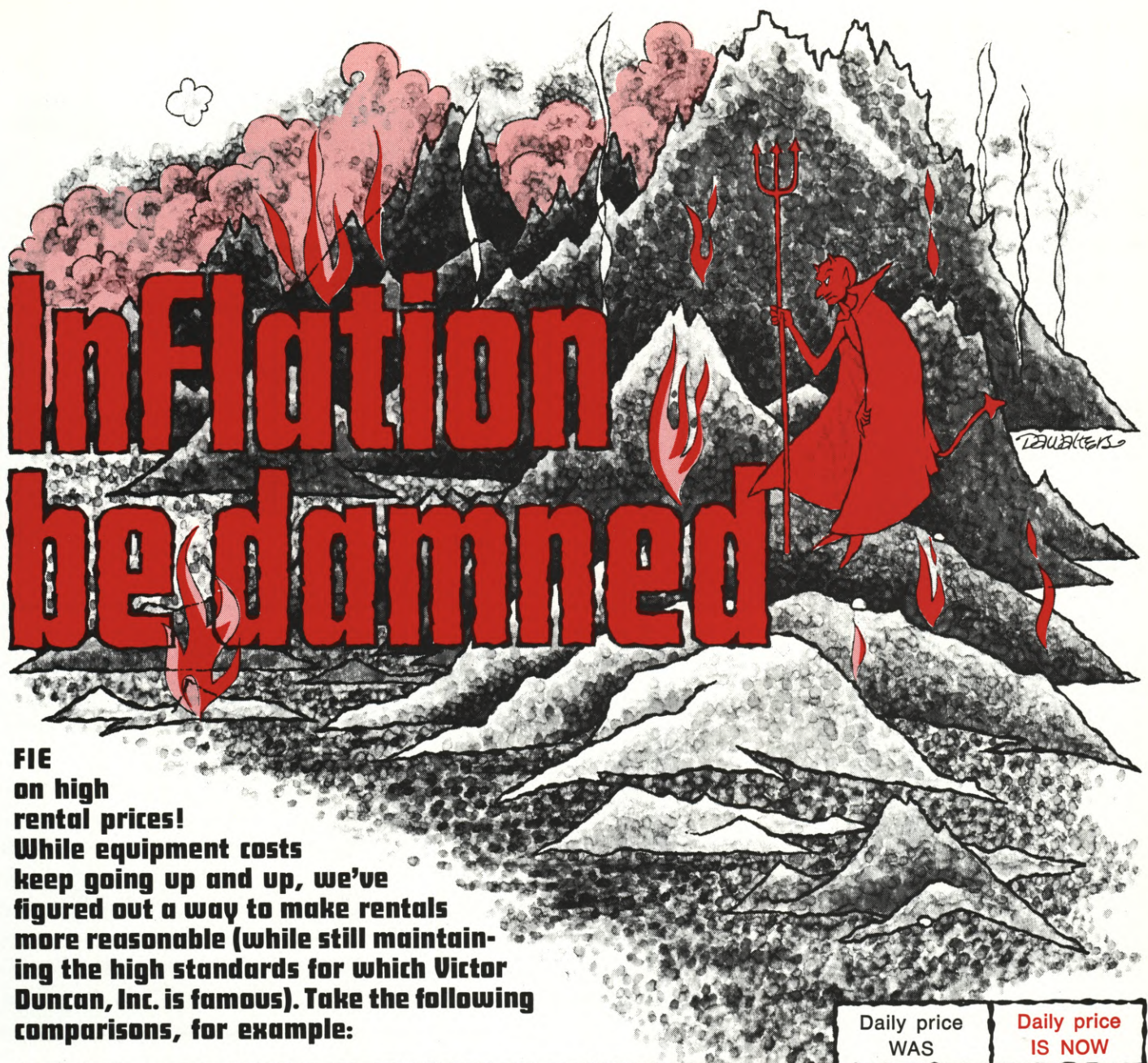
Whatever type of motion picture film you want to process, there's a Houston machine to do the job faster, better, more economically. All achieve consistently excellent results because the film manufacturer's specifications are rigidly adhered to. Chemical solutions are constantly kept at the proper strength and temperature. Development times are precisely timed. Drying is accurately controlled. All machines incorporate exclusive features that have made Houston the standard of the world. Tell us the type of film you want to process and we'll send you brochures on the appropriate models.

**Houston Photo Products, Inc.  
Box 5269, Yuma, Arizona 85364**

**HOUSTON**  
PHOTO PRODUCTS, INC.

The world  
knows our  
product





**FIE**  
**on high**  
**rental prices!**  
**While equipment costs**  
**keep going up and up, we've**  
**figured out a way to make rentals**  
**more reasonable (while still maintain-**  
**ing the high standards for which Victor**  
**Duncan, Inc. is famous). Take the following**  
**comparisons, for example:**

	Daily price WAS	Daily price IS NOW
Arri BL, 12-120 zoom, magazine, battery, universal motor, etc.	75.00	58.00
Arri S, 12-120 zoom, battery, motor, etc.	55.00	27.50
Eclair NPR, 12-120 zoom, magazine, battery, motor, etc.	60.00	58.00

**How's that for fighting fire with fire?**

If you haven't received our new Rental Catalog R-8 already, call or write the Victor Duncan office nearest you for your free copy and see what inflation fighting is all about.



**VICTOR DUNCAN, INC.**

11043 GRATIOT DETROIT, MICH. 48213 (313) 371-4920  
 155 EAST OHIO CHICAGO, ILL. 60611 (312) 321-9406  
 2659 FONDREN DALLAS, TEXAS 75206 (214) 369-1165

The Filmmaker's Wishbook . . . The Victor Duncan Sales Catalog . . . is available upon request on your letterhead.



# CINEMA WORKSHOP



By ANTON WILSON

## CARE OF MAGNETIC TAPE

It is general knowledge that the camera original footage should be treated as a delicate, fragile and priceless commodity. It is kept clinically clean and treated only with white editing gloves, etc. Unfortunately, it is not general knowledge that the original 1/4-inch sound tape requires equal respect and attention if optimum results are to be expected.

The latest generation of magnetic recording tapes are capable of retaining information for an infinite period of time. The recorded signal will not deteriorate, fade, distort or weaken with age. A magnetic recording is, thus, a precise and virtually permanent record of the sound track. Considering only the magnetic properties of the recording tape, one may form the erroneous impression that the tape is a very rugged and stable medium, invulnerable to abuse. Alas, such is not the case. The physical properties of recording tape are susceptible to the same everyday hazards that plague film: dust, fingerprints, humidity, heat, etc. With proper handling and storage techniques, the adverse effects of these common problems can be held to a minimum.

Dust and dirt are among the most common problems that impair sound quality. Dust or dirt particles on the tape will cause amplitude dropouts and attenuate high frequency response. The particles intrude between the oxide coating and the head, lifting the tape slightly off the head. For optimum recording quality, it is essential to main-

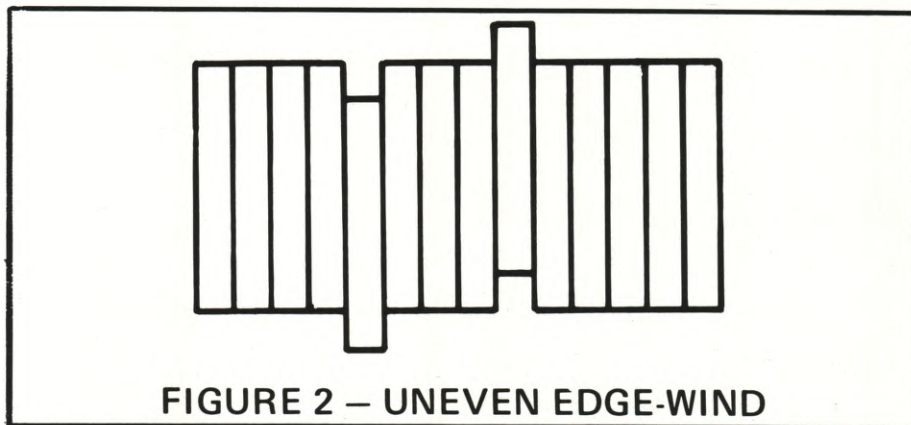


FIGURE 2 — UNEVEN EDGE-WIND

tain a smooth and consistently intimate contact between tape and head. This random intrusion of foreign particles between tape and head is definitely not going to help maintain such intimacy. Fingerprints on the tape will aggravate this condition. While the oil of the skin will not directly affect the oxide coating, it does form an excellent adhesive that will attract and hold dust and dirt in a manner quite similar to fly paper.

Much like a contagious disease, the dust and dirt particles spread their contamination. Even fingerprints or dirt on the base side of the tape will cause problems. As the tape is wound tightly on the take-up reel, particles on the base are pressed firmly into the oxide coating. On each subsequent playing of the tape, the particles of contamination will spread. Some will become dislodged from the tape and contaminate the tape deck, (heads, rollers, guides, capstan, etc.), which will, in turn, recontaminate the same or a different tape. This could

continue to epidemic proportions.

A few basic rules of cleanliness can preclude the foregoing. *Always keep tapes in their boxes.* This is true for both storing and carrying extra reels on location. As one reel is finished, replace it immediately in its box, and do not remove the next reel until it is ready to be loaded on the recorder. Many professional tapes come in a plastic bag within the box. It is a good idea to retain this bag and always replace the tape in it after each use. This practice will protect the tape not only from dirt, but also against extremes in humidity. All professional motion picture tape recorders are equipped with protective lids on the deck. *These should be kept closed at all times, especially on location.* It is also good practice not to smoke or eat while operating the recorder, as ashes and food particles have a way of winding up on the tape. Fingerprints can be held to a minimum by simply not touching the tape.

Even under the most ideal conditions, dirt and oxide particles will build up on a deck. *It is imperative that the parts of the machine which touch the tape be thoroughly cleaned after each day's shooting and preferably after each reel.* A piece of cotton or other lint-free material moistened with Freon TF (Du Pont), or a similar solvent, will remove most contaminants from heads, rollers, guides and capstan. Be certain that the cleaner is completely dry or evaporated before resuming use of the machine.

*Do not forget to clean the empty take-up reel each time it is used.* At the

Continued on Page 1169

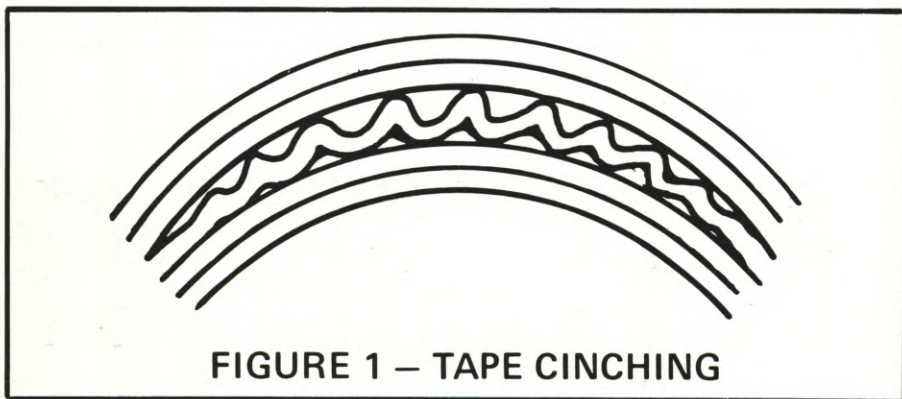


FIGURE 1 — TAPE CINCHING





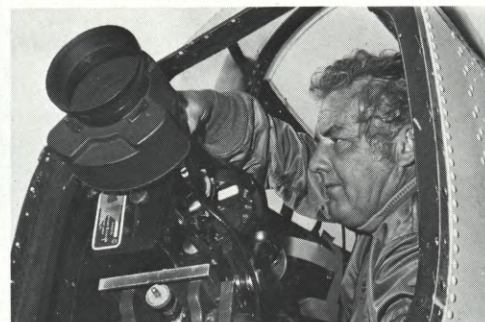
Mexican Road Race



Apollo 15 Moon Rover Test



Broadcast TV Camera Car



Air to Air Photography



Commercial Filming from 150' Crane

# Who REALLY Uses the DYNALENS?

Here are just a few\* ...

Warner Brothers, Burbank  
Desort Fisher, Hollywood  
L & E Teleservices, Hollywood  
Black Lion Productions, Carmel  
Lockheed Aircraft, Burbank  
Merrick Curtis, Kansas City  
"J" Productions, Denver  
Boeing Company, Seattle  
Hollywood Video Center, Hollywood  
Empire Photosound, Minneapolis  
Panavision Inc., Los Angeles  
Wakeford-Orloff, Hollywood  
Technicolor/Vidtronic, Hollywood  
Kaleidoscope Productions, Hollywood  
Photographic Laboratories, Houston  
General Motors, Detroit  
Western Cine Service, Denver  
MGM Studios, Culver City  
Bill Gibson Productions, Hollywood  
Klein, Barzman and Hecht, Los Angeles  
Desert Films, Hollywood  
E. K. Edwards and Son, Denver  
Hughes Aircraft, Culver City  
American Broadcasting Co., Los Angeles  
Ford Motor Co., Dearborn  
Mirisch Productions, Hollywood  
Film Fair Productions, Hollywood  
Cally Curtis Productions, Hollywood  
Rohr Corporation, Chula Vista  
Chapman Spittler, Omaha  
McDonnell/Douglas, Santa Monica  
Thomas-Spelling Productions, Hollywood  
Long Beach Press Telegram, Long Beach  
C. B. S. News, Hollywood  
Fort Dix T.V., Monmouth  
Southern Nevada News Bureau, Las Vegas

WCPO-TV, Cincinnati  
Dickson/Vasu Productions, Hollywood  
T. R. Productions, Hollywood  
Dan Wright Productions, Santa Barbara  
Calvin Productions, Kansas City  
Tex Ziegler Productions, La Canada  
Peterson Company, Hollywood  
Paisley Productions, Hollywood  
Photo Arts Studios, Portland  
Compact Video Trucks, Hollywood  
Time/Life Films, New York  
Cinema General, Hollywood  
C. B. & S. Productions, Kansas City  
Paramount Studios, Hollywood  
Harwood Advertising, Tucson  
20th Century-Fox, Los Angeles  
Swarthout Films, Scottsdale  
Rose-Magwood Productions, Hollywood  
Raytheon Corporation, Bedford  
Navy Electronic Lab, San Diego  
Goldwyn Studios, Hollywood  
Image Transform, Hollywood  
Byer-Bowman, Columbus  
Vik-Winkle Productions, Hollywood  
Pasetta Productions, Hollywood  
Alfred Higgins Productions, Hollywood  
Podno Productions, Hollywood  
CBS Studio Center, Studio City  
Columbia Pictures, Hollywood  
Screen Gems, Hollywood  
Damacos Productions, Los Angeles  
Richards and Myers Films, New York  
Province Productions, Atlanta  
Cinequip, Toronto  
Universal Studios, Universal City

\*—Partial list of recent users



And the list goes on. The Academy Award-winning Dynalens image stabilizing system is available exclusively in the western United States from:

SERVING THE WORLD

**alan gordon enterprises inc.**



1430 N. CAHUENGA BLVD. • HOLLYWOOD, CALIFORNIA 90028  
SALES (213) 985-5500 • RENTALS (213) 466-3561



# FASTEST HANDLING SINGLE SYSTEM SOUND CAMERA IN THE WORLD.

Canon Sound Scoopic 200. A single system sound-on magnetic news documentary camera. Designed for the TV news cameraman. Without compromise. And with features long demanded . . .

**REFLEX VIEWING** through a 135° rotating mirror shutter. No beam splitter. **No loss of light at the film plane.**

**FULLY AUTOMATIC THRU-THE-LENS METERING** with manual override control. F stops visible in the viewfinder. Instant open and return diaphragm for fast focusing.

**FILTER SLOTTED** 12.5-75mm Canon zoom lens. Filter changeable in seconds.

**REGISTRATION PIN MOVEMENT.** Assures perfect framing.

**ELECTRONICALLY GOVERNED MOTOR.** Insures accurate sound speed.

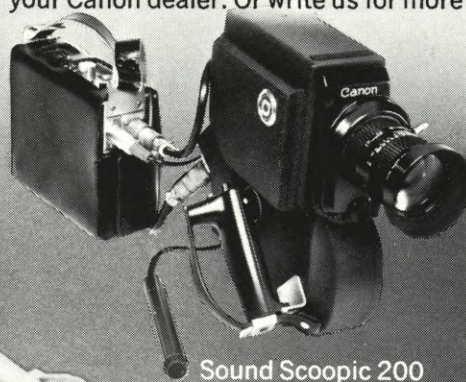
**MODULAR TWIN SOUND HEADS.** Snap in and out in seconds.

**LIGHT WEIGHT.** 12 lbs. 6 oz. Including body with film chamber, lens, exposure system, sound heads and take-up spools.

**LOW PROFILE** bottom load design for 200 feet daylight spools. Shoot from cars, doorways . . . anywhere.

**AND MORE.** A 6 lb. 14 oz. over-the-shoulder amplifier/camera power pack in a single unit. With advanced automatic gain control with manual override. VU meter. Dual mike input. And a fast rechargeable battery that powers the camera, meter and amplifier through 2000 feet of film. Recharges in under 5 hours. Batteries interchange in seconds.

Feature for feature, Canon Sound Scoopic 200 adds up to getting the news faster than ever. See it in action at your Canon dealer. Or write us for more information.



**Canon**  
**SOUND SCOOPIC 200**  
Canon U.S.A., Inc.  
64-10 Queens Boulevard  
Woodside, New York 11377



# 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.



# NOW THERE'S A PROFESSIONAL 16MM ELECTRIC AT THE PRICE OF A BOLEX.



Because it is a Bolex.

The new Bolex EBM Electric 16. With all the solid, dependable features you associate with Bolex. Plus built-in motor, and rechargeable 12-volt battery contained in the most comfortable grip you ever held in your hand. A compact, easy-to-handle, thoroughly professional 16mm camera. At a price that should put an end to rentals forever. \$1200 and it's yours to own.

The motor is electronically controlled for accurate, steady running at speeds of 10 to 50 frames per second, and 24 and 25 fps for synch sound. An easily attachable 400' film magazine is also available.

The EBM has flickerless ground glass reflex viewing and focusing with 14X magnification. Plus a handy behind the lens filter

slot arrangement. And the camera incorporates the famous Bolex registration claw that assures rock-steady images.

Equipped with the Vario-Switar 16-100mm zoom lens with electric-eye through-the-lens light metering and power zoom, the EBM becomes the most automated professional camera. (NASA chose Switar lenses for use in the Apollo flights.) A dozen other top quality fixed focus and zoom lenses are available, all incorporating the bayonet type lens mount for instant lens changing and locked ring security.

Accessories for the EBM include a small, lightweight synch pulse generator that rides in a pocket. And a pocket-sized crystal control unit for wireless synch sound filming.

The Bolex EBM has everything a professional could wish for in an electric 16. At a price that sounds like wishful thinking.

## BOLEX

Paillard Incorporated,  
Other products: Hasselblad cameras and accessories,  
Hermes typewriters and figuring machines.

Paillard Incorporated,  
1900 Lower Road, Linden, N.J. 07036.  
Please send me your free 32-page catalog on  
the EBM and all other Bolex 16mm cameras  
and accessories.

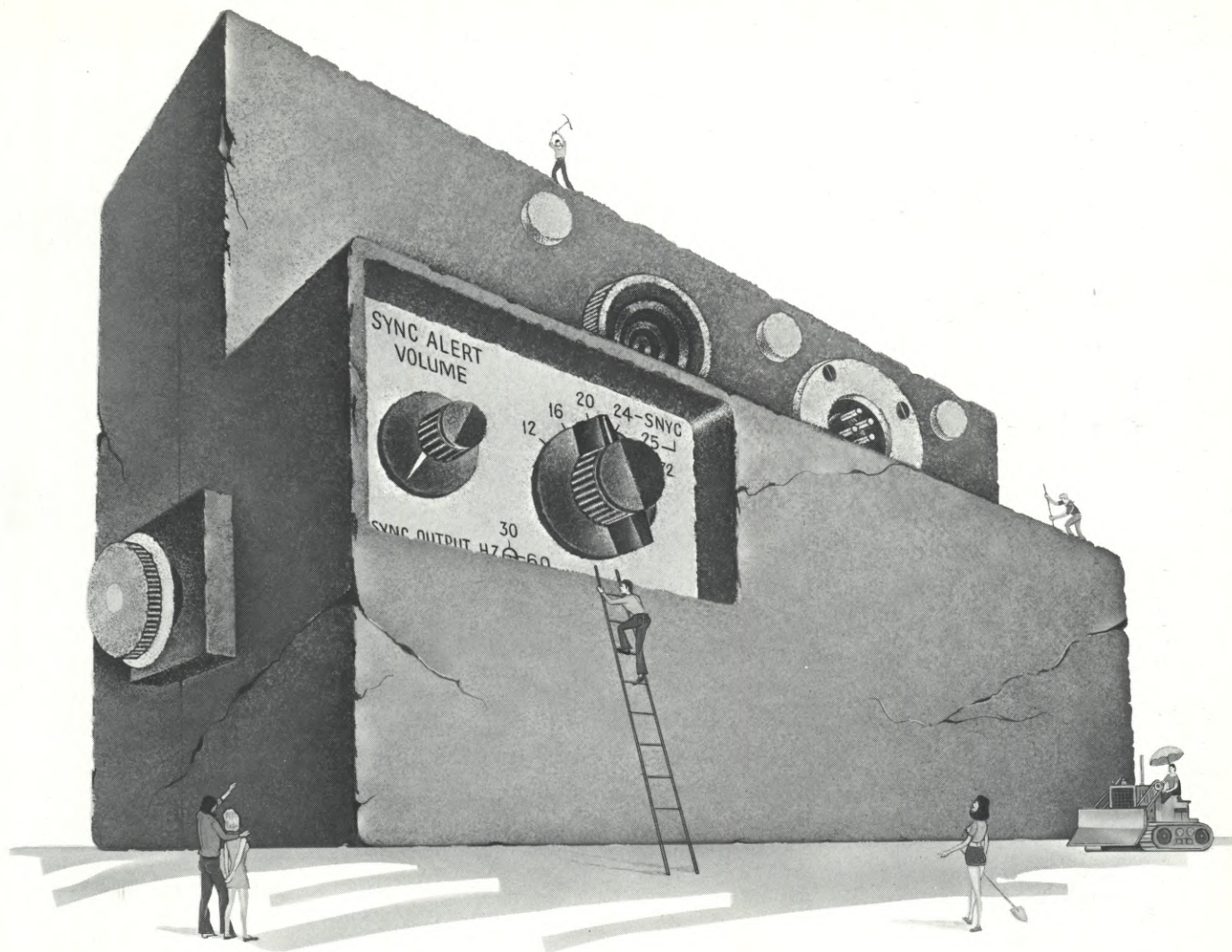
Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

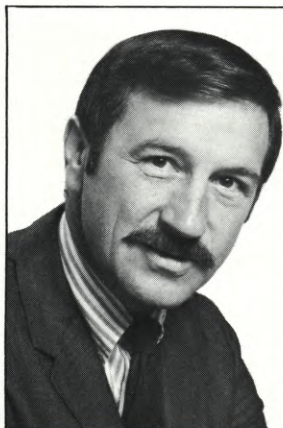




## THE PARAGON OF ACCEPTANCE

What is acceptance? We think it means when an overwhelming majority accepts something as a model of excellence . . . That's what has happened with our unique CRB-1 — the most powerful, silent, accurate and reliable "Cordless" Crystal Motor for BNC and NC cameras.

On September 13th, we shipped to a customer in Rome our 107th unit! Consider what this means . . . More than 1/3 of all the standard and reflex BNC cameras available in the world today have been equipped with this "Cordless" Crystal Motor . . . That's acceptance!



*Ed Di Giulio says —*

Since the introduction of the CRB-1, Hollywood has gone "all crystal." As the world's leading manufacturer of crystal motors for the motion picture industry, we feel that this indicates a resurgence of the roll of technology in film making that contributed to Hollywood's original greatness.

The survival of our industry depends upon technological innovations for more efficient film making . . . In this, Hollywood is once again leading the way — and we are proud to play a part.



*Technology in the  
service of creativity.*

### CINEMA PRODUCTS

2044 Cotner Avenue, Los Angeles  
Calif. 90025 TELEX: 69-1339  
TELEPHONE: (213) 478-0711



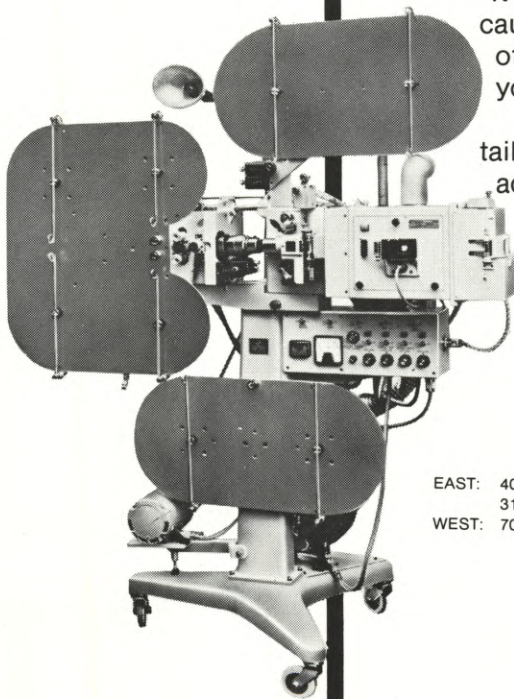
# BUILT-IN FREEZE FRAMING:

It's the 7th option you can choose for your new SOS/Takita Reduction Printer. The first 6 options are even better!

SOS/Takita Reduction Printers can be custom-tailored to your exact needs — and the first 6 options make it possible. Look at them: Choice of daylight or darkroom operation; interchangeable camera heads; single or multi-image; wet or dry gate; standard, additive or subtractive lamp-house; choice of 12 formats including squeezing or unsqueezing. Now add the seventh option, built-in automatic freeze framing, and you have the most tailorable production-type reduction printer available today.

It's also the most sensible printer because it can grow with your needs. Most of the options can be added whenever you're ready for them.

For complete literature, including details on standard features and all prices, address Department AC11-1



**SOS**  
SOS PHOTO-CINE-OPTICS, INC.  
A DIVISION OF F&B/CECO INDUSTRIES, INC.

EAST: 40 Kero Road, Carlstadt, New Jersey 07072 • (201) 939-5250  
315 West 43rd Street, New York, N. Y. 10036 • (212) 586-1420  
WEST: 7051 Santa Monica Blvd., Hollywood, Calif. 90038 • (213) 466-9361





## A man, his work, and his camera

### ROD THOMPSON — Documentary Filmmaker

□ Owner/Director, Films North (Anchorage, Alaska) □ Producer of educational and industrial films, television documentaries and commercials, and specialist in TV-newsfilm cinematography □ Special filming assignments for United Press International; CBS News; Atlantic Richfield Co.; Communications Satellite Corp.; Alyeska Pipeline Service; etc.

"Most of my Arctic filming assignments are not simply a matter of shooting a few scenes and then running into a cozy building to warm up body and camera — because there is simply no place to run! Many times I find myself filming at locations where rudimentary shelter in the warmup tents is some 20 minutes of trudging distance away. Consequently, both I and the camera have been exposed to the severe Polar weather for up to three hours at a time. To add to these generally difficult shooting conditions, strong Arctic winds often pull the chill factor down to about 110 degrees below zero, while the overall temperatures might range as 'high' as 50 degrees below.

In weather like this you've got to have a camera that you can depend upon to work — to get the shots you've got to get and to get them accurately, quickly and without breakdown, and that's why I chose Beaulieu for my winter gear. I can't get over the fact that my Beaulieu 16mm automatic camera was not specially winterized, but was really off-the-shelf (and a 'Southern California shelf' at that!) . . . and the ease of handling and reliable operation of the camera during such extremely cold Arctic weather makes the Beaulieu R16B worth its weight in gold."



**Beaulieu.**  
It lets you be there when  
it's happening.

"One thing that amazed me was that at these extremely cold temperatures, and with the handgrip ni-cad battery completely exposed to the cold, the Beaulieu R16B kept cranking out the footage — and at the correct running speed. The Hervic Hydrofluid Jr. tripod, by the way, also performed wonderfully. It never froze . . . or even slowed down. Instead, it seemed to 'loosen up' and adapt itself to the severe Arctic weather."



**CINEMA**  **Beaulieu**  
A DIVISION OF HERVIC CORPORATION

To receive literature on the Beaulieu 16mm camera, visit your finest camera store or write Cinema Beaulieu, General Office: 14225 Ventura Blvd., Sherman Oaks, California 91403.



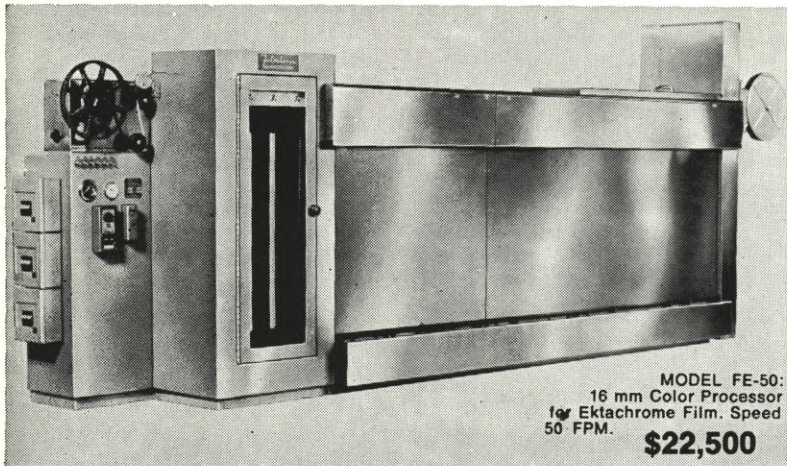
# The Money-Makers

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

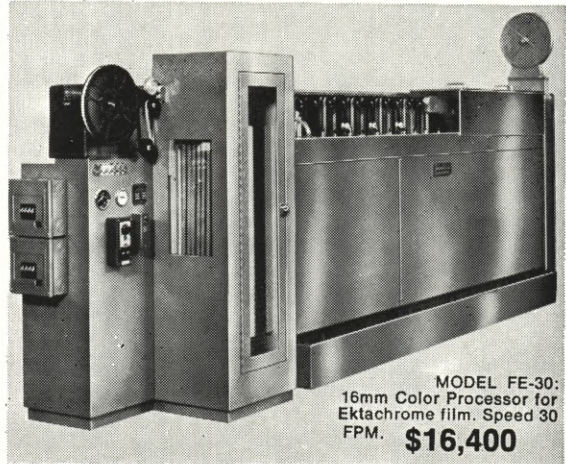
The Filmline Models FE-30 and FE-50 are fast, foolproof, troublefree and long-lasting. They turn out consistently superior work. The design is backed by Filmline's reputation as the world's leading manufacturer of film processors for the motion picture laboratory industry.

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 Color Installations:**— NBC- New York, NBC- Washington, NBC- Cleveland, NBC- Chicago, CBS & ABC Networks, Eastman Kodak, Rochester.

**Laboratories:** De Luxe Labs, General Film Labs (Hollywood), Pathe-Labs, Precision Labs, Mecca Labs, Color Service Co., Capital Film Labs, Byron Film Labs, MGM, Movie Lab, Lab-TV, Technical Film Labs, Telecolor Film Labs, Guffanti Film Labs, A-One Labs, All-service Labs, NASA Cape Kennedy, Ford Motion Picture Labs.

**TV Stations:** WAPI-TV, WHP-TV, WMAL-TV, WXYZ-TV, WWL-TV, WMAR-TV, WJXT-TV, KETV-TV, WTOP-TV, WEAT-TV, WCKT-TV, WAVE-TV, WAVY-TV, KTVI-TV, WCPD-TV, KTAR-TV, WSYR-TV.

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



AO-71

Send for Literature.

Time & Lease Plans Available.

**"When you buy quality Filmline Costs Less"**

(203) TR 8-2433



# INSTANT EVERYTHING

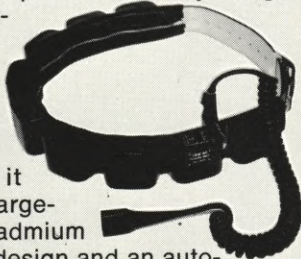
(the next-best thing to instant success)

Most moviemakers will agree that the difference between good footage and *great* footage goes beyond talent and luck—it's the little things that often make the difference. Little things like extra mobility, to follow fast-moving action. Or a few extra dB of silence on the set. Little things . . . like the fleeting moment of news, captured because of a minute saved in set-up time. Or an unusual camera-mount that produces the "different" point of view you need.

Little things *do* mean a lot. And, for many of those important "little things," cinema professionals turn to Cine 60...

## Instant Power

Wherever you go, whatever the shooting situation, Cine 60's exclusive power belt\* gives you the power to run every professional camera on the market. Plus the all-important mobility to go where the action is. Available in voltages from 6 to 30V (and up to 7 ampere-hours), it features rechargeable nickel-cadmium cells, sealed design and an automatic overload safety switch. With built-in charger and plug-in coiled power cable, it is one of the most widely-used power sources available today.



## Instant Quiet

Silence is golden, yet relatively inexpensive with the Cine 60 battery-powered fiberglass Blimp for Arriflex 35 cameras. Only 19 pounds, the Blimp permits shooting in even the most restricted spaces—with all standard lenses (even 18mm, without vignetting!). Inside, the camera is securely mounted, yet isolated acoustically from its surroundings. On the outside, a new, gear-driven mechanism permits smooth, accurate follow-focus via large, easy-to-use knob. All other controls and connections are conveniently placed on a rear control panel.



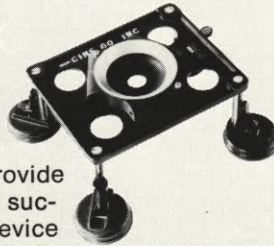
## Instant Camera Pod

Our single universal shoulder pod ("unipod") is a lightweight shoulder mount that accepts all cameras. Easily removable between takes, it keeps the camera in the ideal shooting position while offering the maneuverability of single-shoulder construction. Used with the Uni-Eclair Mount (detailed later), this is the only practical pod for the Eclair NPR-16. (By the way, we also have an excellent double-shoulder pod as well.)



## Instant Camera Platform

Wherever and whenever you need a stable camera platform, chances are our Vacu-Platform can provide it. This rugged suction-actuated device can be positively fastened to any smooth surface (car-tops, floors, etc.) without marring. A flick of a lever on its extra-large suction mounts does the job. Especially useful for low-angle work, it mates with standard tripod heads.



## Instant Camera Mount

If you've ever watched a good shot pass you by while trying to thread a camera onto a tripod or shoulder pod, the Cine 60 Snaplok is your answer. Combining rapid, fail-safe operation with the ruggedness and precision alignment needed for day-in, day-out use, the Snaplok features light weight and high rigidity. One section mounts on the camera; the other on tripod or shoulder pod. A single pushbutton instantly separates the two. The base unit of the Snaplok is compatible with standard 1/4" and 3/8" sockets.



## Instant NPR

Our Uni-Eclair Mount is just what the name implies—a universal mount for the Eclair NPR camera. Rugged, yet surprisingly light, it may be left on the camera at all times, ready for hand-held operation or shooting with a tripod or shoulder pod. And, it makes a handy camera rest between takes.



## Instant Zoom

If you own one of the fine Angenieux zoom lenses, you can have smoother, more consistent zooming with one of our electric zoom drives. Available in four sizes (for the 9-95mm, 12-120mm, 12-240mm and 25-250mm), these units feature a precision gear assembly which mounts securely and directly to the lens barrels. The gear assembly, in turn, is rigidly coupled to a high-quality DC motor via a flexible shaft. The motor is powered by a transistor-regulated nicad battery pack featuring directional push-buttons and a smooth, variable speed control—all contained in a convenient, palm-sized case—with built-in recharger. (We also make an instant-mounting, collapsible rubber lens hood for the Angenieux 25-250mm zoom.)



## Instant Rentals

Cine 60 also enjoys an excellent reputation for its line of top-quality rental equipment. All thoroughly maintained and delivered on-time. We'd appreciate the opportunity to fill your rental needs.

## Instant Information

Whatever your filming needs, all you need to know for "Instant Service" is one name and one number:

**CINE 60**  
INCORPORATED  
Film Center Building/630 Ninth Avenue  
New York, N.Y. 10036/Tel: (212) 586-8782

\* © U.S. Patent #3274476  
© 1970, Cine 60, Incorporated







# FILMING IN "SHANGRI-LA"

By HERB A. LIGHTMAN

*American Cinematographer* Editor accompanies a UCLA filming team to the bottom of the Grand Canyon and discovers a world where time stands still

## Havasupai Indian Reservation—Supai, Arizona

We drive through the night—all night—heading generally northeast from Los Angeles along Route 66. There are two of us in the sturdy Scout, the cab of which is packed to the gunwales with motion picture camera and sound equipment, plus the basics necessary for survival in a fundamental environment. My companion is Derek Scott (known to friends and acquaintances as "Scotty"). He is a graduate student at UCLA, working toward his Master's degree, while holding down a full-time job as a technical assistant in the University's Motion Picture Division. Scotty's a real "pro"—blessed with an imperturbable disposition, a dry wit and a go-anywhere-do-anything-for-the-picture attitude—all in all, a very solid cat to have on your crew when the chips are down. We roar through Kingman, Arizona (where 66 briefly changes into "Andy Devine Avenue") and then pass the sleepy structures of Peach Springs on the Hualpai Indian Reservation. Some distance beyond the town, we turn off onto an unmarked dirt road for a bone-rattling 65-mile drive along the eastern boundary

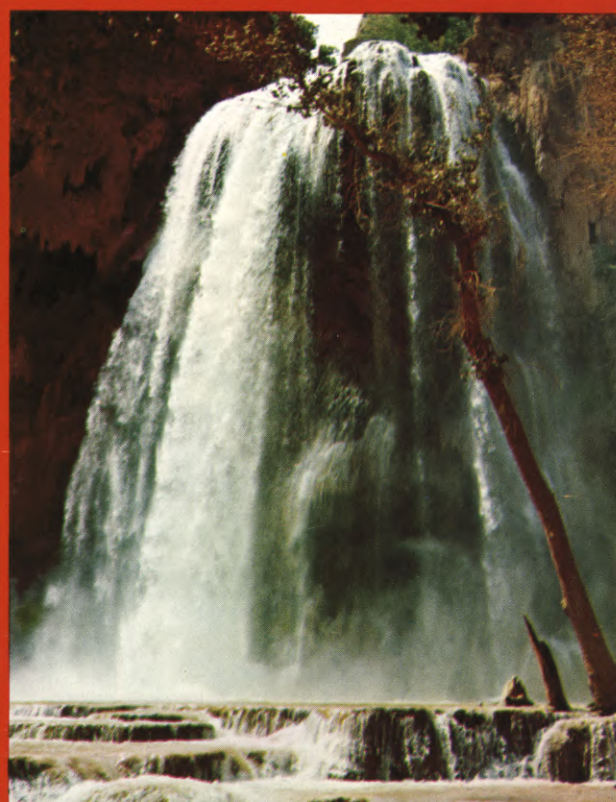
Continued overleaf



(TOP OF PAGE, LEFT) Enclosed by red Supai sandstone cliffs, Havasu Canyon, a tangent of the Grand Canyon, is the home of the Havasupai Indians. (RIGHT) The village of Supai, Arizona, with new tribal recreation hall in left foreground.

(LEFT) UCLA graduate Cinema students, George Williams and Derek Scott train motion picture camera on majestic 200-foot Mooney Falls. Higher than Niagara, it is the most imposing of the five waterfalls along picturesque Havasu Creek.

(RIGHT) Consisting of two main cataracts laced together by "bridal Veil" spray, Havasu Falls plunges 100 feet into a turquoise pool fringed by scalloped travertine rock terranes. It is a favorite swimming spot for campers.







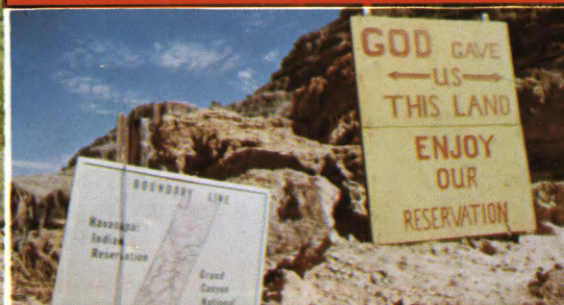
(LEFT) The intrepid film-makers approach Navajo Falls, which is made up of a main cataract 75 feet high and a cascade which breaks up into several lesser streams before emptying into the pool below. (RIGHT) At the foot of Navajo's main cataract, there is the usual discussion about which is the best camera angle.



(LEFT) The author, happily splattered with red Supai mud, slides down the 80-degree, 200-foot cliff adjacent to Mooney Falls. (CENTER) Magnificent Havasu Falls, as seen from the air. (RIGHT) Three of the gentle, beautiful people on the Havasupai Reservation.



(LEFT) Blue-green water, from which the Havasupais derive their name and sustenance, flows through Havasu Canyon. (CENTER) A warm welcome and an unspoken plea to preserve the environment. (RIGHT) Fifty-foot Falls, with its turquoise pool where the village children swim.







For the dinner to climax Supai's Peach Festival, a steer is roasted on hot rocks in the ground, in a style similar to that of the Polynesian luau.

of the Hualpai Reservation. The dawn comes up, not like thunder, but rather more like a slow fade-in, as we reach Hualpai Hilltop. We are on the rim of the Coconino Plateau, overlooking the vast, improbable chasm that is the Grand Canyon. There is a flat parking area, a corral for pack animals, a tiny "comfort station"—and that's all.

Pretty soon a stud Volkswagen comes growling into the parking area. Piling out of the bug is the third member of our safari, George Williams, also a graduate student in the UCLA Motion Picture Division. George is taut as a piano wire, keenly intelligent, very gung-ho, just past the magic age of 30 (where you're supposed to suddenly turn into "the enemy"), and he's the director of "HAVASUPAI—PEOPLE

OF THE BLUE-GREEN WATER", the ethnological documentary filming project that brings us to this isolated spot.

In good time, from somewhere down below, a string of pack mules comes ambling up the trail, led by our Havasupai "packer", Perry Wescogame. My two companions know Perry from their previous two-week filming stint in his village during the spring, and there is a monosyllabic reunion.

Perry proceeds to pack our mounds of equipment and supplies onto the backs of four patient mules, each of whom can carry up to 300 pounds. I shudder to watch him hang my huge leather case full of precious cameras and recorder from a tiny wooden yoke on the beast's back, but the Havasupais (having had several hundred years of practice) are known as expert packers—so I decide to be fatalistic about it.

While Perry is giving a virtuoso performance with the packing, I take my first peek over the edge at the trail which we are shortly to be maneuvering. It's a heart-stopping sight! The first mile of the eight-mile descent is a series of dizzying sharp switchbacks down a slope as steep as any I've ever skied. I'd feel much better tackling it on skis, but it's the wrong season.

Perched atop our long-eared mounts, we start down. With a full two feet of width to browse around on, my beast insists on planting his hooves on the outer two inches of the crumbly trail. There is nothing but 4,500 feet of nothing on that side and I have visions of the two of us, game to the last, hurtling toward a splattered doom on the canyon floor.

We wind down past several distinct rock strata, varying in color and composition from the rim to the bottom of the canyon. The uppermost formation is light-colored Kaibab limestone, fol-

lowed by pale buff Coconino sandstone. Then comes the rich brick-red Supai sandstone, forming the spectacular ramparts that almost completely surround the Havasupai Indian Reservation, the village of Supai. In the course of the nine miles beyond the village during which Havasu Creek plunges over five magnificent waterfalls, the land slopes down to reveal several more strata, until, where the turquoise waters of Havasu join the chocolate torrent of the Colorado River, the rocks have traced geologic time through 1,200,000,000 years—the oldest known evidence of geology on the planet.

**Passage Into Shangri-La**

At the bottom, the canyon gradually closes in to become a narrow boulder-strewn trail. Along the way there are signs which read: "Warning! This trail subject to flash floods!" Recent floods have indeed washed out sections of the trail and we have to dismount several times to lead our nervous animals down precipitous gaps. This is no jaunt for a tenderfoot.

Up ahead we see, for the first time, lush foliage of an incredibly vivid green. Then, suddenly, out of nowhere, Havasu Creek is singing and splashing beside the trail. Up to this point it has flowed invisibly as an underground stream, but here it bubbles up magically through the sand and broadens out to become a respectable creek. Our parched animals, dehydrated after the 16-mile up-and-down trip, stand in the middle of the flowing current and slurp up the crystal water.

We move down the tree-arched trail, which gradually broadens out to a point where a full vista of the boxed-in village area on the canyon floor hits us right between the eyes. The sight is overpowering! The almost psychedelic com-

(LEFT) Earl Paya, a former U.S. Navy "Sea-Bee", is the mailman for Supai, providing postal service by muleback three times weekly from the rim of the canyon. In the background can be seen the communal tractor, only wheeled vehicle in the village, which Earl drove down the steep trail from the top several years ago. (RIGHT) In the rodeo arena, Scott talks with Earl's son, Bernard Paya, an expert cowboy who rides wild broncos to a standstill.







(LEFT) Havasupai children, who are almost literally born in the saddle, are expert horsemen from their earliest years. Their favorite game: "Cowboys and Indians". (RIGHT) The old-style house of John Montoya, nestled in the canyon, will soon be replaced by one of the three-bedroom, pre-fab homes which the U.S. government is flying in by helicopter to be assembled by local workers.

bination of turquoise water, towering rust-colored canyon walls, luminous green foliage and cobalt sky studded with puffy thunderheads is wilder than any "trip" mere chemistry could ever induce.

The only term I can think of to sum up the total impact is "Shangri-La". Ever since I read James Hilton's "Lost Horizon" and saw Frank Capra's superb filmization of the novel, I had wondered if such a place actually existed. I had, many times, visited Palm Canyon (which served as the Shangri-La location in the film) but, although it is very beautiful, with its thousands of swaying palms, it had never turned me on fully—perhaps because of its close proximity to the plastic Xanadus of Palm Springs.

But here it is—the Shangri-La I had visualized in my dreamiest fantasies—a land-locked valley of indescribable, unspoiled beauty—a lush oasis surrounded by a desert world—a magic place where time might quite conceivably stand still and everything would remain forever young. (I am to discover later that my Shangri-La analogy is not at all original to me. Several other writers, strapped for language to describe the wonders of Supai, have fallen back on the term.)

#### The Supai Hilton

We meander down the main (and *only*) street of Supai—past the Head Start compound, homes of administrative personnel, the post office, general store, schoolhouse, social center and chapel, arriving ultimately at what is euphemistically called the "New Tourist Lodge". It is a stone building which boasts four tiny guest rooms and a communal kitchen. It is furnished in early Salvation Army style. The Hilton it ain't. But who cares? If I had my way, surrounded by all this natural beauty,

I'd much rather sleep out under the stars. However, the shelter is necessary to protect our precious equipment from the elements. Though the other rooms are presently untenanted, all three of us are crowded into a single room with wall-to-wall beds, in what is to turn out to be a hilarious experiment in cheek-by-jowl living.

The food for our two-week stay (huge cartons of canned goods, with the cans neatly numbered for "planned" menus) is scheduled to arrive the next morning by U.S. Mail, packed down on muleback as part of the thrice-weekly postal delivery. George had mailed it to Supai from Peach Springs, having discovered that it was much less expensive to ship it Fourth Class (with Uncle Sam footing part of the bill) than to have it packed down by the same mules on a charter basis.

We immediately set about unpacking our gear and squaring it away—which takes up a third of the room, including

the closet. Scotty is soon up to his elbows in the changing bag, loading Eclair magazines and George is giving the Nagra a complete shakedown to see if the mule has jolted anything loose. I am getting six still cameras and my trusty Super-8 loaded with various kinds of emulsions. We are a very squared away outfit.

#### The Natives Aren't Restless

Almost immediately that we enter Supai, I come under the spell of the incredible calm that pervades the place, the easy tempo of village life, the absence of pressures, the time-stands-still aura of this beautiful never-never land. All of this is abetted by the fact that there are no wheeled vehicles in the village (except for a single communal tractor, passed around from farmer to farmer), no radio, no television, no newspapers—no direct umbilical connections to the turbulent world outside.

Continued on Page 1176

Four generations—without a gap. (LEFT) Lemuel Paya, 84 years old and patriarch of the tribe, but still young enough to ride in the annual rodeo. (RIGHT) Lemuel's great-granddaughter, named "Whirlybird", because her mother didn't quite make it out of the valley when the time came and she was born in a helicopter.







(LEFT) Williams and Scott unload their gear at Hualpai Hilltop, so that it can be packed on mules for eight-mile jaunt to the bottom of the canyon. (CENTER) Once past the steep first mile, with its dizzying switchbacks, the trail to Supai broadens out. (RIGHT) In tiny room of Supai's "New Tourist Lodge", Scott uses changing bag to load Eclair magazines, while Williams emerges from bathroom to announce that he's just washed his hair and can't do a thing with it.

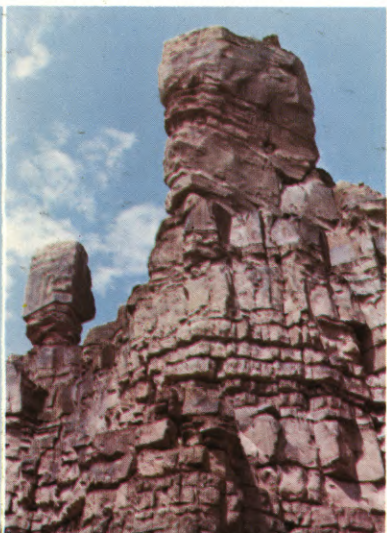


(LEFT) Scott films Earl Paya building fire to heat rocks for the sweat lodge. (CENTER) While the rocks heat, Paya checks the sweat lodge for any possible "leaks". The lodge is an igloo-shaped hut of mud packed on top of bent saplings. It is about six feet in diameter and four feet high at its tallest point. (RIGHT) Rocks are carried from the fire into lodge, where they will be sprinkled with water to create steam.

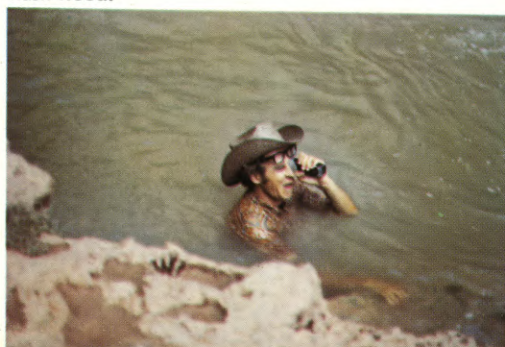
(LEFT) Indians wait patiently to enter sweat lodge, while Williams, blocking the entrance, operates Nagra recorder with one hand and Sun-Gun with the other. (CENTER) Stripped to their skivvies, having just emerged from invitational sojourn in the sweat lodge, the lads strap on their equipment to continue shooting. (RIGHT) After a thorough steaming in the lodge, Indians head for an icy plunge into nearby Havasu Creek.



(LEFT) Scott sets up his tripod in precarious location, unaware that he is standing on the edge of an overhang. (RIGHT) Twin rock sentinals of the Wigleeva guard the valley. Legend says that if they fall, the whole world will be destroyed by fire.



(LEFT) Oblivious of the fact that he is almost up to his neck in water, Williams uses director's viewfinder to choose the best possible camera angle. As usual, in five feet of water. (RIGHT) The normally crystal-clear Havasu Falls become a torrent of chocolate-colored water, as the result of a flash flood.





# HAVASUPAI: PEOPLE OF THE BLUE-GREEN WATER

What started out as a university project becomes a labor of love for graduate student film-maker

By GEORGE WILLIAMS

From the time that I was a young boy I travelled many times with my family, and alone, to the Grand Canyon and fell in love with the color and grandeur of that area, one of the most beautiful of nature's creations on earth. However, it was only within recent years that I became aware of a group of American Indians living within its confines and I found this very intriguing. Most of the Grand Canyon is bone-dry and, to my knowledge, offers little of sustenance to any human being, let alone to a community having to support as many as four hundred people. So, after doing a little research at the library and picking up a back issue of *Arizona Highways*, I made my first contact with the Havasupai Indians, a contact which was later to result in the making of a documentary film on this tribe.

The Havasupai Indians, I found, derived their name from a stream of turquoise-blue water which flows through a tributary of the Grand Canyon known as Havasu Canyon. It's this very stream from which the tribe draws its sustenance as well as its name and it enables them to scratch out a questionably marginal existence.

I'm a graduate student in the Motion Picture Division at UCLA, where there is also another program which incorporates filmmaking with the disciplines of

ethnography, ethnomusicology and, I believe, to a lesser extent, folklore and mythology. This anthropologically-oriented program also has among its facilities, several Eclair cameras, a few Super-8 cameras and a few Nagra tape recorders. So I took advantage of my enrollment in the Motion Picture Division and the project system there to ask for the assistance of my faculty and of the faculty of the department of Anthropology (and the filmmaking program that I've just mentioned) to gain the use of one Nagra tape recorder and one Eclair camera, in addition to arranging for my own Bolex, in order to embark upon this adventure. I will also make use of the editing facilities in the Motion Picture Division and the ethnographic filmmaking program for my post-production work.

This will fulfill one of my project requirements, but I believe that the nature of the film is important enough, or unusual enough, or perhaps timely enough, to coincide with a growing awareness of the American Indian on the part of the public. The film should be marketable, perhaps through educational TV, and so I hope to approach NET or several of the specialized educational or documentary film distributorships with the idea in mind of renting the film and also print sales, all of the

potential profits from which have been committed in full to the tribal fund of the Havasupai Indians. For me, it has been not only a very exciting adventure, but a valuable learning experience, as well.

At this point, having just completed the first production phase of the film in two shooting trips of two weeks each and being now confronted with the post-production phase, I estimate that the film will cost, at the very minimum, \$3,000 and it could conceivably run into the neighborhood of \$4,500.

Because of the nature of the subject and the differences of opinion which exist within the tribe and between certain white individuals (both representatives of the government and other interested whites), it is essential that I retain control over this film, the reason being that I believe that any film should have *one* director and a truthful point of view, unencumbered by the influences of other people who might exert undue influence upon this truthfulness. The consequence of this feeling of mine is that I may run into difficulty in financing the post-production and completion phases of this film. But at least, I hope to end up with as objective an overview as possible of the Havasupai tribe and the problems with which they are confronted in this decade and the future.

(LEFT) The last remaining traditional Havasupai dwelling in the village belongs to the very elderly Mr. Willie Spoonhead, who prefers not to be photographed. (RIGHT) Sitting under his favorite pomegranate tree, Lemuel Paya dramatically recounts to the author, George Williams, details of the traditional Havasupai culture. He laments the fact that few younger members of the tribe are interested in preserving these elements of their heritage.





The idea of doing a documentary on the Havasupais intrigued me because it is one of the most exotic of Indian tribes and had received very little film coverage as compared with other tribes that inhabit the Grand Canyon area, such as the Zuni, Hopi, Navajo and Apache.

Most important of all, the Havasupai tribe is currently in the process of a violent social transition. There is a gap between the "traditionals", who wish to preserve the last remnants of the old culture and those who want the things that the outside world enjoys.

Very soon the entire village will receive electrification, and that will significantly change their way of life. As things stand now, all of the foodstuffs that come to the village must be hauled in on muleback or by helicopter at a charge of four cents a pound which, when added on, raises the cost of food at Supai higher than it is in Beverly Hills.

There is a faction lobbying for a tramway to be run into the valley, which will not only reduce the price of food for the villagers, but also greatly increase the tourist traffic with a resultant aid to the village economy.

This is being violently opposed by another faction (which includes Sen. Barry Goldwater) which is convinced that such a move will ruin the ecology of this beautiful area.

I am torn between these two ideas, personally, but I decided that it was imperative for this film to reflect the views of the Havasupais and not my own—and I believe it will.

Since all film students—would-be directors, screenwriters and cameramen—are anxious to build some sort of track record while they are in school, so that they will have some sample reels of their work to show prospective employers in the future, and since they are aspiring to a medium in which production costs run very high, it is incumbent upon them to

help one another by pooling their skills.

In my case, I had a friend within the Motion Picture Division at UCLA whom I knew to be very adept in the care, maintenance and operation of the Eclair-Nagra sync-sound system. At the same time—and almost as important—he is an individual who enjoys going out into Nature, so to speak, and is able to endure, if not great hardships, at least some of the inconveniences and unexpected elements to be encountered in the Grand Canyon during the rainy season. It was obvious that no "fair-weather sailor" would be up to the demands of this film. And so it was that, in this case, I chose as my technical collaborator Derek Scott (known as "Scotty") who is the head of our technical office in the UCLA Motion Picture Division. Scott went along on both trips knowing there was no possibility of payment for his services. He was guaranteed his meals, lodging and transportation to and from the location (which included the round trip into the canyon) and nothing more, except the promise that he would have access to the footage once the film was completed.

I'm extremely glad that I made the decision to take this man with me, and that he agreed to go. At UCLA I had become well aware that the shooting of sync-sound footage requires the services of more than two people. Ideally, there should be anywhere from six to nine people on such a crew. However, I've found that it *is* possible to shoot sync-sound if you have two people who are dedicated enough to take on the entire load between them and accept the hardships that must be endured under such conditions.

Since I did not have sufficient money to take any extra people along, we decided between ourselves that it would be possible for just the two of us to shoot sync-sound where it might be needed in the canyon.

One of the problems in making this decision was the knowledge that it would require each of us to carry loads of as much as 30 pounds. On the first trip, during springtime, we would be doing this in temperatures as high as 120 degrees, trudging in sand up to our ankles over distances as far as two miles and back, often over steep and rocky terrain.

We knew that in the fall one of the great obstacles would be the schizophrenic weather one encounters in the Grand Canyon area, which includes electric storms and thunder showers that can appear over the horizon in a matter of minutes, giving the crew very little time to cover their equipment with plastic and take refuge from lightning—which constitutes a great danger when you're carrying as much metal as we are.

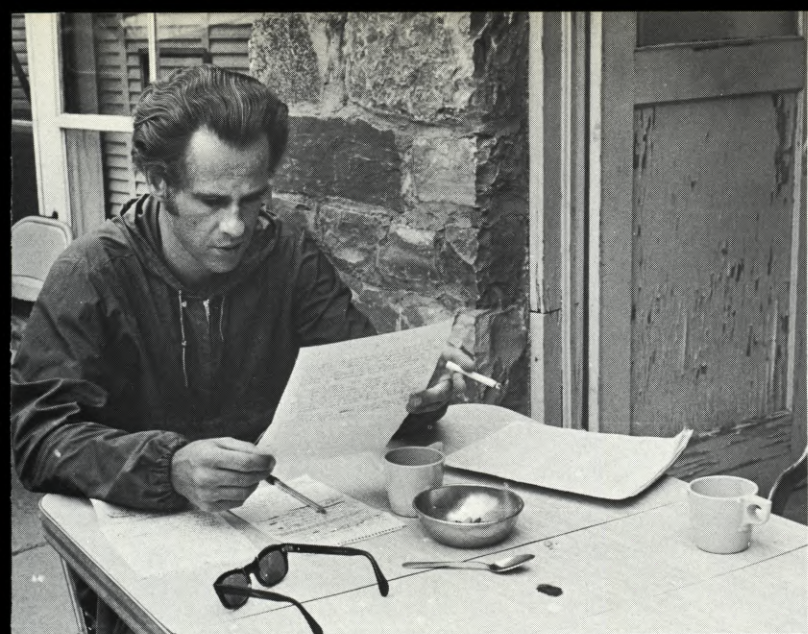
We had heard that a Japanese crew shooting in one of our national parks had, within the last year, lost one of its members (a cameraman) to a lightning strike in the vicinity of trees. We were more fortunate than that. We merely got drenched and chilled by the several heavy thunder showers in which we were caught.

One item in our inventory of equipment which we took into the canyon during the rainy season was an ample supply of regular domestic plastic bags. When you are working in potentially rainy areas, the importance of plastic or plastic containers cannot be overestimated. They are light. They can be folded into compact areas and carried at all times. In spite of clear skies, you know that at any time you may find yourself in a sudden thunder shower, and at its very worst—as was the danger in our case—flash floods. We know that in the past there have been flash floods in this area which have brought down a torrent of water forty feet deep, taking practically everything in its wake. We did encounter a flash flood and managed to photograph some of its fury. We

(LEFT) The film-makers pause outside of one of the tunnels carved in the sheer cliff adjoining Mooney Falls by miners. (CENTER) On the long hike down to Havasu Falls, the boys travel light. Since there were no wheeled vehicles in the village, and horses were expensive, everything needed had to be carried personally—often over long distances and rugged terrain. (RIGHT) A welcome feast of field-ripe melons, given to them by one of the farmers in the valley.







(LEFT) George Williams does his homework. Each night he planned his next day's shooting schedule (with alternatives) in explicit detail and found that such meticulous pre-planning paid off. (RIGHT) A couple of goats try to butt into the act, while an interview is being filmed with Community Educator Jay Hunt, while he is doing his morning chores in the chicken pen.

were quite fortunate however, in not having suffered any damage to the very sensitive equipment which we took with us. I attribute this to the conscientiousness of my cameraman and the cool-headedness of those involved in the production of taking care that the equipment came first.

One of the greatest challenges in making this documentary or "ethnographic" film was to take a crash course in a culture very different from that from which I come. It was necessary to do this within a four-week period. Bridging the gap between two such dissimilar cultures is a great challenge at best. One of the elements which I knew I would be confronted with was a certain attitude known to be held by this tribe—one which was also held by other tribes of this area until their contact with whites became so frequent that it diminished—and that is the fear of the camera and the possible consequences of having one's image recorded and then projected and seen. To elaborate upon that, I would like to say that I have learned from a number of individuals that the fear behind this feeling is that when one person views the image of another person in the tribe and that person later dies, it is believed that the viewer is then confronting death itself, which would be a very frightening and, needless to say, an unlucky confrontation with the deceased. It is known that even in 1971 many members of this tribe still have fear of ghosts which they believe inhabit the walls and crags of the Grand Canyon.

I cannot say that I was entirely able to overcome this stumbling block, but I am satisfied that through what I believe to be warm and honest relationships

which were formed between my cameraman and me and the tribe, the original reluctance of the Havasupai people, as a whole, to be photographed, was somewhat reduced. Secondly, I have mentioned the potential conflict of interest of the parties which find it their business to be engaged with the Havasupai tribe and also the everyday human relationships that one might expect in any small isolated community in that, being an outsider, if one is not very, very prudent and aware of the consequences of any action such as being seen with one and not the other of two quarreling domestic factions within the tribe, one could find himself mounted and being driven back up the Grand Canyon by the tribe—and for good reason.

We were guests of this group of

people and it was our intention, at every moment, not to betray that hospitality, but at the same time it became a great task to determine the quarreling factions and identify them and not violate the trust of either side. There were some minor problems in this regard, but once we recognized them we made it a point to clear them up.

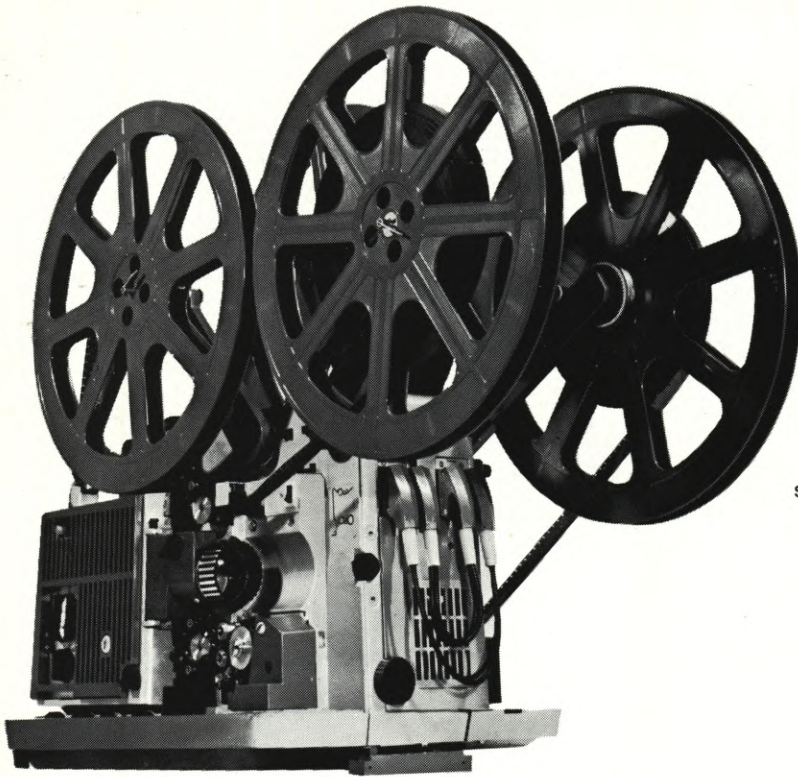
On several occasions we found ourselves working with a particular family, which soon became noticed by the opposite party, and the rumor mill of this small village began to work. It was then incumbent upon us to take action quickly and concern ourselves equally with this other group. I would say that these can be the two greatest problems confronting the filmmaker entering a culture of this type.

Continued on Page 1160

George operates the Nagra in the saddle while riding up the trail to the Hilltop, in order to record wild tracks of the mules' hooves clopping along in the canyon. Many rolls of wild sound were recorded to make sure all of the footage would be covered with authentic background effects.







## **SONOREX** INTERLOCK PROJECTOR

The tremendous versatility of the interlock projector, which was demonstrated over the years by the Siemens 2000, was carried to the ultimate in the design of this highly refined machine. As a single system sound projector, the SONOREX is as fine a unit as you can get—and with its built-in 16mm interlocked magnetic deck, it is ideal for double system synch previews, original recordings, sound transfers, and many other practical and creative sound film jobs. In all its functions, the SONOREX is outstanding for its mechanical, optical and audio quality. It is the time-saving, money saving answer to a wide variety of daily production problems.

# *Sound partnerships, Arriflex-style*

Arriflex users expect the highest possible levels of reliability, performance and versatility from their equipment, and they get it.

Now the Arriflex standard of excellence is brought to other areas of filmmaking, with the introduction of the new Arrivox-Tandberg Recorder and the Sonorex Interlock Projector. Both machines exemplify the Arriflex philosophy of superb quality precision engineered to handle a wider range of applications more efficiently. With the Arriflex name comes the security of knowing that factory trained technicians, on both coasts, will back up and maintain your equipment throughout its productive lifetime.

P. O. Box 1050, Woodside, N. Y. 11377 **ARRIFLEX**  
COMPANY OF AMERICA

## **ARRIVOX-TANDBERG** RECORDER

This budget priced professional recorder offers an ideal combination of capabilities and economy, thoughtfully designed for operational simplicity and speed. Two microphone inputs, with pre-amplifiers for dynamic microphones, switchable to built-in power supplies for condenser microphones, individual speech/music selector and limiter switches—automatic start mark oscillator and footage counter . . . It's all here, coupled with convenient straight line threading, a tough cast magnesium frame, temperature compensated servo drive system and solid state plug-in printed circuits for endurance and easy maintenance. The Arrivox-Tandberg has all the quality and features you will ever need . . . at considerably less cost.





# NEW TREISE PROCESSORS FEATURE

# SBR<sup>T.M.</sup> drive!

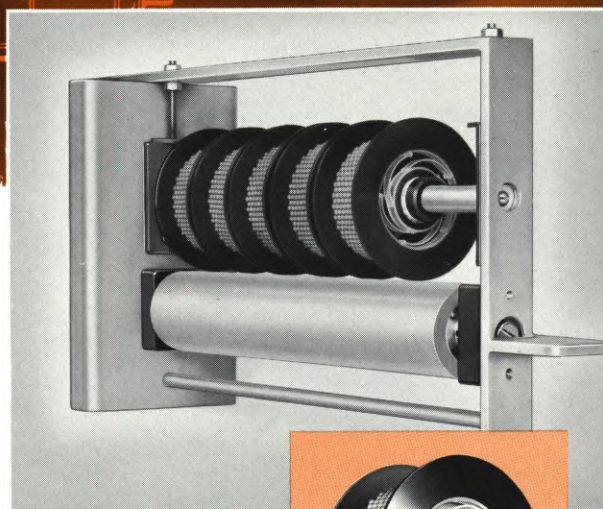


## Now you can change film sizes ...and still maintain uniform tension and constant speed!

Any laboratory that changes film sizes frequently or plans to process multi-perforated film will find the new Treise Processors a dream to operate. They feature a revolutionary new type of demand-drive that assures uniform controllable tension and constant film speed throughout the processor.

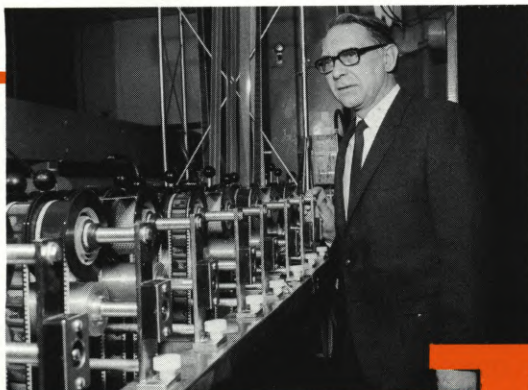
The heart of the Treise SBR-Drive is a unique new film roller with a flexible heavy-duty 5-leaf spring insert. The spring bearing rollers (SBR) are mounted on a stationary shaft at the top of each rack and are free to rotate. An overdrive shaft is mounted directly underneath. As film tension increases (or decreases), the SBR contact (or pull away from) the drive shaft. The result is individual strand control! Due to the unusual construction of the Treise spring insert, the distance between the rollers and the drive shaft is so small that the slightest change in film tension creates a response and thus maintains a remarkable degree of equilibrium.

All SBR are equipped with "soft touch tires" that firmly grip the film and smoothly move it along without the slightest scratch or abrasion. Treise processors operate smoother, too, because they feature heavy-duty gear box drive and torque motor take-ups.



When using SBR-Drive, the elevator is kept at a fixed position less than an inch from the bottom of the tank, thus permitting full utilization of chemical solutions. SBR-Drive comes either in individual lift-out racks or as part of a complete unit lifted out by hoist, for quick easy servicing. SBR-Drive includes an automatic braking system to stop the processor, in the event a film breaks due to some error in handling.

The new Treise SBR-Drive Processors feature stainless steel tanks, with hastelloy or titanium components in ferri bleach areas. Models are available to accommodate any film size from 8mm to 105mm, to handle any kind of process, and to operate at speeds from 30 fpm to 250 fpm.



Bill Smith, Allied Film President, checks over his SBR-Drive.

## ALLIED FILM LAB modified a 10-year-old processor with SBR-Drive ... and now it runs like new!

Join the many leaders, like Allied Film Lab, Foto-Kem, News Film Laboratories, University Microfilm, etc., who are already benefiting from this revolutionary "step forward" in processor design. Write today for complete details about our modification program. Modernize your processor with Treise SBR-Drive!

Write for full information about SBR-Drive!

## TREISE ENGINEERING, INC.

1941 FIRST STREET • SAN FERNANDO, CALIF. 91340 • (213) 365-3124



# New from *Beaulieu* !

## Introducing the R16B(PZ)\*

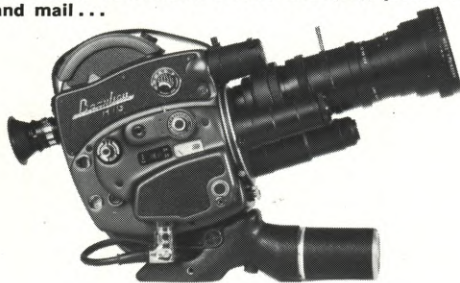
# \*with BUILT-IN POWER ZOOM



### OTHER FEATURES

- Fully Automatic Exposure Control System
- Lens Interchangeability
- Mirrored Shutter
- Extremely Bright Reflex Viewfinder
- Camera Body: Weight 4¼ lbs.
- Plus, a full range of professional accessories, including a "sync" generator and 200 ft. daylight-load 16mm magazine.

For further information on the R16B(PZ), please fill out and mail . . .



Name \_\_\_\_\_

Company \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**CINEMA**  **Beaulieu**  
A DIVISION OF HERVIC CORPORATION

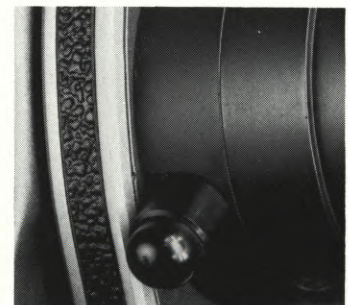
Executive Office: 14225 Ventura Boulevard  
Sherman Oaks, California 91403.

Dept. AC



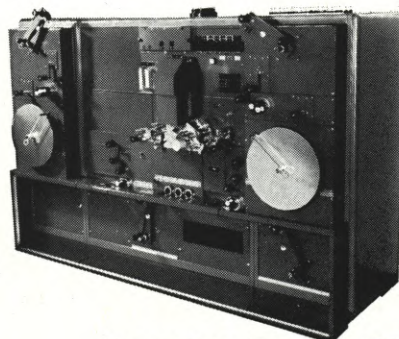
Beaulieu's new Integral Power Zoom (which is coupled to the fine Angenieux 12—120mm "auto" zoom lens), provides an infinitely variable zoom range from three (3) through fifteen (15) seconds. Zoom speeds can be changed while running. The built-in power zoom can be manually overridden when desired. Zoom speed is continuously smooth and even, with instant (and absolute) Start-Stop. Power zoom controls are ideally located for the cameraman's convenience in operation.

**PLUS . . .** a fully automatic Pre-Focus control. Fingertip pressure on the Pre-Focus control button instantly and automatically zooms the lens out to its maximum telephoto position, and—at the same time—automatically opens the diaphragm to its maximum aperture. The camera operator is instantly provided with the shallowest possible depth of field required for ultra critical focusing.





# COR,\* the high speed, high resolution Super 8 printer with over 28 other PEACE-OF-MIND features!



## \*PETERSON CONTINUOUS OPTICAL REDUCTION PRINTER

1. Resolution—in excess of 108 line pairs/MM
2. 180 FPM on the 16mm side
3. Accepts 16mm or 35/32mm negatives
4. 16mm/1-3 or 35mm/5R Super 8 formats printed simultaneously
5. Additive color with automatic or manual light valves
6. Available with magnetic or optical sound
7. Bi-directional printing—no negative rewinding or rethreading
8. Compatible with existing negatives and tapes
9. Negatives and rawstock on front of printer
10. Fast, safe, straight line threading path
11. Aerial image optical system for sharp, cleaner prints
12. F/2 illumination system.

Here's the first dozen. Write or call today for the complete list, other specifications, and sample test print.



PETERSON ENTERPRISES, INC. 1840 PICKWICK AVE. • GLENVIEW, ILL. 60025 • 312/729-1010



# "ALL THE BEST CAMERA ANGLES WERE IN FIVE FEET OF WATER"

Intrigued by the challenges of filming on the Havasupai Indian Reservation, UCLA Motion Picture Division assistant donates his vacation time to serve as cameraman for the cause

By DEREK SCOTT

I'm a Communications Production Assistant in the Motion Picture Division at UCLA and this includes a certain amount of teaching in that I instruct people in the operation and care of the motion picture cameras and tape recorders. I also handle the physical checking in and out of the equipment and the routine maintenance that we can perform at the University and keep track of things as they need to be repaired and purchase new equipment and try to keep the stuff relatively up to date. We are plagued with budget problems, but we've been trying to upgrade our facilities to meet professional quality 16mm standards with Eclairs and Nagras and other good equipment.

In the course of my work at the University, I had gotten to know George Williams slightly because he is a graduate student in the Motion Picture Division.

George had apparently been planning to make this documentary on the Havasupais for about a year and a half when he first came to me for technical advice about the equipment he planned to use and the problems that he might encounter.

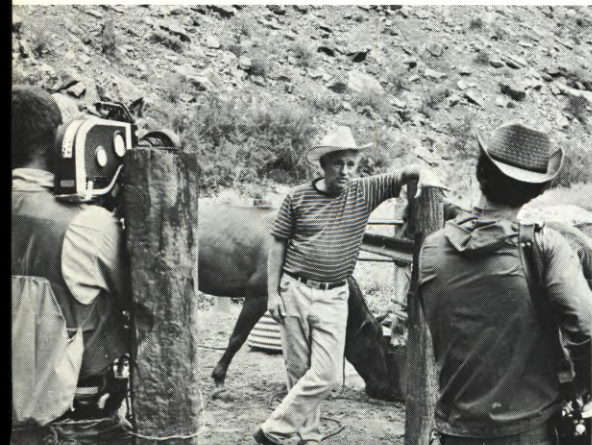
He was so enthused about the project that I found myself becoming sort of interested in it, too. He didn't, at first, approach me about working with him on the film, but we talked a few times and he told me that he was

*Continued overleaf*



The author, Derek Scott, shown with trusty Eclair NPR camera on the rodeo grounds of the Havasupai Indian Reservation in Supai, Arizona. Working in a truly isolated location, 500 miles from the nearest equipment rental house, he chose his tools carefully, with back-up for as much of it as possible. Plagued by dust, rain and the reluctance of some of his subjects to be photographed, he nevertheless found the project to be a fascinating experience.

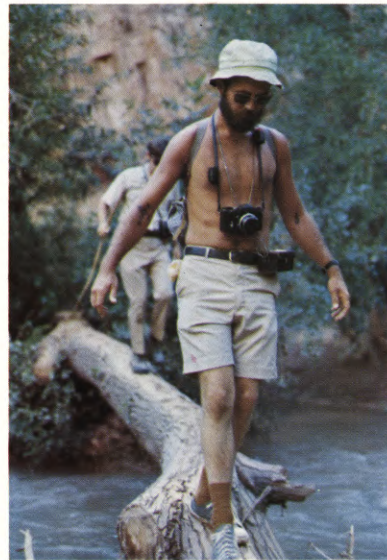
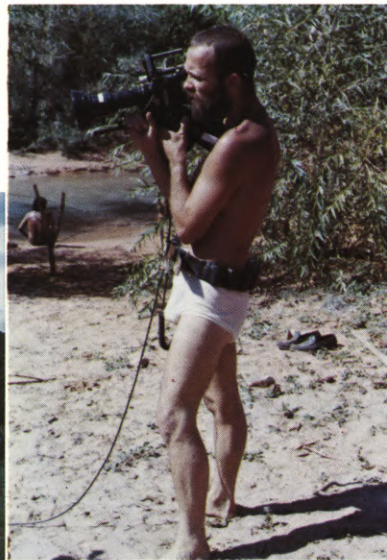
(LEFT) The village Educator, Jay Hunt, is interviewed for the camera in his barnyard, while doing early morning chores. He provided an in-depth rundown on the customs, mores and adaptation problems of the villagers. (CENTER) The two-man crew stops to chat with lady judge called Nannie by everyone in the village. Despite her motherly appearance, she deals out harsh frontier justice to local wrongdoers. (RIGHT) A couple of shy, but friendly, teenagers smile for the camera, as they are filmed harvesting some odd-looking vegetables.







(LEFT) High up on the cliffside of the red-wall surrounding the village, Scott mans the Bolex for a sweeping panoramic shot of the valley. (CENTER) He peers into an ancient granary, once used to store food in a lofty hideaway, safe from floods and marauding Apaches. (RIGHT) Assuming the lotus position, Scotty shoots a three-and-a-half-hour time-lapse scene with cable release and stop watch, singing lustily all the while.



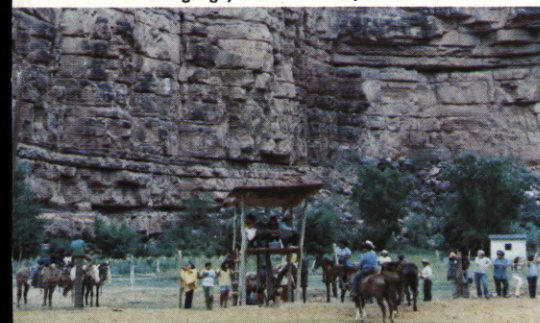
(LEFT) Up, up and away in a helicopter goes the cameraman, to get some aerial footage of the Falls and village. (RIGHT) Hot from the sweat lodge, he sports "the latest basic garb for *cinema verité* film-makers."

(LEFT) Crossing Havasu Creek on a fallen log footbridge in dry weather is a cinch. Re-crossing it during a flash flood is a nightmare. (RIGHT) When it rains, everyone dons raincoats, including the camera.



(LEFT) Filming a sequence outside the general store (the one and only shop in the village), which also serves as the social center for the exchange of news and gossip. (CENTER) The U.S. Mail arrives at Supai. This is the only village in America that still sends and receives its mail by mule-power. (RIGHT) Preparing a special outdoor dinner to climax the annual Peach Festival, women of the village bake Indian bread (something like thick tortillas) over small charcoal fires.

(LEFT) Newly constructed judges' stand and part of the barbed wire "arena" which is the scene of the annual Havasupai rodeo. (CENTER) The cowboys (who are also Indians) gather to pay their rodeo entry fees and find out the order of events for the hotly-contested competition. Raised in the saddle, all of the tribesmen are extraordinary riders. (RIGHT) Scott zeroes in his zoom lens for a closeup of rancher Clifford Siyuja, who obligingly totes the tripod for him.







**(LEFT)** "Born in the saddle", the Havasupais are superb horsemen, as indicated in their annual rodeo to celebrate the Peach Festival. **(CENTER)** Riders pull up beside the judges' pavilion to hear a runthrough of the ground rules. **(RIGHT)** Though Scott dislikes hand-held camerawork for static subjects, he found such flexibility necessary for filming the wild action of the rodeo performers.

looking for an experienced cameraman to photograph it. There are a lot of very good people at the University, but most of the students are just in the midst of the learning process and don't really have the background to be able to go out and do a fairly extensive documentary like this. George was having to try to find somebody, on his very limited budget, to work with him on the film and he approached me as to whether I would be interested in working with him as the cameraman. He had scheduled his filming sessions to fall between quarter periods, so I was able to take vacation time and some other time without really interfering with my job at the University. After we had talked about it, perhaps half a dozen times, I decided to go along and shoot the film for him.

He knows what he wants and I think he's a good director but he has a certain lack of technical background. It's the university set-up that you more or less have to learn on your own and they don't really emphasize some of the basic technical aspects of film-making. They are getting back to that now. I think there has been a change in philosophy recently, in that they are beginning to stress some of the basic mechanics. It's like learning how to use a typewriter before you can sit down and write a novel, which I'm very much in favor of.

My own background was primarily in still photography. I went to a college up north and worked as a free-lance still photographer and then became interested in film and got my Bachelor's Degree at UCLA. I'm working there full time on the staff and I will be going back to

work on my Master's in Fine Arts. My primary interest is cinematography, so I'm concentrating on that.

Even though George knows what he wants and has done a fantastic amount of legwork and preparation for the film, I felt that without somebody with a pretty good technical background in handling the camera (and being able to do it fairly automatically) he might run into some problems.

The picture was to be made in a remote and isolated Indian village several hundred miles from Los Angeles. The last leg of the trip would involve driving down 65 miles of dirt road to the rim of the canyon, followed by an eight-mile trip by muleback down to the bottom. Shooting in such a location, 500 miles from a rental house, you've got to take along everything you might need and

**(LEFT)** The author wriggles through the opening of the ceremonial sweat lodge in preparation for filming scenes inside. It was so hot in there that he claims he could feel the fat on his knees frying. On invitation from the tribal members, he later peeled down to his shorts and joined them for a sauna—Indian style. **(RIGHT)** Undaunted by flood, rain or current, the intrepid film-makers waded into the creek near travertine terraces at the base of Havasu falls. The best camera angles were invariably in five feet of water.



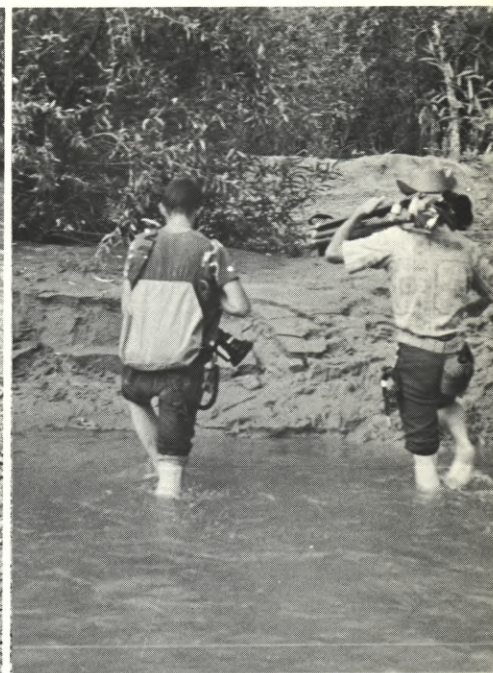
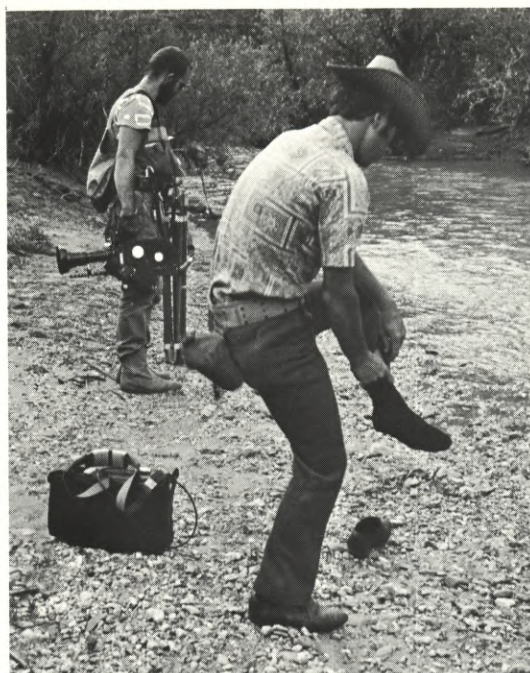


back things up as much as possible, because there is no "down time" to get something repaired or rent an item that you don't have with you.

This sort of challenge appeals to me, and it was the main reason why I decided to go along and photograph the picture for George.

The University made available to him the major equipment he would need—an Eclair NPR camera and Nagra III recorder—plus the accessories to go with them. Unfortunately, the equipment that George had access to, through UCLA's Ethnographic Film Unit, was not in the best of condition, but I was able to get some money from a grant which they have for such purposes, in order to get the camera overhauled at Eclair. Then I talked with the people at Century Precision about the problems I might have with high temperatures in relation to the lubrication of the zoom lens. They recommended, first of all, overhauling the lens and having it collimated to the camera—something I always do anyway when preparing to shoot a picture. It pays off. It's relatively inexpensive and the image is so much better when you have the lens checked out and collimated to the particular camera you are going to use.

We were to use a 9.5mm-to-95mm Angenieux zoom, which would not have been my first choice for that type of filming, due to the weight and size of the lens. I would have preferred a 12mm-to-120mm zoom, but it was a matter of having to use the equipment available from the University.



**It's time to go wading.** With the bridge across Havasu Creek washed out by recent rains, there is nothing for it but to strip off boots and socks and wade through the icy stream. Except for the sophisticated filming equipment they are carrying, these boys could be a pair of Huckleberry Finns exploring Mark Twain country.

We had the lens overhauled and the Century people recommended that I use a very heavy grease for the zoom and focusing actions of the lens. This proved to be a very wise move because, at the bottom of the canyon, we often found ourselves shooting in temperatures in excess of 100 degrees. But I had none of the creeping zoom problems I've encountered before under similar conditions. And even though there was no way to guarantee that the lens would

not be knocked out of collimation during the trip to the floor of the canyon, I simply packed it as carefully as I could, knowing that it was in good shape when we left, and tried to avoid shooting wide open at 9.5mm, other than when it was really necessary for a shot, because if you have a problem with collimation it usually shows up at the shorter focal length extreme of the zoom.

**Continued on Page 1150**

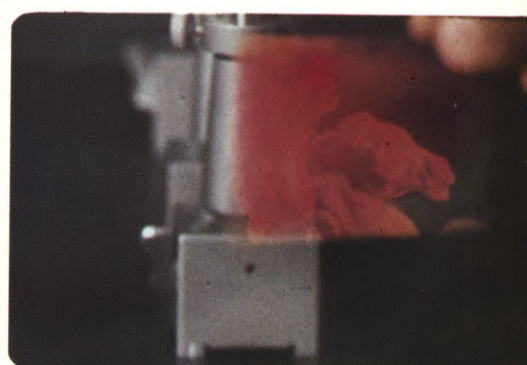
**(LEFT)** The crew films a sequence showing John Montoya blessing the corn prior to the first planting of the season. The prayer is addressed in the direction of the Wigleeva, giant twin stone formations said to be petrified remains of two brothers who founded the Havasupai tribe in the dim past. The Havasupais are considered to have inhabited the valley for the past 1,000 years, despite raids by covetous Apaches. **(RIGHT)** After a long day over a hot camera, even a drink of tepid water from a plastic canteen tastes good.



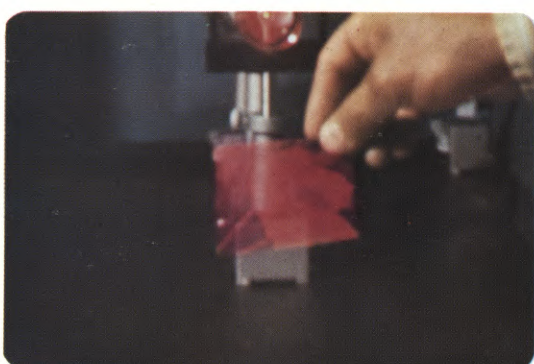




Dr. Tung Jeong, one of the world's foremost experts in the exotic science of holography, sets up the complex arrangement required to make a conventional laser hologram. Though the basic principles have been known theoretically for some time, it is only in recent years that practical research has moved forward steadily. Though serious obstacles now stand in the way, it is expected that holographic applications to motion picture production are inevitable.

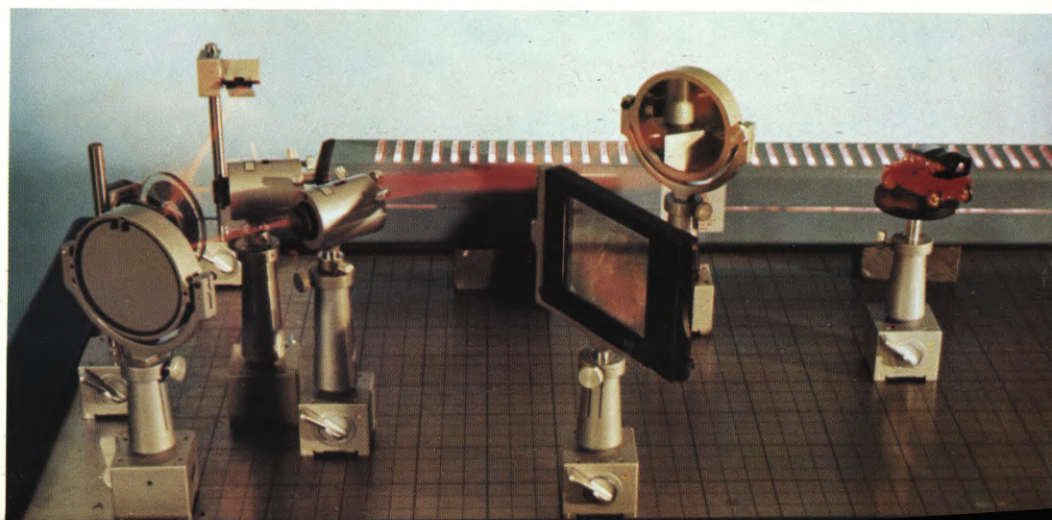


(ABOVE LEFT) A piece is cut out of a hologram. (CENTER) The original image, minus the corner piece that has been cut away. (RIGHT) Looking at the piece that has been cut away, we can now see the complete head of the horse.



(LEFT) Looking down into the corner piece. (RIGHT) Now, holding the same piece low, we look down into it and are able to see the chariot driver. Notice how perspective of driver has now changed compared to the way he appeared in first illustrations. Frame blow-ups are from the author's recently completed film on holography.

Vibration-free work surface is essential in making holograms. This table top is a 90-pound sheet of steel resting on a suspension system to dampen vibrations in the room during exposure. Movements of less than one wave-length in size will spoil exposure. Such a vibration can even be caused by a loud noise in the hall outside the lab where hologram is being exposed.





# HOLOGRAPHY


THE REAL THREE - DIMENSIONAL PICTURES  
TRADITIONAL PHOTOGRAPHY CAN'T EXPLAIN

By THOMAS G. SMITH

Imagine that you are holding a clear 8 x 10" piece of film. Even a magnifying glass does not reveal the slightest trace of any image. Nearby, a laser is turned on, a divergent lens is placed before the thread-like red beam, spreading it out before you. You now hold the "blank" film in the laser light. To your surprise, without the use of special glasses, a totally three-dimensional object, a figurine of a chariot with Roman driver and two horses, appears magically behind the film. By looking down into the picture, you see the top of the figurine, by looking from below you see the bottom. You can see around objects in the foreground by moving your head from side to side, just as if the objects were really being viewed through an 8 x 10" picture frame. These are just a few of the many illusions possible with holography, a new offshoot of laser technology. The word, "holography," loosely translates from the Greek as: "to picture all."

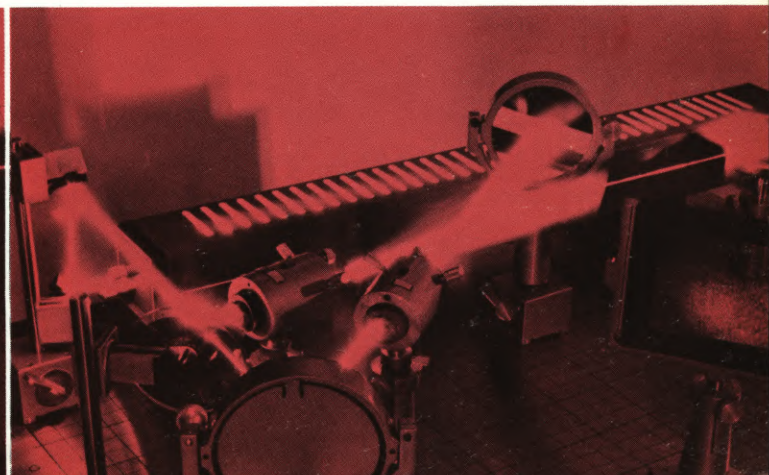
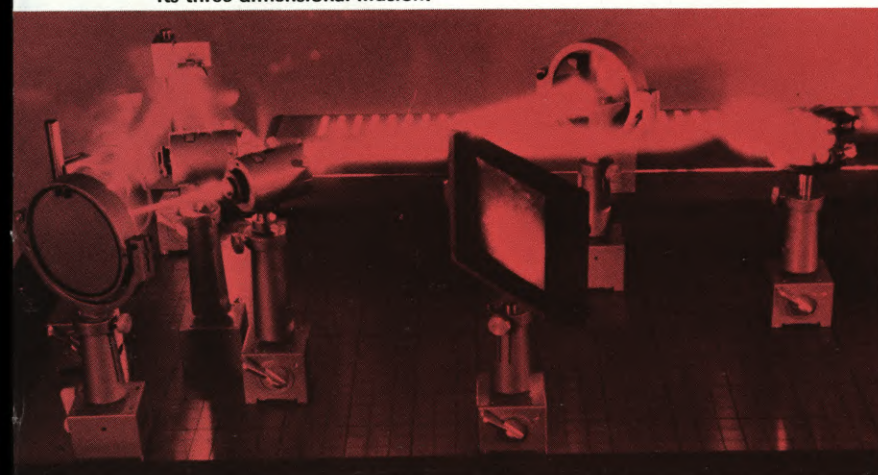
Now a 2 x 2" corner is cut from the 8 x 10" film, setting aside the larger piece. The complete image is still visible through the smaller film, as if through a small hole in a wall. Next, you punch out a quarter-inch hole and hold it with tweezers in front of the laser beam, projecting it onto a large screen. The image is not 3-D, but you can see the

*Continued on Page 1130*



The author, Thomas G. Smith, Producer/Director/Cinematographer for Encyclopaedia Britannica Education Corp., shown during filming of "INTRODUCTION TO HOLOGRAPHY", a 15-minute education film made for the purpose of explaining and graphically demonstrating the mysterious holographic process to high school and college students. The project was fraught with unique technical problems, not the least of which was getting the delicate holograms to show up on film at all.

(LEFT) Clearly evident is the path of the laser light, seen as the hologram is exposed. Exposures vary from a few seconds to many minutes. Table on which holographic set-up rests must be absolutely free of vibration as hologram is exposed. (RIGHT) The laser beam is reflected and deflected in several directions during the complicated exposure process. The type of hologram shown here must also be viewed by laser light in order to produce its three-dimensional illusion.



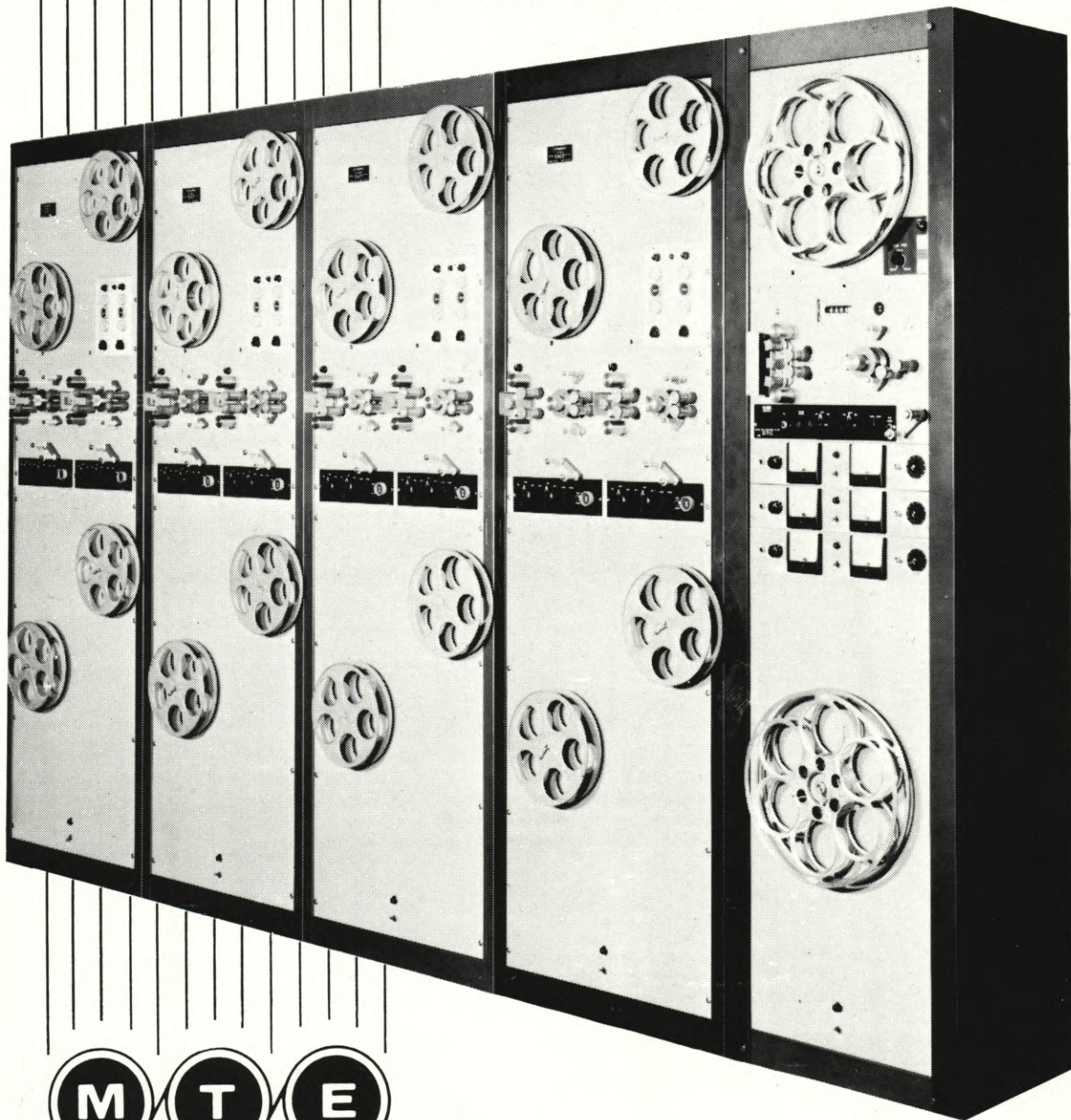




# FILM RECORDING AND PROJECTION EQUIPMENT

- System Engineering
- Automated technique
- Reversible sync-interlock operation

For your sound studio, screening room, preview room and conference room.



**MAGNA-TECH ELECTRONIC CO., INC.**

630 Ninth Avenue / New York, N.Y. 10036

- Quad Eight - Magna Tech, 11810 Vose St., North Hollywood, Ca. 91605
- Cinesound International, Ltd., Imperial Studios, Maxwell Road, Borehamwood, England
- Magna-Techtronics (Aust) Pty., Ltd., 49 Whiting St., Artarmon, N.S.W., Australia 2064



# Cut costs/improve service enhance prints with these PSC accessories

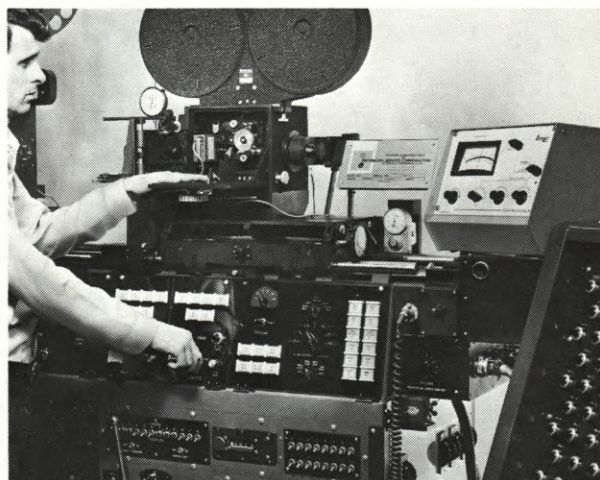
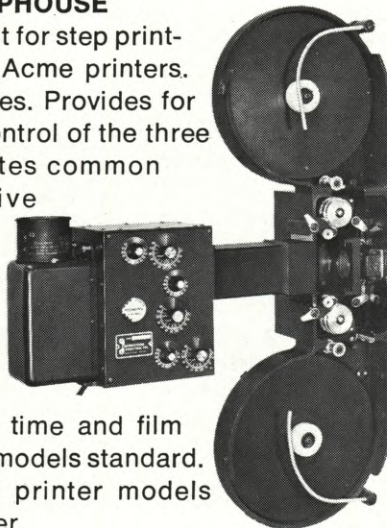


## ← LIQUID GATE

Film scratches on originals are concealed, dirt is virtually eliminated, film damage greatly minimized and film life substantially prolonged by use of the PSC/OTT Liquid Gate. Permits full potential of CRI, small format and large aspect ratio films and new, sharper print materials. A practical, precisely-controlled, dependable, automatic system. Made under a patent license from Eastman Kodak Co.

## ADDITIVE COLOR LAMPHOUSE

A manually-operated unit for step printers. Easily installed on Acme printers. Adaptable to other makes. Provides for independent, precise control of the three color primaries. Eliminates common problems of subtractive lamphouses: filter fading, aging, non-reproducibility of filters, inconvenience to operator and lack of control. Enhances prints, saves operating time and film costs. 16mm and 35mm models standard. 70mm and continuous printer models available on special order.



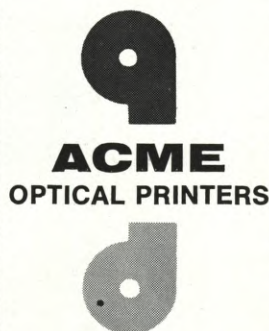
## FOCATRON®

Takes all the guesswork out of focusing. Achieve perfect focus in a fraction the time required for manual focusing with the electronic Focatron. A probe in optical path takes a precise reading of image sharpness. Accuracy within  $\pm .0005"$  is possible. For Acme and certain other printers.



## FILM GATE PHOTOMETER

Spectra® 900 Film Gate Photometer provides absolute, precise, dependable color-balance and density control for every printer set-up. Furnishes the accurate data needed to control costly print variables caused by faded filters, changing light sources, variations in print stock, etc. For Acme and Model "C" printers.



Producers Service Corp.  
Subsidiary Boothe  
Computer Corp.  
1200 Grand Central Ave.  
Glendale, Calif. 91201

Please send information on:

- Liquid Gate.  Additive  
Color Lamphouse.  
 Photometer.  Focatron.  
 Acme Printers.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_



## HOLOGRAPHY

Continued from Page 1127

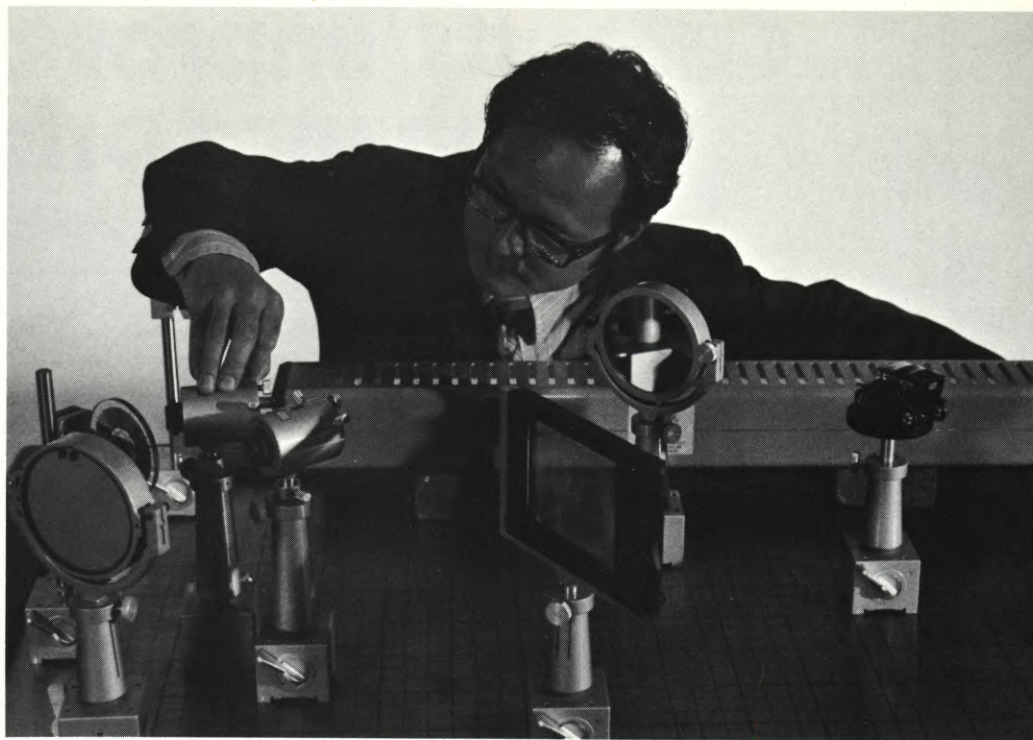
entire figurine. Any randomly chosen spot from the original 8 x 10" film will project the entire image.

The natural temptation, when viewing a hologram, is to run your fingers behind the film, expecting to touch the real object. What you are looking at, however, is an optical illusion that even the cleverest trick photographer cannot explain in traditional photographic terms. To begin with, a hologram is not really a photograph at all. It uses film with an ASA exposure rating of less than 1, but it uses no lens to focus an image onto the film. The 3-D effect does not require glasses. It is *real* 3-D, the same in nearly every respect as looking at an object through a window.

A large hologram would be a large window, a small hologram a small window. When taking a photograph of the hologram, a lens can selectively focus on various parts of the figurine. The illusion of depth is real, even to the camera.

Photographing holograms and explaining how they are made was my film assignment for Encyclopaedia Britannica Educational Corporation. After studying the subject under the tutorship of Dr. Albert Baez, a pioneer holographer and physics teacher, I traveled to Lake Forest College. Here Dr. Tung Jeong had developed some of the best demonstrations of holography available

Dr. Jeong viewing processed hologram through film. By looking down into the picture, one can see the top of the miniature automobile; by looking from below, one can see the bottom. Moving the head from side to side changes the lateral perspective. The word "holography" translates from the Greek as "to picture all".



Dr. Tung Jeong, world-famous authority on the science of holography, adjusts optical set-up for the exposure of a hologram in his laboratory at Lake Forest College, where the major portion of the film was photographed.

in the country. My job was simply to film the story of holography in a way that would help high school and college students understand the phenomenon.

Even though I consider myself not easily impressed by photo tricks, I was totally disarmed after seeing my first hologram. Along with the more traditional type described above, there were

---

(ABOUT THE AUTHOR: Thomas Smith graduated with a Bachelor of Science degree in film from Northwestern University in 1960. He studied advanced cinematography under a Fulbright scholarship at the French institute of advanced studies in film (IDHEC) in Paris. In 1962 he entered the Air Force where he served for three and a half years as an audio visual officer. Over the past six years he has produced and directed more than 20 films for Encyclopaedia Britannica Films. He often acts as his own cameraman, as he did in this most recent film, "INTRODUCTION TO HOLOGRAPHY".)

---

*circular* holograms that allow the viewer to see all around the object in 3-D. Under normal illumination it simply looks like a piece of 8-inch plexiglass tubing. When illuminated by laser light, however, an object appears suspended inside the cylinder. As the cylinder is rotated, the figure can be viewed from every side.

A *multi-channel* hologram has more than one 3-D image in each film. When the film is tilted, a new subject appears floating in space behind the plate. Some labs have made holograms with more than 20 channels on one film. The number of channels depends upon the thickness of the film emulsion. Thicker emulsions are being developed.

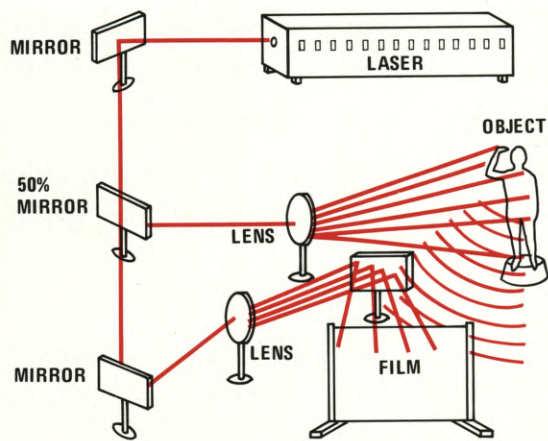
If a hologram is made of an object with a magnifying glass in the picture, the magnifier actually works. As you

Continued on Page 1172

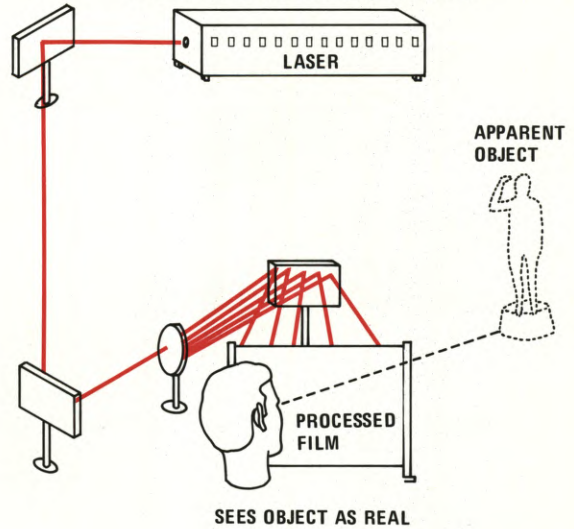




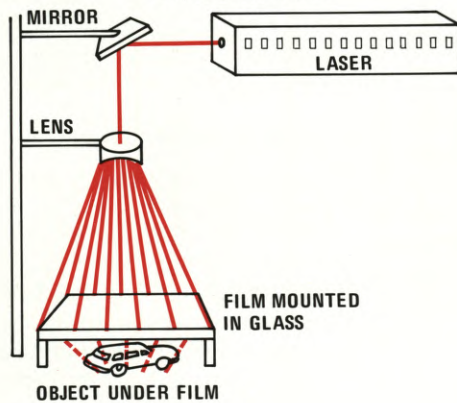
### MAKING A HOLOGRAM



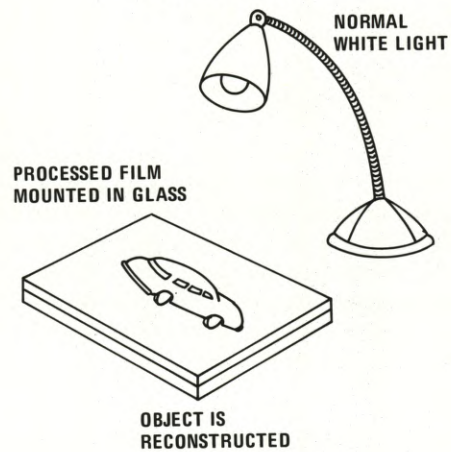
### VIEWING A HOLOGRAM



### MAKING A WHITE LIGHT HOLOGRAM



### VIEWING A WHITE LIGHT HOLOGRAM



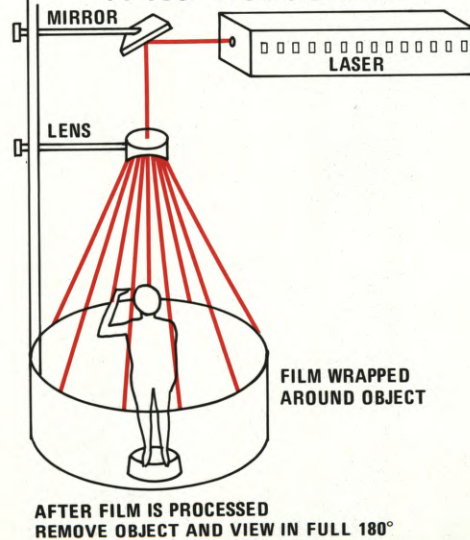
### VARIOUS MODES OF MAKING AND VIEWING HOLOGRAMS

(TOP LEFT) In the making of a typical hologram, a laser source sends pure waves of light through a film emulsion. Part of the light is split off to illuminate the object. The light bounces off of every point on the object and strikes the film, as well. The two wave fronts from the laser and the object interfere with each other in the film emulsion, setting up microscopically small patterns in the emulsion. (TOP RIGHT) The processed film is placed in the light of a laser beam. As the light strikes the film, the interference pattern bends the light, resulting in a lifelike reconstruction of the object.

(CENTER LEFT) For a white light hologram, a sheet of film sandwiched between two plates of glass is placed over the object. A spread-out beam of laser light passes through the film, bouncing off the object. (CENTER RIGHT) When white light subsequently shines on the processed film, the layers of silver in the emulsion cancel out unwanted wave lengths of light, reflecting back a 3-D image of object.

(RIGHT) For circular hologram, laser light strikes object surrounded by film, the same laser spilling over and shining directly onto film. Where reflected and direct light meet on the emulsion, interference patterns are recorded.

### MAKING AND VIEWING A 180° HOLOGRAM





# THE NEW CANON SOUND SCOOPIC 200 CAMERA

The new big brother of a tried-and-true hand-held 16mm camera doubles its capacity and finds a voice for single-system filming

The original Canon Scoopic 16 camera, with its built-in zoom lens, automatic exposure control feature and unique underslung 100-foot-load film chamber, has proved, within the last few years, to be a compact, rugged and reliable camera for the filming of silent footage for news, documentary and combat applications.

That being the case, it was logical that its manufacturer would take the basic design several steps further and create a new camera with an increased film-load capacity and the facility for shooting single-system sound.

The result is the new Canon Sound Scoopic 200 camera, a handsome and versatile instrument designed with the precision and craftsmanship one has come to expect from Canon Inc. Created primarily to fill the needs of the working news cameraman, it is a 16mm sound-on-film camera capable of shooting 20 200-foot rolls of film on a single

battery charge. It is compact, relatively lightweight and easily portable—key factors in news coverage—and has been designed with one-man operation in mind.

The Canon Sound Scoopic 200 features an electric eye mechanism for automatic aperture control, automatic sound recording level adjustment, and bright, clear viewfinder utilizing a mirror shutter. A fully charged nickel cadmium battery attached to the Sound Scoopic 200 provides enough power for filming 20 rolls of 200-foot-long film at a time. Performance of this compact, professional camera was fully proved under rigorous, sub-zero temperatures during a Japanese climbing team's ascent of Mt. Everest in 1970.

According to the manufacturer's description, the salient features of the new Canon Sound Scoopic 200 camera include the following:

## 1. AC Bias Magnetic Recording System

High performance recording head with superior sound quality and durability. Amplifier is designed for automatic and manual control at recording level. Unidirectional microphone controls noise and pinpoints sound source. Automatic Gain Control (AGC) and manual control provide two-way control for sound recording. Earphone monitoring possible. Recorder amplifier is small in size and lightweight and is of the shoulder strap type for convenient portability. Battery chamber inside amplifier is designed for easy replacement of batteries.

## 2. Rechargeable Battery

A 24-volt rechargeable nickel cadmium battery serves as power source for the camera and recorder amplifier. A fully charged battery will provide power for filming 20 rolls of 200-foot-long film and can be recharged in less than five hours. Completion of recharging is indicated by a pilot lamp. Battery charger can be used with different voltages by setting its conversion switch to appropriate voltage.

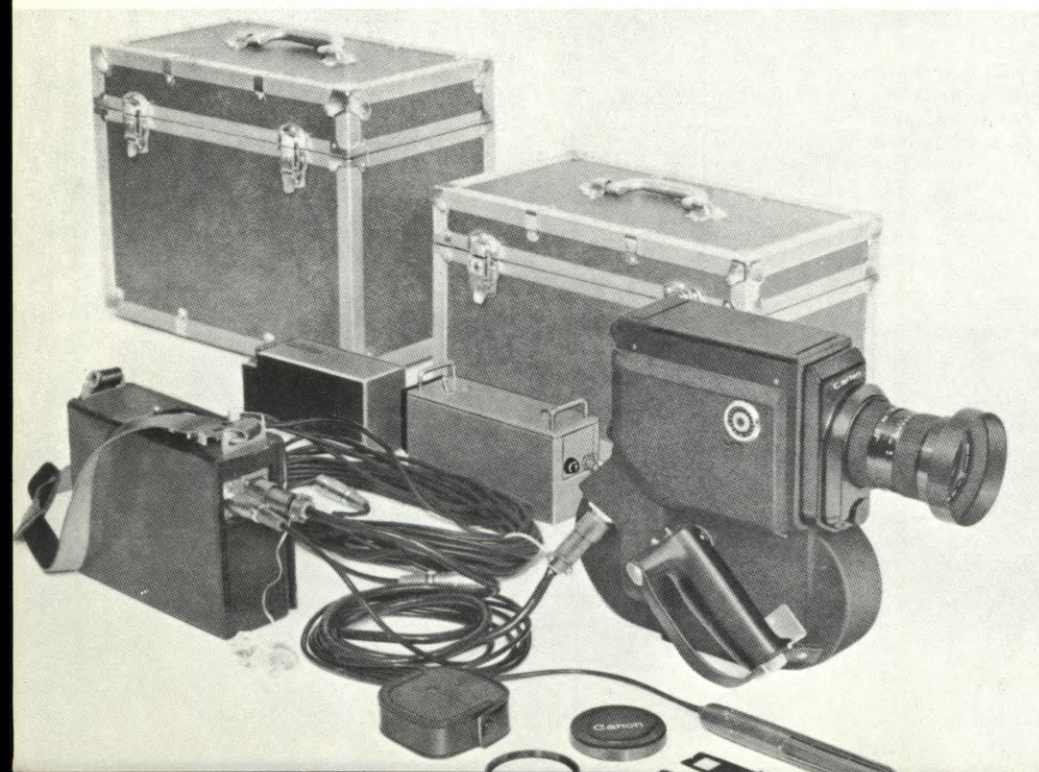
## 3. High Performance TTL Light Measuring System

A through-the-lens light measuring system with completely automatic electric eye (EE) Servo circuit responds instantly to any change in brightness of subject. Aperture is easily adjusted manually by releasing the EE mechanism.

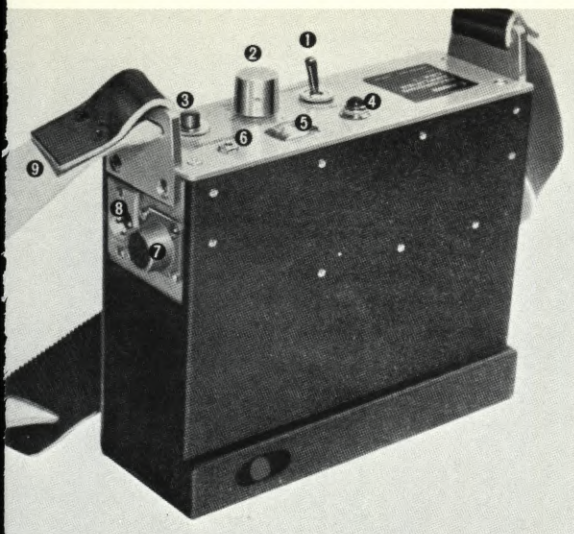
## 4. Single-Lens Reflex with Mirror Shutter

Ground glass on entire mat ensures bright, clear field of vision. Picture is stabilized and sharp and clear images are available because a registration pin is incorporated in the film advance. Viewfinder incorporates f/stop scales, over/under exposure warning marks, manual aperture control marks, eyesight adjustment mechanism and a button to open

The new Canon Sound Scoopic 200 Camera, shown with the accessories included as standard equipment. The entire complement of camera and sound equipment fits into two sturdy metal cases. The camera is primarily designed for news filming, though it has documentary and combat applications, as well.







**Amplifier of the Canon Sound Scoopic 200:** (1) Switch, (2) Record Leveling Knob, (3) Battery Check Button, (4) Pilot Lamp, (5) Level Meter, (6) Monitor Earphone Socket, (7) Camera Cable Socket, (8) Microphone Cable Socket, (9) Shoulder Strap.

aperture to maximum to measure distance to prevent counter-entry of light.

### 5. Highly Accurate, Stable Film Drive

Electronic speed servo circuit in film drive ensures absolutely accurate drive adjustment mechanism.

### 6. Superior Picture Quality with Zoom Lens

Outstanding F 2.5 Zoom Lens can shift from 12.5mm to 75mm for most frequently used focal lengths. Superior color balance and picture resolving power.

### 7. Multi-gelatin Filter Feature

Many different types of gelatin filters can be used by joint insertion in a filter frame.

The new Canon Sound Scoopic 200 camera, which lists for about \$6,000, comes complete with the following basic equipment and accessories:

Camera Body, Amplifier CRA-1, Lens Hood 62, Lens Cap, Close-up Lens 2100, Close-up Lens 1100, UV Filter, Filter Frame Microphone 600, Microphone Extension Cord (20 m), Earphone, Charger, Battery Charger S-24, Metal Cases for Sound Scoopic 200, and Amplifier CRA-1.

Optional accessories include:

Amplifier (2 Microphone Input and 1 Line input) Headphone

For further information regarding this new camera, contact: CANON U.S.A., INC., 64-10 Queens Blvd., Woodside, New York 11377 ■



With amplifier in case that slings easily over the shoulder, the Canon Sound Scoopic 200 can be operated easily by one man.

## TECHNICAL SPECIFICATIONS FOR THE CANON SOUND SCOOPIC 200 CAMERA

### CAMERA

Type: Simultaneous recording (single system) electric eye movie camera with built-in zoom lens.

Film: 16mm, 61m (200 ft) long film with magnetic coating and perforations on one side.

Lens: Zooming range 12.5mm-75mm, zoom ratio 1:6, lens speed F 2.5, hood attachment screw diameter 62mm PO. 75.

Viewfinder: Mirror shutter used. Single-lens reflex type. Ground glass on entire mat. Contains f/stop scale, over/under exposure warning marks and manual aperture control mark. Eyesight adjustment possible. Button for opening aperture to maximum when measuring distance.

Exposure Meter: Through-the-lens type. Complete electric eye automatic aperture mechanism. Automatic control system using highly sensitive CdS cell and servo mechanism.

Exposure Meter Working Range: Entire range of F 2.5-F 22 using ASA 20-640 films.

Manual Control of Aperture: Manual control of aperture is also possible.

Film Drive System: Accurate, stabilized film drive with small size DC motor of electronic speed control system.

Filming Speed: 24 fps.

Shutter Angle: 135°. Exposure time of 1/64 sec. at 24 fps.

Zooming: Manual. Focal length scale of 12.5, 17.5, 25, 35, 50, 75.

Footage Counter: Graduations every ten feet. Automatically resets to starting position S when side cover is opened.

Filter System: Gelatin filter is inserted inside optical path of taking lens.

Stability of Picture: Vertical direction . . . . . less than 0.15%  
Horizontal direction . . . less than 0.1%

Wow and Flutter: Less than 0.2% (WRMS).

Recording Mechanism: AC bias magnetic recording system. Bias frequency, 61 KHz. Distance between shooting aperture and recording head, 28 frames. Recording head and monitor playback head are removable as a unit.

Usable Temperature Range: -20°C - +50°C (-4°F - + 122°F)

Camera Size: 286mm high x 133mm wide x 345mm long (to front of lens).

(11¼" X 5¼" X 1'1-9/16")

Camera Weight: 5.5 kg (12 lbs).

### RECORDER AMPLIFIER

Recording Frequency: 150-8000 Hz, -2db

Recording S/N: 45 db

Recording Equalization: SMPTE

Recording Volume Control: Automatic gain control (AGC)

Manual control also possible.

Microphone: Unidirectional (Sanken MU-2)

Monitor: Crystal earphone

**BATTERY:** Sealed type nickel cadmium battery 24v, 1.5AH (10-hour rate)

Size: 86.5mm high x 59.5mm wide x 183mm long

(3-7/16" x 2-5/16" x 7-3/16")

Weight: 1.7 kg (3.75 lbs)

Used in common for both camera drive and amplifier power source. Loaded inside amplifier case.

Amplifier Size: 157mm high x 63mm wide x 190mm long.

(6-3/16" X 2½" X 7½")

Amplifier Weight: 3 kg (6.6 lbs), including battery.

Power of Fully Charged Battery: Enough power for filming 20 rolls of 200-foot-long film.

### BATTERY CHARGER

Recharging System: Quick recharging

Pilot lamp for indicating completion of recharging.

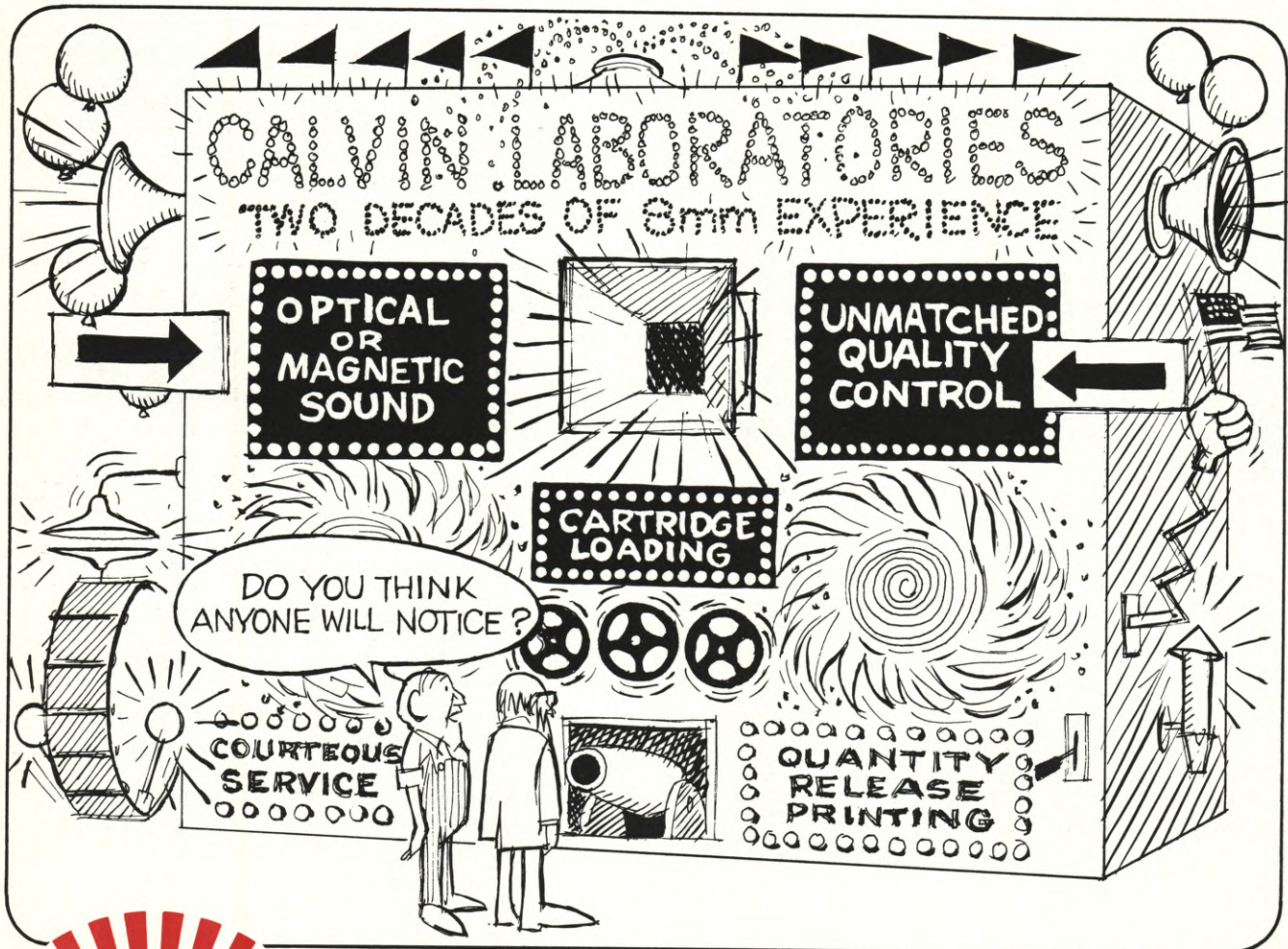
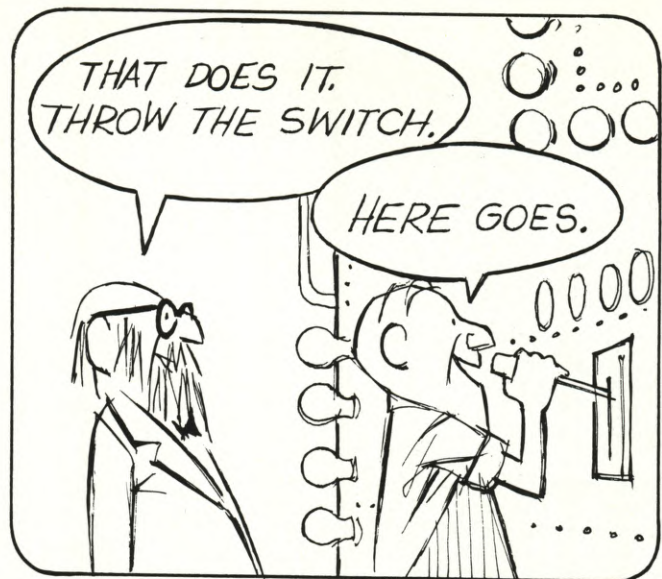
Supply Voltages: 100, 115, 125, 150, 220 and 240 volts.

AC 50/60 Hz input.

Recharging Time: Less than five hours

Rechargeable Ambient Temperature: 10°C-40°C (50°F-104°F)





16587L



## CALVIN LABORATORIES

A big, fully equipped lab, centrally located in Kansas City, Missouri—the Heart of America. Calvin can serve you better, faster and with fewer problems.

## CALVIN LABORATORIES


Where every customer is treated as an individual and assigned a Service Director to personally expedite all film requirements.

## CALVIN LABORATORIES

A Division of Calvin Communications Inc.

1105 Truman Road • Kansas City, Missouri 64106 • Phone: (816) 421-1230





# More U.S. recording studios use Electro-Voice microphones than any other brand\*

\*Based on a study of all 600 U.S. recording studios listed in the 1971 Billboard International Directory of Recording Studios.

Model RE20 Recording Cardioid Dynamic Microphones photographed in the studios of Glenn Glenn Sound, Hollywood, California.

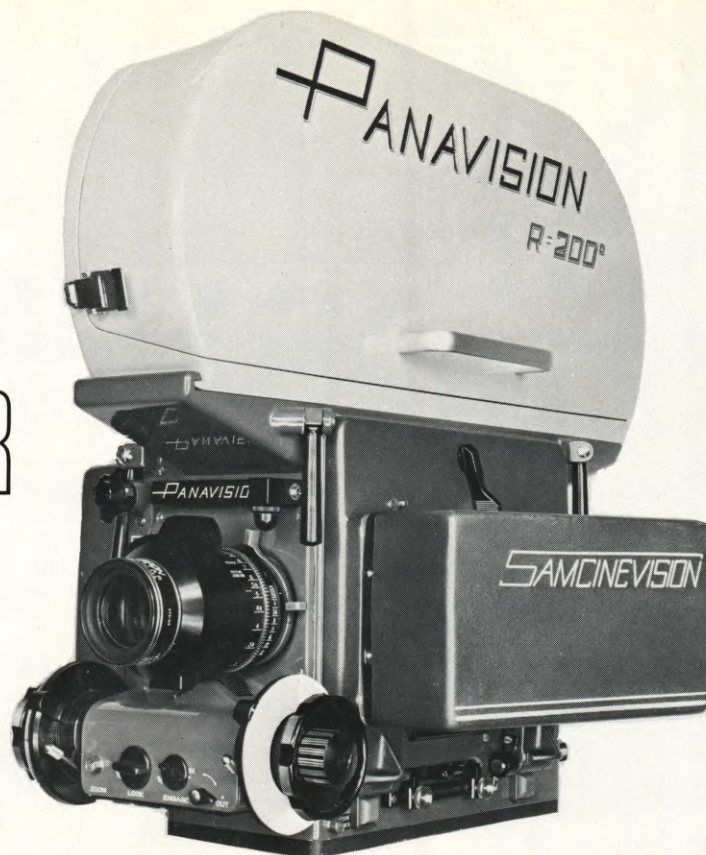
For literature on E-V professional microphones, write:  
**ELECTRO-VOICE, INC.**, Dept. 1111AC, 681 Cecil St., Buchanan, Michigan 49107  
In Europe: Electro-Voice, S.A., Lyss-Strasse 55, 2560 Nidau, Switzerland

**Electro-Voice**<sup>®</sup>  
a GULTON subsidiary

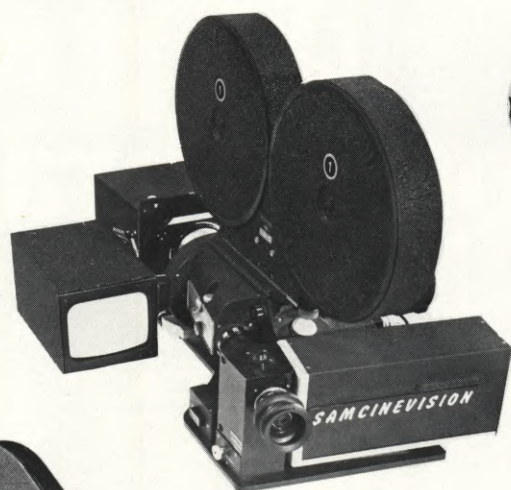


**SHOOTING  
IN EUROPE?**

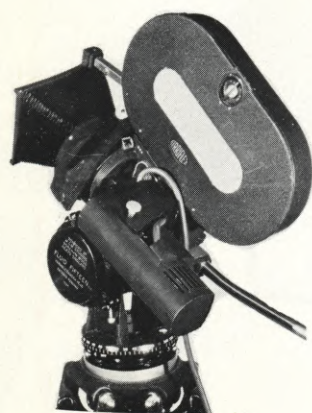
# SAMCINEVISION T.V. VIEWFINDER SYSTEMS



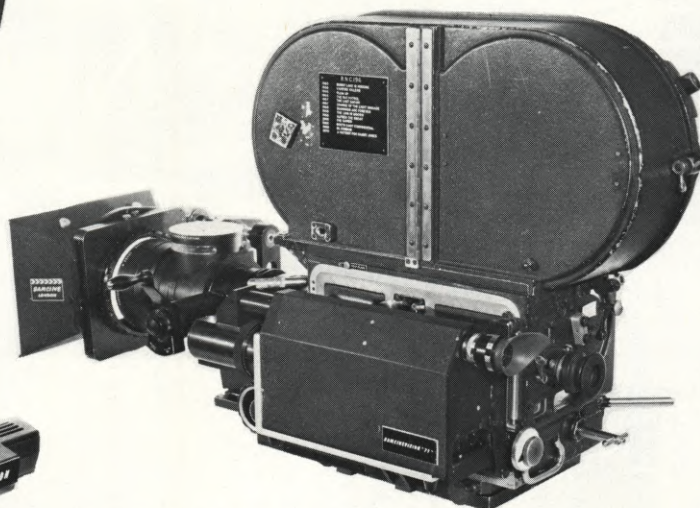
**PANAVISION PVSR**



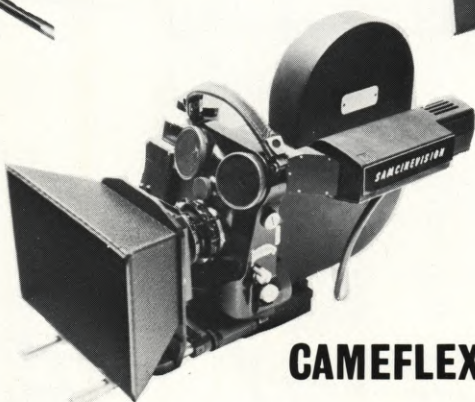
**MITCHELL Mk II**



**ARRIFLEX 2C**



**BNC WITH 10x 24 ZOOM**



**CAMEFLEX CM3**



303-305, Cricklewood Broadway  
LONDON NW2 6PQ.  
Tel: (01) 452 8090. Telex: 21430  
Cables: Samcine, London.



303-305, Cricklewood Broadway  
LONDON NW2 6PQ.  
Tel: (01) 452 8090. Telex: 21430  
Cables: Samcine, London.



24-26 rue Jean Moulin  
94 VINCENNES, FRANCE  
Tel: 328-58-30 Telex: 67 260 F  
Cables: Samcine PARIS



Building 106, Schiphol East,  
AMSTERDAM  
Tel: (020) 171990. Telex: 14613  
Cables: Samcine, Amsterdam.



Room 65, Cargo Agents' Building  
LONDON AIRPORT.  
Tel: (01) 759 9969/70. Telex: 22197  
Cables: Samfreight, London.



303-305, Cricklewood Broadway  
LONDON NW2 6PQ.  
Tel: (01) 452 8090. Telex: 21430  
Cables: Samcine, London.



NOTHING CHANGED BUT THE NAME

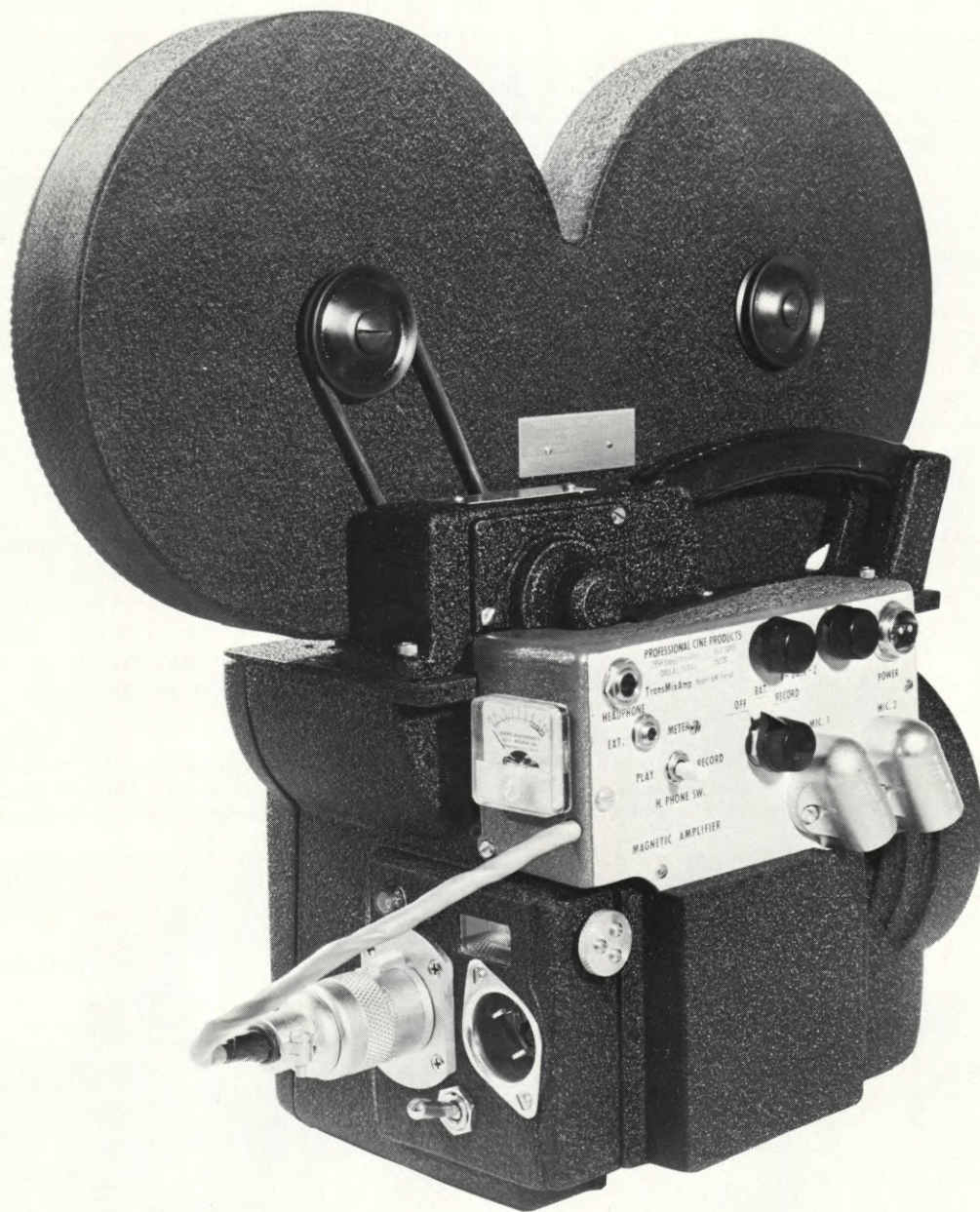
*Gordon Yoder, Inc.*

Formerly

Professional Cine Products, Inc.

2959 Ladybird Lane — P.O. Box 20296 — Dallas, Texas 75220

Phones (AC 214) 357-3045 or 357-2725



THE PRIDE OF OUR LINE . . . 400 & 1200 ft COMPACT CONVERSION OF CINE VOICE CAMERA. Meets all specifications of a major network, and in use by them NOW. Includes Filter slot; Super-Quiet Sync Motor; Silenced Veeder-Root counter; Rebrushed tripod socket w/brass insert; complete refinishing of the camera when all machine work completed; FINEST WORKMANSHIP. Price (magazine not included) \$795. Accessories available: Bloop lite & Sync pulse; Zoom finder support; handle w/switch on front of camera; hinged door. Camera shown with 15 oz. side mount amplifier, price \$675. Inside battery for amplifier and separate charger for same \$179.



# "DIRECTED BY JOHN FORD"

## PRODUCING A COMPILATION DOCUMENTARY

Assembling and combining the various ingredients for a cinematic tribute to America's greatest film director strains the limits of motion picture lab technology

By RICHARD PATTERSON

DIRECTED BY JOHN FORD is a 99-minute 35mm color and B&W compilation documentary by Peter Bogdanovich which includes clips from 28 of Ford's films, as well as material culled from interviews with John Wayne, James Stewart, Henry Fonda, and John Ford himself. The film represents a unique achievement in that it is the first motion picture study of an American director which includes such a wide selection of film clips to exemplify his work. Work on the project was begun in 1969, but because of the problems involved in compiling the clips, it was not completed until this past summer.

The film was conceived as the first of a series of "films on film" to be sponsored by the American Film Institute, and it was funded by a grant from the California Arts Commission. Peter Bogdanovich was approached with the idea because he was both a film scholar and a director. He had just published a book on John Ford, and it was agreed that Ford was an ideal choice of subject for the first film in the series.

The first step in the production was the filming of the interviews which were to provide the skeleton for the structure of the film. It was decided to produce the film in 35mm color, and the ap-

proach to the shooting of the interviews was not to be the normal off-the-cuff procedure of catching spontaneous remarks with a 16mm camera, while shooting miles of film.

When I first began editing the interviews, I was puzzled by several discrepancies in the transcripts that had been given me, and I discovered that the "transcripts" had been done before the interviews were filmed. Using edited transcripts of previously taped interviews, Bogdanovich carefully planned the interviews with the actors before he brought a camera crew to their homes. He knew what they were going to say, and he knew how he wanted to shoot them, so that, rather than having the cameraman catch moments as best he could in a *cinema verité* fashion, it was possible to lay dolly tracks and plan a dolly move at a particular point in the interview. It should be emphasized, of course, that the reason this approach worked so well was that the people being interviewed were performers who could do several takes of an anecdote without losing the feeling of spontaneity. In essence, Bogdanovich was shooting a semi-improvised performance which presented itself as an interview, and he deliberately staged the interviews

in such a way as to invite comparison with the interviews by the reporter in *CITIZEN KANE*.

The interview with Stewart was shot by Laszlo Kovacs, with whom Bogdanovich had worked on *TARGETS*, while the interviews with Wayne and Fonda were photographed by Gregory Sandor. All the interviews with the actors were filmed outside at their respective homes using a soft fill light as a complement to the natural sunlight, except when a light rain forced them to move inside to a sun porch to complete the interview with Wayne. The interview with John Ford was shot in Monument Valley by Brick Marquard, ASC, using only reflectors for fill light. This interview was not prepared in the way the others were, but Bogdanovich had interviewed Ford many times before and knew reasonably well what to expect.

In addition to the four days of interview photography, Bogdanovich took a two-man crew to Ford's home one day to shoot inserts in a room filled with souvenirs, including Ford's six Oscars on the mantle. This completed the original photography for the film, and Bogdanovich could then concentrate on the second part of the production: selecting and editing the film clips.

(LEFT) For his interview with John Ford, documentary director Peter Bogdanovich took his crew to "John Ford Point" in Monument Valley, and Ford insisted that they stage a few scenes including the Navajo Indians, with whom he had worked so often there. (RIGHT) Bogdanovich discusses a point in the interview with James Stewart, referring to a "transcript" of a previously taped interview which was used as the basis for planning the filmed interview.





In the course of his career John Ford has directed over 135 films, working for virtually every major Hollywood studio. The first problem Bogdanovich faced was simply that of viewing the films in order to select the clips. The American Film Institute secured the cooperation of the studios or distributors who could set up screenings and provide cutting continuities. Bogdanovich was already thoroughly familiar with Ford's work so that he knew more or less what he was looking for, but it was still necessary to view a great many films in order to formulate his ideas. At the end of his research, Bogdanovich submitted to the American Film Institute a list of more than 100 clips from about 45 films which he said he would need for the picture. It was clear that not all of the clips would make it to the final cut, but they were needed for editing.

Getting both the legal permission to use the clips and the physical clips themselves turned out to be a much greater problem than anyone had anticipated. The clips were from films dating back as far as 1917, some made by studios which are now defunct. In some cases the amount of research required just to determine who had legal control over the pictures was more than the studio's legal department was equipped to undertake. In the case of many films, the only existing record of the picture was a single nitrate print in the studio vault. All of this was further complicated by the fact that the grant for the film was not so large as to enable the American Film Institute to purchase the rights to the clips at the customary rate, which meant that the A.F.I. had to negotiate for permission to use the clips

gratis, on the grounds that the production was for educational rather than commercial purposes. The net result of all this was that the production virtually stood still for about a year and a half.

Finally the project was turned over to David Shepard, whose work as a film archivist for the A.F.I. and whose experience with laboratory and production procedures gave him the kind of background and contacts required for negotiating the rights and finding the printing materials. Much of the maneuvering involved in his work will have to be left to the reader's imagination, but some of the details may be useful as an indication of what is involved in this kind of film making.

The oldest film used was STRAIGHT SHOOTING, Ford's first feature-length picture made in 1917. This picture was considered to have been completely lost, until a negative of it was discovered in Czechoslovakia a few years ago. As part of its archive program, the American Film Institute made a fine grain from this negative for the A.F.I. collection in the Library of Congress. A 16mm print was provided for Bogdanovich to select the clips, and then a 35mm autopositive blow-up was made from that print to provide a workprint to be used in the editing. After the editing was completed, a 35mm dupe negative was made from the preservation materials in the Library of Congress for the sections actually used in the film. Fortunately, it was not necessary to include title cards in the clips used, since the title cards in the workprint were in Czech.

Ironically, some of the most difficult pictures to come by were among Ford's



Revealing an unexpected flair for terpsichore, Henry Fonda demonstrates dance step he used in "YOUNG MR. LINCOLN" and again in "MY DARLING CLEMENTINE".

most famous ones. A few years ago the A.F.I. had tried to locate a good print of STAGECOACH in order to make a preservation negative, because the original negative had been lost. The best print they were able to find was John Wayne's own 35mm print which was itself several generations away from the original negative. Wayne, responding to the situation, donated a dupe negative

(LEFT) Cinematographer Laszlo Kovacs sets up a shot for interview with James Stewart. Reverse angles of Bogdanovich asking questions and reacting to the actor's remarks were shot for all of the interviews in order to provide coverage for cutting, but it was not necessary to use them. (RIGHT) Bogdanovich checks the framing for a shot of Stewart during filming of interview.







Bogdanovich discusses a set-up in Monument Valley with Director of Photography Brick Marquard, ASC, who filmed the interview with Ford. Marquard had worked with the veteran director and Ford requested that he shoot the interview.

of the entire picture and then made his print available to the A.F.I. again for making dupe negatives of the clips. It was only after the negative assembly had been completed on our picture that an excellent print from the original negative of STAGECOACH was discovered. In this case we decided to remake the dupe negative for the two clips to take advantage of the new discovery. Similarly, several other clips in the picture were made possible by the film

preservation work of the A.F.I. and the *Museum of Modern Art*.

In acquiring the workprint for the clips, the original plan had been to make either a composite print (which could be ordered as replacement footage) or an autopositive dupe from a print. A separate magnetic track was made either from a magnetic master or from the optical track on a release print. Once the editing was completed, a negative would be made for the portion of the

The author, Richard Patterson, edits the John Ford documentary in American Film Institute cutting room. Scores of film clips in black and white and color, of many types and formats, had to be conformed in order to compile the 99-minute, 35mm definitive documentary on Ford's career.



clip actually used and the cut magnetic track would be used in re-recording. This procedure was followed with many of the clips, but after the production had stretched out over such a long period and everyone was anxious to complete the film, it was decided with the remaining clips to make dupe negatives right away so that it would not be necessary to inconvenience the studios again when the time came to begin negative assembly. In these cases, the workprint could simply be made from the dupe negative, and it was possible to have the negative coded along with the workprint and track. Coding the negative when possible was considered advisable since the edge numbers on the negatives and the workprint were often illegible.

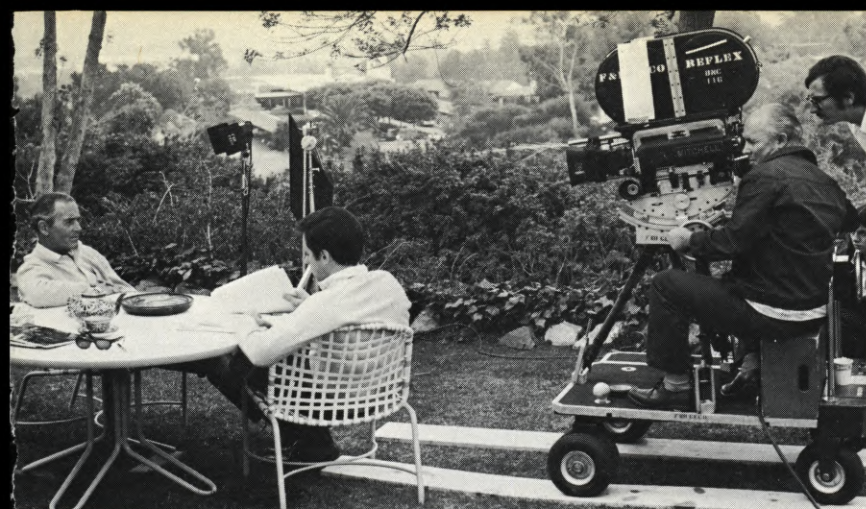
For the most part, the dupe negatives for the black and white clips were made from release prints, due to the unavailability of fine grain masters or negatives from which a fine grain could be made. Limitations in terms of time and money also necessitated working from release prints.

A frequent method was to get a good release print from a studio, make a dupe negative from the print, and transfer the track from the print to a magnetic track. In many cases, the only 35mm print obtainable was on nitrate stock, so much of the lab work was done by Foto Kem, one of the few labs still able to work with nitrate film. It was also necessary, occasionally, to scratch-treat the print before making the negative, but it was possible to get excellent results working from a scratch treated nitrate print as we did with MY DARLING CLEMENTINE.

The principal drawback in using a release print for making a dupe negative was, of course, the high degree of contrast in a black and white release print. In some instances this posed almost insurmountable problems, but it was possible to process the dupe negative to an extremely low gamma to compensate for the contrastiness of the print. Bill Gronke at Foto Kem had done a good bit of this sort of work both for the A.F.I. and the studios, and he was a great help during the production. Most of the black and white dupe negatives made from release prints proved quite satisfactory even though they had to be printed onto color stock where the contrast of the print cannot be controlled in processing.

The problem of printing black and white negatives onto color stock was further complicated by the limitations imposed on the timer by the fact that black and white negatives have a clear or





(LEFT) Cinematographer Gregory Sandor lines up a shot during interview with Henry Fonda. All of the interviews for the film were shot in 35mm color and were carefully pre-planned to include dolly moves. (RIGHT) Sandor and his crew set up for the interview with John Wayne at his home. A light rain later forced the crew to move indoors.

grey base rather than the orange base created in a color negative by the dye couplers. Anyone planning a production combining black and white and color scenes should investigate all of the problems and possible approaches well in advance, or else the first trial print of the picture may prove extremely disappointing. The problem is that color print stock is designed with a color balance which compensates for the orange mask in a color negative. If a black and white negative with a clear base is printed onto color print stock at a normal printer light setting, the result would be a deep blue image. In order to correct for this, a black and white negative must be printed with orange light, and the printer setting required to achieve this is so extreme that the printing latitude is severely reduced.

At Consolidated Film Industries, where our release prints were made, a black and white negative printing on color stock is first tested at 38 (red), 20 (green), 1 (blue) on a 50 point additive printer scale. If this is a sufficient correction to get a black and white image, it is then possible to print the scene up to 12 points lighter, but no darker. Twelve points is the equivalent of one camera stop, so it is clear that the density of the black and white negative had better be perfect if it is to print properly. In many cases, a black and white negative will require even more extreme color correction, limiting the latitude even further.

Unfortunately, the best density for printing onto color stock is not necessarily the same density which prints best on black and white stock, and the response of color stock to black and white negatives seems to be unpredictable. A black and white workprint can be very deceptive and is no indication at all of how a piece of black and white negative will print on color stock. We

had beautiful black and white workprints of negatives that were totally unacceptable for printing on color stock. The experience of the timers at C.F.I. indicates that black and white negatives to be printed on color stock should be thin and flat, but only by shooting and printing a series of test exposures can the best density be determined. If black and white negatives are made for printing on color stock without thorough testing, a producer may find himself in the position of having to decide whether to go back and remake the negatives after viewing his first trial print or to accept slightly brown or blue monochromatic images rather than true black and white images. Or he can choose between a black and white image which is too dark or too light and a slightly colored image which is nearer the proper density.

This problem in timing can be avoided, of course, if the dupe negative of the black and white scene is made on color negative stock so that there is no need to compensate for the base. This would allow for the normal range in printing latitude, but it could create problems, because there is no way to control the gamma of a color negative. If the original black and white scene is a flat fine-grain master, it may be possible to make a color negative which will print well, but if the original material is at all contrasty, a color negative will probably not yield acceptable results.

There is another solution to the relative incompatibility of black and white negatives and color print stock. If the black and white sections of a picture are extensive enough, it may be feasible to print the black and white sections on black and white print stock and then assemble each release print from the various color and black and white sections. In the case of our film, we considered this approach, but the black

and white sections were so completely interspersed with the color sections that it was impractical to print the black and white separately.

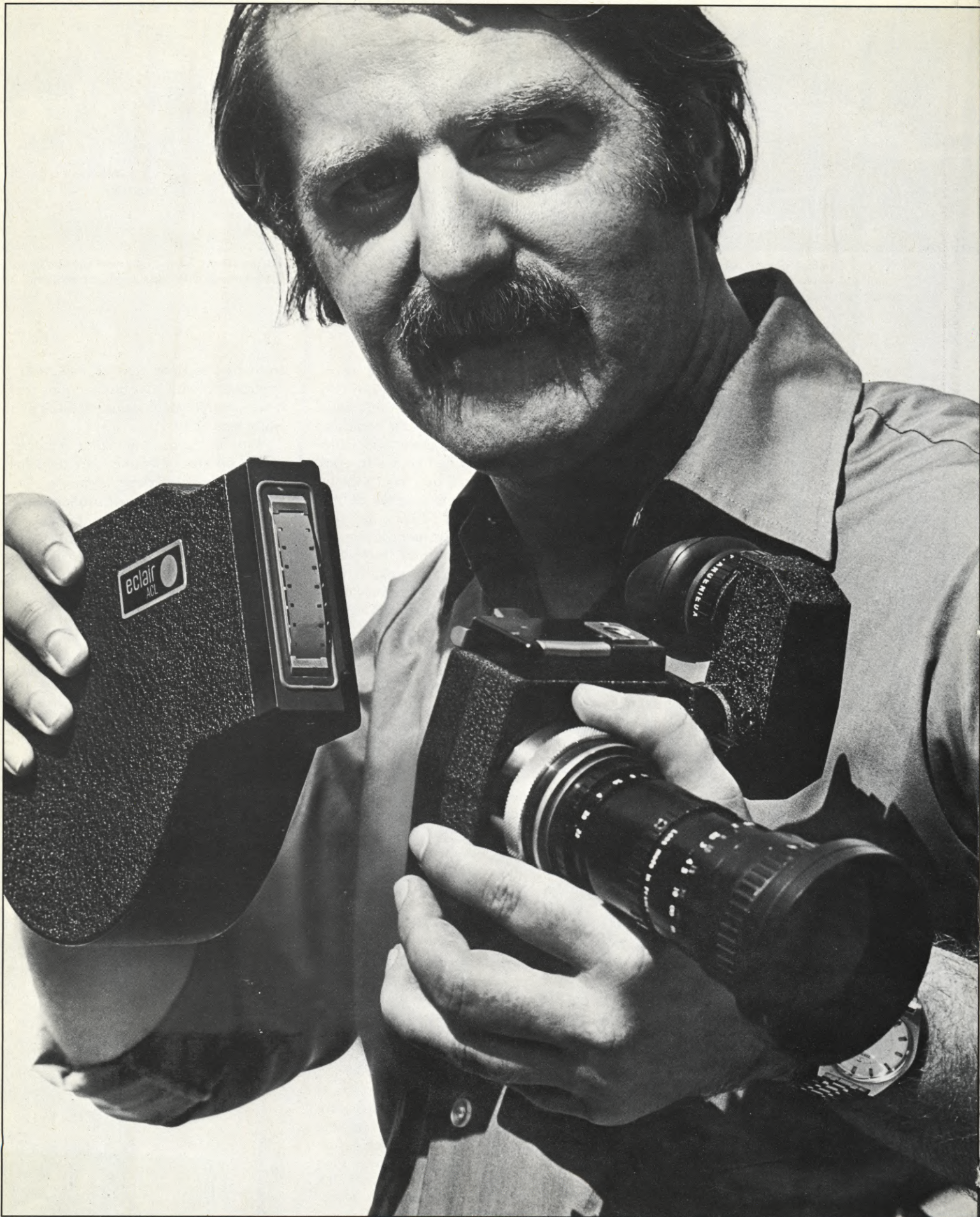
With the clips from color pictures, several different methods were used for making the color dupe negatives. The best results by far were obtained by making a color reversal intermediate dupe negative from the original camera negative. There is a long scene from *TWO RODE TOGETHER* which we duped in this way, and the color quality in it is comparable to the quality of the interview footage. A scene from *THE HORSE SOLDIERS* was done this way also but seems a bit soft in focus, perhaps because the CRI was made by printing through the base rather than using an optical printer to maintain the proper emulsion orientation.

Color reversal intermediate was used  
Continued on Page 1154

Bogdanovich and Ford in Monument Valley. In 1964, Bogdanovich had been an observer on the production of "CHEYENNE AUTUMN", the last picture Ford shot at his most famous location.









# Changing the ACL's clip-on magazine takes five seconds!

*Loading the magazine is fast and simple, too. Less changing bag time than any other camera.*

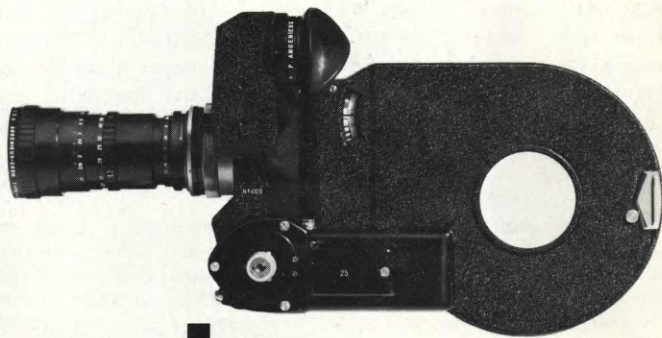
To change the ACL's rear-mounted coaxial magazine, you snap off the old one and snap on a new one. That's all. No threading, no loop to form. You don't need to touch the film at all!

The film is threaded and the loop is formed *inside* the magazine when you load it, before shooting starts. The rear film pressure-plate is on the front of the magazine. The film channel and aperture are on the camera body.

To load the magazine, you drop the spool or core into place, push the film's end into a light trap and snap the feed side lid on. That's all you have to do in the dark! No threading, no sprockets.

On the take-up side, you run the film through two sprockets and form the loop. Core on spindle, close lid. You can see what you're doing, so it's simple—and *fast*. Film maker Vaughn Obern says: "With one assistant, you can easily get by with only two 200 foot magazines."

Shooting unscripted action that won't wait, you can leave the tape recorder going when you run out of film, and cover the lost five seconds with a cutaway, later. In the studio with a script, the five-second magazine change means that it's just another take. Immediately.



## eclair

For a free ACL brochure, write to Eclair Corporation at 7262 Melrose Avenue, Los Angeles, Calif. 90046; or at 73 S. Central Avenue, Valley Stream, New York 11580.



# REFLECTION UPON THE PRODUCTION OF BRITAIN'S FIRST SUPER-16 FEATURE

An enthusiastic report from the co-cameraman of England's maiden effort in a format which he believes "will change the entire structure of screen media and their control."

By HARRY HART

Super-16 is a most sophisticated medium, because: 1. good films can be shot very quickly and cheaply. 2. some areas of the process require greater attention and precision than high-quality feature standards. 3. the *eye* of the cinema now weighs twenty pounds, requires a minimum of light, and has the resources of both the 35mm and 16mm industries to draw from in equipment, talent, innovations and production techniques: 4. the Super-16 format is readily transferred to any visual medium with nominal loss of quality: 5. 16mm cinemas are a natural trend. Super-16 anamorphic stereo could produce an almost 4-to-1 wrap-around image. 6. *small* groups can now make profitable movies for *small* circuits with the possibility of world-wide success: 7. it draws its technology from all of the screen media.

During May 1971 cameramen Nic Knowland and I shot SECRETS for Satori Productions. Working with two crystal-controlled Eclairs and a very tight schedule, the first Super-16 film made in Britain was completed in thirteen shooting days—a full-length feature film packed with action and camera movement.

The cast of five principal players was rehearsed by Director Philip Saville in the actual locations for two weeks prior to shooting. Selected rehearsals were recorded with a hand-held Sony video recorder, in black and white, as a reference.

Production requirements called for an average of ten minutes of screen time to be filmed on most days, and it was up to us cameramen to find a way to achieve this without long-running static shots or shaky hand-held camerawork. Fortunately, London has to offer a more diverse range of film-making equipment for its area, than anywhere else, which we were able to draw from. However, we still relied upon making some of our own equipment in cases where neither the 35mm nor the 16mm film industries could fill the needs of this bastard form. This was especially necessary in the area of *camera support* systems wherein the 35mm equipment was too heavy, while the 16mm industries used straight hand-held sync cameras.

In fact, the film was shot with a mixture of 35mm and 16mm production techniques to achieve an appropriate blend—coupled with our own innovations.

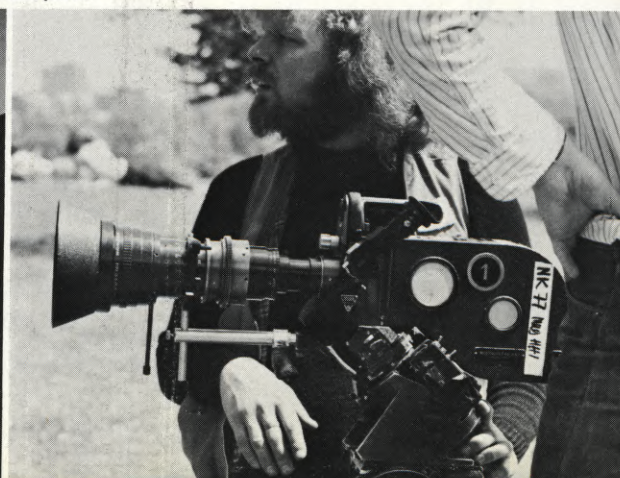
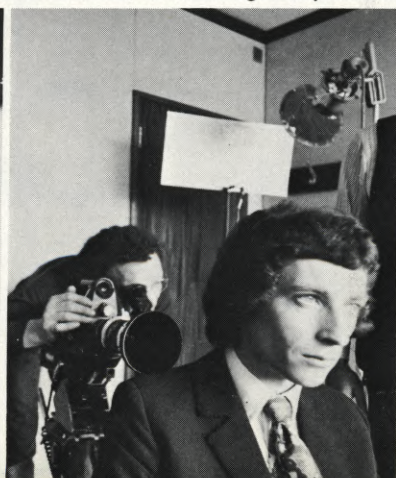
It would appear that Super-16 offers the film-maker a new, unequalled freedom, since the production can be tailored to suit the budget: a really low-budget film would use predominantly 16mm techniques, and as you go up the money scale increasing use can be made of regular feature film facilities. However, the difference between shooting a sequence by ambient light with a F/95 lens, compared to lighting it with arcs, does not *necessarily* give better value for

more money. At least it is now possible to make a feature film according to the money available, rather than have the project collapse through lack of sufficient funds for conventional production.



The author adjusts Jupiter lamp on boom rail to reflect light off soft and hard panels taped to ceiling. Interior lighting was mainly reflected to permit camera and sound equipment to move without casting shadows.

(LEFT) Tic Tickner scribbling focus on the Samcine Super-16 Eclair. Hand-grip and shock cord suspension are homemade additions. (CENTER) Co-cameraman Nic Knowland lines up over-the-shoulder shot, with Canon zoom lens on camera. (RIGHT) A very sophisticated camera package. Jimmy Dibling with Nic's camera. The Super-16 Eclair, Beala crystal motor and Ronford Fluid 15 head were further enhanced with a 35mm zoom lens (the 25mm-to-250mm from Samuelson Film Service Limited) for shooting of sequence in the park.







(LEFT) Mounting the Flexicrane onto the Major Rail proved to be an important innovation. Up to 16 minutes per day of screen time, full of camera movement, was shot with this pioneering rig, dubbed the "Moviemate". It made possible a freedom of camera movement similar to that of underwater cameras. (RIGHT) One of the problems of a two-camera operation! In what we hope is a gag shot, Tic Tickner attempts a double focus pull. The cameramen appear to be photographing each other.

Super-16 is far more readily suited to non-studio production, both interior and exterior, than are 35mm formats, because of the camera size, its weight, and a ten-minute capacity with a crystal motor and small battery. Virtually all 35mm lenses and video camera lenses are suitable, as well as many of the regular 16mm lenses, although the *difference* between lenses is far more apparent.

The myth of a standard crew size is finally exploded by Super-16. It is now possible for *one man* to shoot a movie

(in fact it is possible for one man to now shoot anamorphic Super-16 with stereo sound—hand-held, even), and although crew sizes will probably not change much, there is a good case for a tiny crew on a very long-running remote location, or with an expedition, or where massive travelling is involved. Some new film forms may well develop as a result. Basically the saving in crew size is the reduced need for manual labour; technical skills, although somewhat different, are essentially the same. Generally speaking, the minimum feasi-

ble crew size would be three men—as with regular 16mm sync shooting. But crew size will become a variable according to the budget, script, schedule and required "fire-power". Actual photographic quality need not necessarily be affected by a small crew, although production value may well be.

The use of two equal-status cameramen who work well together and share the lighting and operating of two cameras can well be a very successful formula, as we found to our benefit on *SECRETS*. Both cameramen can turn their attentions to any immediate problems or delays, and the possibilities for "leapfrogging" are manifold. This system can well save running into extra days of shooting.

In setting up a Super-16 film one has far greater flexibility in relationships between the budget, script and schedule.

*The Budget.* The larger the budget the greater the potential of sophistication for a small crew to use better

Director Philip Saville checks framing of a wide-angle shot, with the Super-16 Eclair tripod-mounted, while co-cameraman Harry Hart looks on.



(ABOUT THE AUTHOR: Cameraman Harry Hart describes himself as a "jobbing cameraman" and claims to be capable of any and all styles of cinematography—35mm and 16mm—as well as initiating and contributing significantly to contemporary film-making techniques.

Having received a very good technical grounding with the Crown Film Unit twenty-five years ago, he now spends two-thirds of his time "somewhere around the world, shooting something interesting". *SECRETS* is the ninth feature film he has been offered, but the first he has accepted. The others—including movies for majors in Hollywood—did not offer sufficient cinematic opportunity for his taste. "The camera is a living thing," he states, "not just a formula for recording books and plays."

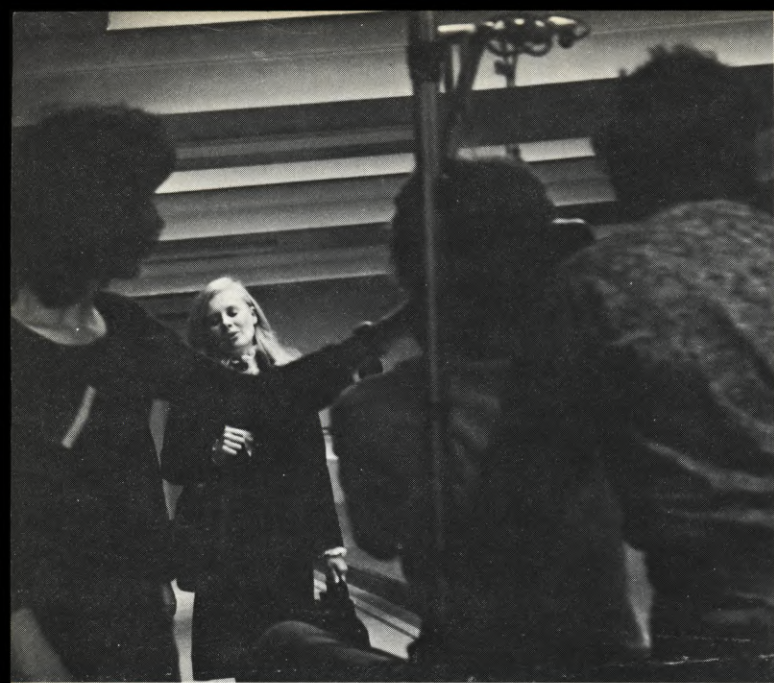
He has worked with the film industries of many countries in the world; he averaged 1,000 minutes of screen time per year during his nine years with a British TV company. "We learnt how to shoot anything and everything, anywhere and everywhere" ranging from top feature quality for drama and cinema programs, to war situations, slums and even sewers. "You get a good look at what the world is really like and you get to understand the power of screen media and the opportunities for social change."

For the last seven years he has been a fully independent freelance cameraman, declining partnerships and seeking as much varying work from different companies as possible. This includes over 200 commercials, of high and low budgets, but mostly of the non-studio, non-formula type. He says, "At the moment commercials are the most advanced form of film-making—we're really learning how to communicate. The precise disciplines and techniques pay off—also, the money's good" which helps to finance his heavy commitment in prototyping new film-making equipment and techniques (much of which was used to good effect on *SECRETS*).

He insists on being a generalist cameraman and enjoys shooting documentaries, feature second-unit and action sequences, pop festivals and groups, promotional, medical, research and underground filming—as wide a variety as possible—"Since the interchange in film-making techniques is becoming increasingly important."

He believes that Super-16 will change the entire structure of screen media and its control, and that film is now becoming a public art after a lifetime of being a private specialist form. "Shooting *SECRETS* in thirteen days with two equal cameramen, Nic Knowland and myself, was a beautiful way to work" since he has a very high regard for Nic and they worked well together; "We drew our techniques from all areas of film-making as needed. That's how to beat the money crisis and make good films on sensible budgets."





Though filmed on a low budget, *SECRETS* features some high-powered talent in front of the cameras. (LEFT) Actress Shirley Knight in position for an interior tracking shot. Cameraman sits in wheelchair dolly. For smooth movement, camera was suspended from "gallows" device composed of shock cords. (RIGHT) Jacqueline Bisset shares an intimate moment in *SECRETS* with co-star Per Oscarsson.

equipment: crystal motors, special lenses, special sound equipment, etc., with greater movement and mobility. Also the opportunity to use specialized services for limited periods. The intelligent use of a generous pre-production period can ultimately cause great savings by the obtaining, building or modifying of ideal equipment from the vast resources available.

*The Script.* Long running dialogue scenes can be kept interesting by the use of *movement*, of both actors and cameras. Productions involving few location interiors with heavy screen time can be "plumbed-in" to give greater freedom and control than studio conventional shooting.

Scripts involving slight shooting in many locations can well be accommodated with a lightweight, fast-moving unit. The optimal minimum is related to the required degree of "filmpower", and the photographic style. True lightweight units can travel in one or two vehicles, are opportunists, and shape the production to the location by using the natural conditions. They boost and/or fill the ambient light, and work with a high degree of ingenuity. Two-camera coverage reduces continuity retakes and can allow the artists much greater creative freedom; they do not have to be absolutely word- and mark-perfect—since the two cameras are "in continuity" with each other.

Long-running scenes, ad-libbed dialogue and impromptu situations can well enhance the film.

*The Schedule.* Once I worked out that, with conventional feature filming, one day's main unit shooting equalled the cost of forty days of second-unit

shooting. The average Super-16 unit would probably be about second-unit size. With a small enough crew a unit can stay on location for a long time—and capture many local events to improve their story.

Depending upon the time available for shooting a sequence, there is a very wide choice of styles and techniques available. You are not tied to one cinema form; you can select your treatment of the scene according to time and circumstances.

On really tight schedules, "passengers" on the unit must be ruthlessly avoided, and "non-combatants" kept to a minimum, since *every extra* person on a unit slows it down. Conventional features work at the pace of the slowest. A fast-moving operation calls for group participation, not a departmentalized one. The management attitude can en-

courage small groups by making all participants feel part of the same team, and maybe by spreading around a few shares in the production.

*Status Relationships.* Super-16, as a bastard form, does not *automatically* have the democratic relationships of documentary filming, or the hierarchy of feature filming. On small integrated units *everyone's* contribution is vital. In the right hands, the film-making process will now be so cheap and effective that crews may automatically start expecting a share of the production. "Joint ventures" by small groups and speculative film-making will further corrupt status and demarcation lines, just as small distribution minimums will further corrupt the power of the Majors. With Super-16 the power is very much in the hands that make it. *Super-16 is the film-makers' medium.* ■

All of the interiors for *SECRETS* were shot in actual locations, as a result of which the two cameramen found themselves in some odd positions. (LEFT) Nic Knowland commandeers the best seat in the house for filming of bathroom sequence. (RIGHT) Harry Hart swoops to the top of a wardrobe in quest of unusual camera angle.





# CHINESE

## THE FIRST LOS ANGELES INTERNATIONAL FILM EXPOSITION

**At last, the most prestigious representatives of the American film industry pool their resources to sponsor an international film festival in Hollywood**

There's an old expression that goes something like: "The cobbler's children have no shoes."

Those who are fond of drawing analogies might point out that the statement could well apply to Hollywood, which, though having long billed itself as "The Film Capital of the World", has never, to date, sponsored an international film festival fully backed by the local industry.

After years of discussion and promises-promises, that sin of omission is about to be rectified, and the first major bid by Los Angeles for international film festival status will occur Nov. 4 through 14 at Grauman's Chinese Theatre on Hollywood Boulevard, with certain retrospective films to be shown at the Los Angeles County Museum of Art. The Exposition has been given the short-form sub-title of FILMEX.

In sponsoring the non-competitive First Los Angeles International Film Exposition, Los Angeles, the center of American film production, thus joins New York, San Francisco, Atlanta, Cannes, Venice and Berlin in presenting to the public an annual motion picture event of international scope. The work of filmmakers from around the world will be shown, with special emphasis given to films which illuminate the growth and development of the motion picture, particularly in America.

The entire cinematic spectrum will be encompassed—old and new, feature length and short subject, underground

and spectacle, documentary and animation—the only stipulation being that new films must receive their Los Angeles premiere at the Exposition.

The Los Angeles International Film Exposition is a non-profit corporation, funded entirely by private sponsors and organizational grants. This funding will be repaid by ticket revenue.

The event is sponsored by the Academy of Motion Picture Arts and Sciences, the American Film Institute, the Los Angeles County Museum of Art, the Harold Lloyd Foundation and the Film Schools of the University of California, Los Angeles, the University of Southern California and the California Institute of the Arts. The Board of Trustees is headed by Philip Chamberlin, Curator of Films at the Los Angeles County Museum of Art and includes George Cukor, Norman Corwin, Carole Eastman, Arthur Knight, Walter Mirisch, Edward Rubin, Rosalind Russell and King Vidor.

"A Tribute to the American Cinema", seventeen programs comprised of twenty two films, will highlight the works of outstanding American directors—including some of their most creative, but least known pictures.

One of the most interesting categories of films scheduled for presentation during the Exposition is that which the entrepreneurs have chosen to call *Film Noir*. For those who are wondering what this esoteric term might mean (and that should include practically every-

body), the following excerpts from Paul Schraeder's article on the event might be enlightening:

"It is not a *genre*, defined, as are the western and gangster *genres*, by conventions of setting and conflict, but rather by the more subtle qualities of tone and mood.

"It is also a specific period of film history, like German Expressionism or the French New Wave. In general, *film noir* refers to those Hollywood films of the forties and early fifties which portrayed the world of dark city streets, crime and corruption. Descriptive definitions can get a bit sticky. It is more helpful to attempt to reduce film noir to its primary colors (all shades of black), those cultural and stylistic elements to which any definition must return.

"There is not yet any cross-indexed lexicon of the stylistics of *film noir*, and the task is certainly too large to be attempted here. Like all film movements, *film noir* had a reservoir of film techniques which it drew upon, and given the time one could correlate the techniques, themes and casual elements of *film noir* into a stylistic scheme. Here are some of the techniques which occur repeatedly in *film noir*.

"1. The majority of scenes are lit for night . . . Lights are hung low, and floor lamps never more than five feet tall.

"2. As in German Expressionism, oblique and vertical lines are preferred  
Continued on Page 1164



# BACKGROUND MUSIC BY COMPUTER

According to the author, this little black box makes it possible for even a three-thumbed cretin to beat film composer Burt Bacharach at his own game

By STEPHEN A. KALLIS, JR.

What is it that's *not* "bigger than a breadbox," has blue and green lights, and could save a film production company a lot of music fees? It's a new form of electronic computer that can be programmed in a few minutes, even by someone who has never seen a computer before.

Several areas of motion picture production already utilize electronic computers these days—and certainly one of

the most recent is involved with the production of background music. Usually, when a person talks about "computer music," he does so in terms of a *music synthesizer*—a device that generates strange and unusual tonalities electronically, but which, for the most part, requires a talented human operator to play it properly.

The new device that has appeared on the scene is a bit different. It is a music

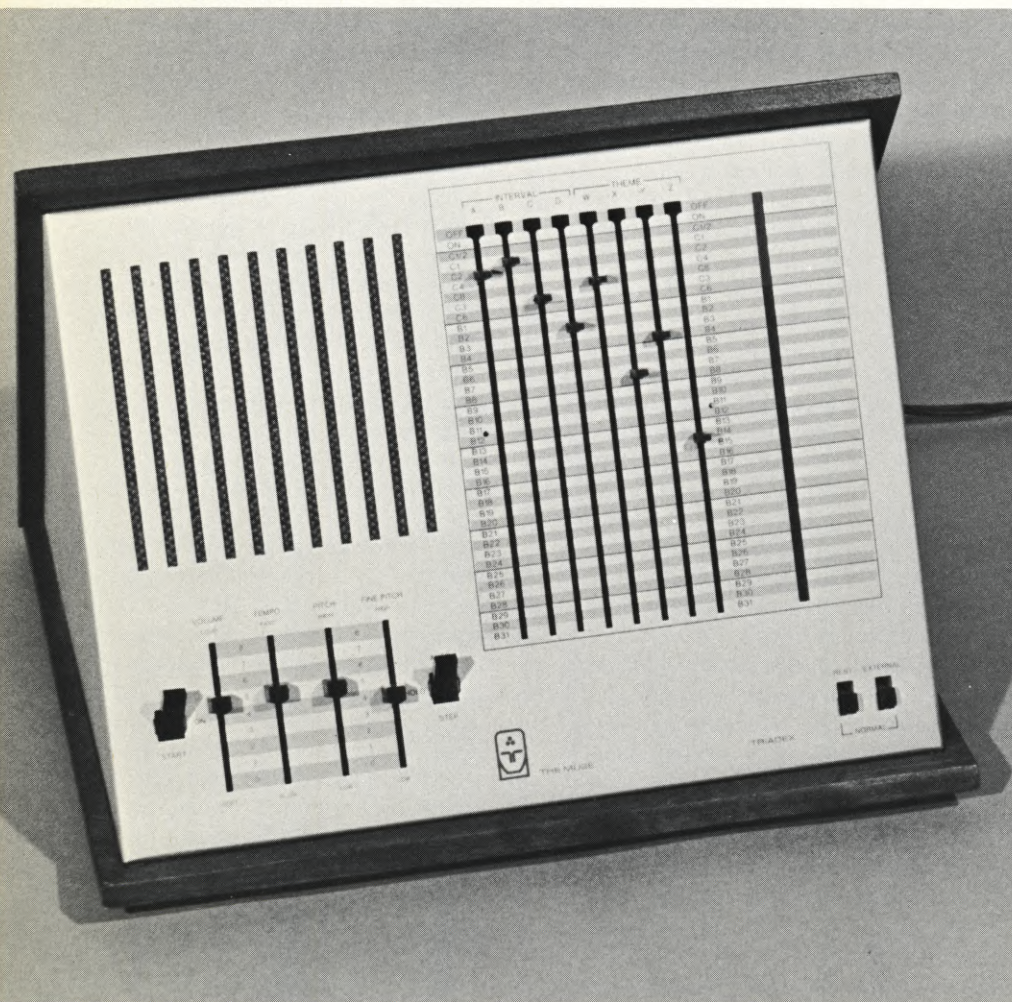
*generator*—that is, a device that creates music from computer logic elements wired into its circuitry. The item, called a "Muse", is manufactured by Triadex, Inc., of Upper Newton Falls, Massachusetts. Unlike the conventional electronic computer that outputs its solutions in terms of letters, numbers, and characters, the "solutions" of the Muse are electronic notes in a musical sequence.

The Muse is a small, bookshelf-sized device with a small built-in speaker and a rather complicated-looking control panel that is actually not difficult to operate. The controls permit the operator to vary the pitch, the volume, and the tempo of the tune that the Muse is playing; and, in addition, the controls permit both the choice of the notes to be used and the manner (and variations) with which they are played. The manufacturers claim that there are more than fourteen billion note combinations possible with the Muse, certainly enough to find something for every mood (*Note: I have not attempted to verify by switch settings whether fourteen billion is the correct number but, mathematically, it seems to be in the right ballpark*).

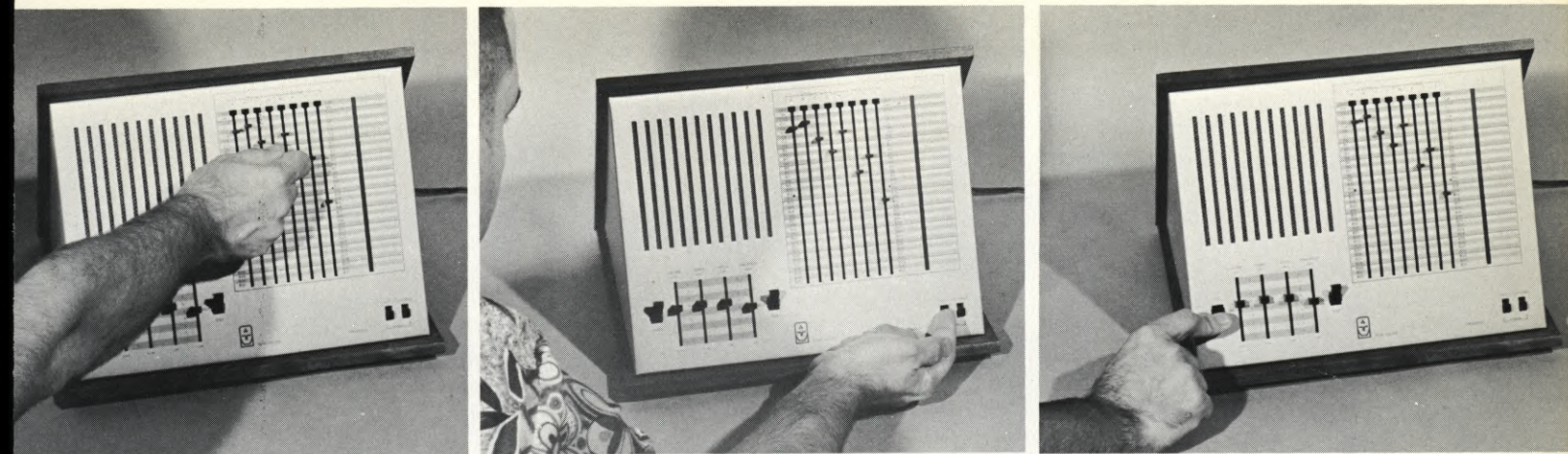
Operation of the Muse is really rather straightforward. The "heart" of the device is a set of slide switches. There are eight switches in all, divided into two subsets. Each of the switches can be set to any one of 40 possible positions, and each switch setting determines a different "instruction" for the Muse. Therefore, since the Muse is a form of digital electronic computer, its switch settings comprise its means of being programmed. Since the sum total of the switch setting "instructions" determines the "rules of the game" for the Muse's operations, the basic tune and melody have been defined. The pitch and tempo settings refine these basics.

Since this description may not be totally clear, perhaps an analogy will be of some help. Anybody who is familiar with an old-fashioned player piano

The Muse. This bookshelf-sized unit is a special purpose electronic computer capable of generating music that can be used for film backgrounds. Connections to recorders or external amplifiers can be made in the base. The control switches and the internal speaker can be seen on the face of the unit.







(LEFT) "Interval" and "Theme" slide switches define the basic elements of each tune generated by the Muse. These slide switches form the heart of the Muse's programming. The tunes are further refined by the pitch and tempo switches partially obscured by the arm. (CENTER) A syncopated effect can be achieved by activating a "pause" or "rest" slide switch. Using this switch causes the basic tune to be interrupted in a predetermined (but not precisely periodic) manner, producing a tune with dance-like elements. (RIGHT) The "Start" switch functions both to start the unit and to "reset" it to the beginning of a tune. No matter at what point in the tune, pressing the Start button makes the tune begin all over again.

knows that it works because holes that have been punched in the paper of the piano roll permit air to enter holes in a slotted vacuum intake that the roll travels over. Although there is one slot (hole) for every key on the piano, the pattern in the paper restricts the ways in which the air can flow, so that only one (or a few) notes can strike at any instant in time. In a crude way, the holes in the player piano sort of act as a "program" to make the piano play only a certain sequence of notes.

To someone familiar with computers, that sort of a description is a grossly oversimplified example of what programming is all about, but it should help explain the operation of the Muse, if we continue from that point. Now, keeping our player piano roll in mind, let's think for a moment about a business computer—you know, the type that makes out credit card statements or paychecks, and punches out a code in an IBM card with neat little rectangular holes. Suppose that, somehow, the mechanism got mixed up so that instead of punching its code holes in cards, the computer punched them in a player piano roll. In theory, at least, we could then put on the roll and play it on a player piano (To be sure, I've made a lot of assumptions and, under the above conditions, the results would sound pretty horrible, but it should give you the idea).

Such a setup—if it could be made to exist—could be improved markedly by clever programming. Music is a rather mathematical thing (for instance, the frequency of the highest of two notes of an octave is exactly double the frequency of the lower note), and a programmer who was instructed in musical rules could eliminate discords, etc., by following the rules. Under these circum-

stances, the patterns on the resulting piano roll would not sound too bad.

In the Muse, this approach has been taken one step further. The rules of music have been wired into the computer's circuits, some of which also generate the tones that will make up the music. This can be done because the computer has only one function: to generate music—rather than the more varied functions of the normal electronic computer.

What does this mean to the filmmaker? Frankly, it means that he has a virtually unlimited source of film music that he can use without having to pay a licensing fee (how can you copyright a switch setting?). The switch settings on the Muse cover a wide variety of tempos, from a dirgelike slowness to a bubbling, slurring rapidity in which it is difficult to make out individual notes. And because the switch settings are independent, the tones do not vary in pitch when things are speeded up—as would be true if you sped up a conventional recording—or slowed it down. This could be a great boon in trying to match music to action.

The music has an "electronic" sound to it, which is only natural. It tends to sound a little Bach-y, due in part, I suppose, to the mathematical nature of its generating program. A solo Muse would not be adequate for every conceivable situation in a motion picture, but for many motion pictures, it has a great versatility.

In addition, the Muse need not be used alone. It is designed so that more than one Muse can be connected together to permit "duets," and to create harmony. A multiple Muse arrangement can extend the range and variation of possible tunes appreciably.

One producer I know has recently discovered the Muse (he has three), and he often uses his in conjunction with other electronic sounds. A Muse generating an appropriate melody can be quite effective when paired with a signal generator performing a frequency sweep. The output of a Muse fed through a reverberation unit or a "fuzz box" can also spice up the basic sound. The Muse can even play a duet with itself by use of a multiple track tape recorder, if your budget is limited, but such an approach denies a common control to the "two" Muses, and could result in less pleasant music than an "integrated" duet.

The Muse is a highly useful and flexible tool. Finding tunes is done pretty much on a trial-and-error basis. You set its switches, and if you like the results, you note down the switch settings. Since the Muse is actually generating the tunes by programming, identical switch settings will produce identical tunes—tunes that start in the same place and continue exactly the same way. Thus, each tune (no matter how long) can be described and defined simply by noting eight to ten switch positions on a file card or in a notebook.

A Muse costs relatively little, only a few hundred dollars. Considering the cost of needle-down fees, a score or two of Muse tunes will pay for the machine in terms of saved fees. From then on, it's "gravy".

But a word of caution. A Muse will not be suitable for every musical situation (I'd hate to try using it to perform a musical introduction in a historical film just before two knights joust). But used properly, it is a highly useful addition for a production company to employ. ■



## "THE BEST CAMERA ANGLES"

Continued from Page 1125

Then, to prepare for the actual trip down there, I made up an extra sync cable, a short one. Most of them are usually 15 to 25 feet long, so I made up a 10-foot sync cable and a short microphone cable because George was going to be doing the sound and booming and we would generally be working fairly close together when shooting sync-sound sequences. Since we wouldn't have crystal-control, I made up the short sync cable and a short mike cable, so that there would be less cable to trip over. I also provided back-up for all the things that are most likely to fail: extra power cord, extra batteries and filters, plus lots of lens cleaner. We also took along a second camera, the Bolex, which we used for the MOS stuff and the more risky things, just to protect the Eclair from getting damaged. On the Bolex there was only a 10mm and a 25mm and a zoom lens, which I didn't use because I had not had that lens checked out and I wouldn't want to risk a lens that I didn't know.

The Bolex was a non-reflex camera mounting an old zoom lens with a side

finder. I didn't know until I met George that he had gotten a non-reflex Bolex or I could have brought several other C-mount lenses, which I would have preferred to do. And even with the Eclair, if we had had an assistant and all-purpose grip, I would have preferred to use prime lenses, because as convenient as a zoom lens is, you sacrifice quality. Even the best zoom lens is not quite as sharp as a good prime lens. Although I really believe in shooting with a minimal crew (because you make the least impact on your subjects and less disruption of the surroundings with a very small crew), I think we could have used a camera assistant-grip combination person. As it was, we had to make a lot of compromises because of the mobility problem down there in the village, having to walk anywhere up to two or three miles through the dust and in 98 to 105 degrees of heat and high humidity.

The carrying along of a tripod head just got to be physically impossible, so I felt that I had to compromise. I'd much rather use a tripod on a lot of the stuff that was relatively static rather than hand-hold the camera, because I don't believe in hand-holding just for the sake of hand-holding it. But because of not

having the extra person along we had to shoot almost all of the film hand-held.

Despite the inconvenience of having to work short-handed in this particular case, I still feel, generally, that the smaller the crew the better—particularly when you are shooting documentary. On the Indian reservations, many of the people are abnormally reticent about being photographed, and a large crew would have really disturbed them. So it was one of those times when, although I felt we were one man short, I preferred to do it the way we did, rather than risk causing a problem by using a larger crew.

For our sound coverage, in conjunction with the Nagra III recorder, I decided to use an AKG D-900 shotgun microphone (which is a dynamic mike), rather than a Sennheiser 804 or 404—primarily because, in my opinion, the AKG is a little bit more rugged for use under harsh field conditions. The Sennheisers record crisper sound and the general quality is better—but, as fine as they are, I personally wish they could make them a bit tougher. Actually, it's not the microphones themselves, but the soldered three-pin accessory connections that sometimes cause problems in

Continued on Page 1166

# SPECIAL EFFECTS from TIFFEN

(and now at your local cine dealer!)



## 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; 8-point in 2mm and 3mm grids. Supplied in series sizes, direct screw-in rotating mounts, 4 1/2" diameter, squares and rectangles.



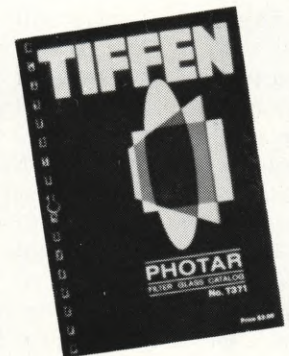
## FOG EFFECT

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" diameter and squares.



## SPLIT-FIELD LENS

Tiffen Split-Field lenses are available for that special shot where "near/far" focusing is necessary. One-half of the Split-Field lens is a +1/2, +1, +2, +3 or +4 diopter. Available in series sizes, 4 1/2" diameter and direct screw-in rotating mounts.



## PHOTAR FILTER GLASS CATALOG No. T371

For the professional, advanced and amateur photographer. Describes characteristics of Photar glass filters, the DecaMired system, and spectral transmittance curves of all Photar color filters.

Send \$2.00 plus .50 for postage and handling to Dept. AC871.



# TIFFEN OPTICAL COMPANY

71 Jane Street, Roslyn Heights, L.I., N.Y. 11577

Selected by NASA for Apollo flights and earth resources programs

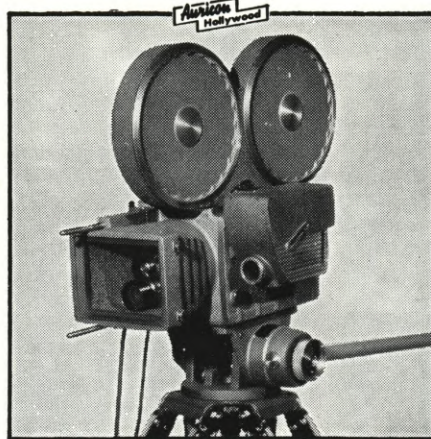


# AURICON 16mm Sound-On-Film for Professional Results!



ALL AURICON EQUIPMENT IS SOLD WITH A 30 DAY MONEY-BACK GUARANTEE.

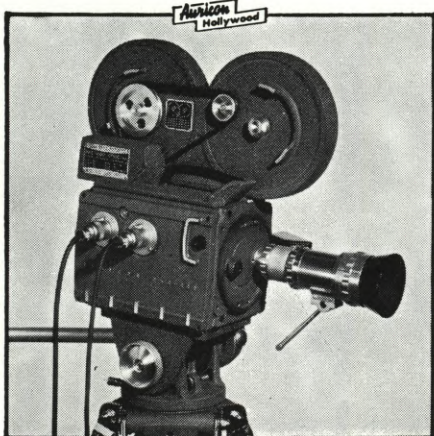
**"CINE-VOICE II" 16mm Optical Sound-On-Film Camera.**  
 ★ 100 ft. film capacity for 2¾ minutes of recording; 6-Volt DC Converter or 115-Volt AC operation. ★ \$1180.00 (and up).



**"AURICON PRO-600" 16mm Optical Sound-On-Film Camera.**  
 ★ 600 ft. film capacity for 16½ minutes of recording. ★ \$1820.00 (and up) with 30 day money-back guarantee.



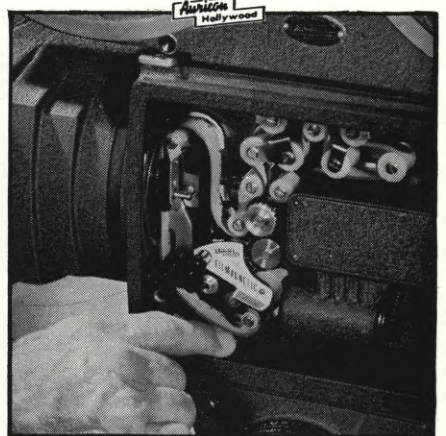
**"SUPER 1200" 16mm Optical Sound-On-Film Camera.**  
 ★ 1200 ft. film capacity for 33 minutes of recording. ★ \$6425.00 (and up) complete for "High-Fidelity" Talking Pictures.



**"PRO-600 SPECIAL" 16mm Light-Weight Camera.**  
 ★ 400 ft. film capacity for 11 minutes of recording. ★ \$1620.00 (and up).



**PORTABLE POWER SUPPLY UNIT — Model PS-21...** Silent in operation, furnishes 115-Volt AC power to drive "Single System" or "Double System" Auricon Equipment from 12 Volt Storage Battery, for remote "location" filming. ★ \$337.00



**FILMAGNETIC** — Finger points to Magnetic pre-stripe on unexposed film for recording lip-synchronized magnetic sound with your picture. Can be used with all Auricon Cameras. ★ \$1325.00 (and up).



**TRIPOD — Models FT-10 and FT-10S12...** Pan-Tilt Head Professional Tripod for velvet-smooth action. Perfectly counter-balanced to prevent Camera "dumping." ★ \$406.25 (and up).

## Strictly for Profit CHOOSE AURICON

If it's profit you're after in the production of 16 mm Sound-On Film Talking Pictures, Auricon Cameras provide ideal working tools for shooting profitable Television Newsreels, film commercials, inserts, and local candid-camera programming. Now you can get Lip-Synchronized Optical or Magnetic Sound WITH your picture using Auricon 16 mm Sound-On-Film Cameras. Precision designed and built to "take it."

Strictly for Profit—Choose Auricon!



## BACH AURICON, Inc.

8902 Romaine Street, Hollywood 38, Calif  
 HOLLYWOOD 2-0931



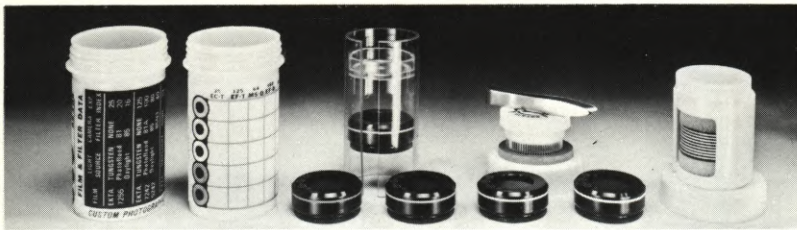
Write for your free copy of this 74-page Auricon Catalog



★ Auricon Equipment is sold with a 30-day Money-Back Guarantee. You must be satisfied.

MANUFACTURERS OF PROFESSIONAL 16MM CAMERAS SINCE 1931





For  
**ANGENIEUX**  
Lenses:

- 9.5-95
- 12.5-75
- 12-120
- 12-240



**BEHIND-THE-LENS FILTER HOLDERS THAT FIT ALL ANGENIEUX ZOOM LENSES**

having either type of Arriflex mount – the regular or the steel bayonet, including the BL and the BL with the new Arri Precision Exposure Control; or with the Eclair mount for the NPR and CM3 cameras. Our type AE3GS holder is designed for use with any of this 16 mm equipment.

FOR 35 MM CAMERAS – We make the BTL35A for the 25-250 and 35-140 for use on all 35 mm Arriflex and Eclair CM3 cameras.

For better image quality – a gel filter introduces less optical interference.

Have the convenience of a full inventory of filters to meet any filter situation – all at little expense.

THESE FILTER HOLDERS AND KITS ARE REALISTICALLY DESIGNED THROUGHOUT TO OFFER THE UTMOST IN CONVENIENCE AND USEFULNESS FOR THE PROFESSIONAL CAMERAMAN.

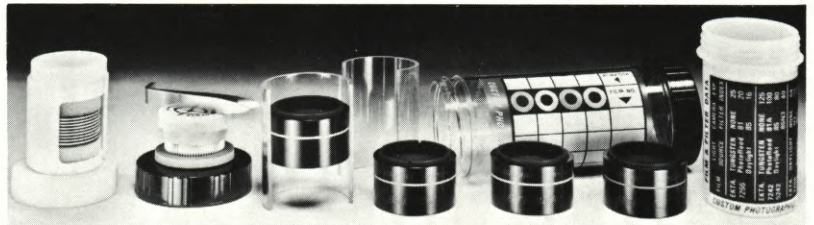
A two inch square of Wratten filter gel will make four filters for either type holder. Each holder has a ring of color to identify its place on a filter holder data chart where you can write in the exposure index for the films with which you will want to use it. The holders also have spacers to prevent Newton rings when more than one gel is used to make up a combination filter. They are packaged in kits with gel cutter, tweezers and indexed container for extra gels which has places for eight in each of nine compartments.

And there is a FILM & FILTER DATA CHART for handy reference.



For  
**ANGENIEUX**

**25-250**  
**35-140**  
Type  
**BTL35A**



Ask for brochures

Prices include AIR MAIL shipment same day to anywhere in U.S. & foreign.

Type BTL35A –  
FOUR holders with kit . . . . . \$65.00

Type AE3GS –  
FIVE holders with kit . . . . . \$45.00  
FOUR holders with kit . . . . . 40.00

**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

*Century* Precision Cine/Optics

**24th**  
**Anniversary**  
**SALE**



**12-120mm ANGENIEUX**  
**Optimized Grade AA**  
**for absolute maximum**  
**resolving power**

12-120mm ANGENIEUX ZOOM with 7-1/2" Viewfinder . . . . .	1,075.00
12-120mm ANGENIEUX ZOOM with Century Short Viewfinder . . . . .	1,300.00
DATA RINGS for 12-120mm Angenieux with lens . . . . .	49.50
DATA RINGS for Angenieux without lens . . . . .	59.50
DATA RINGS for 9.5-95mm . . . . .	75.00
CENTURY T.V. CUT-OFF RETICLE - INSTALLED with lens . . . . .	65.00
CENTURY T.V. CUT-OFF RETICLE - INSTALLED to your lens . . . . .	74.00
MEDIUM LARGE LENS SHADE . . . . .	14.50
CENTURY SNAP-ON FILTER ADAPTER . . . . .	14.50
SERIES 9 #85 GRADE AA FILTER . . . . .	22.50

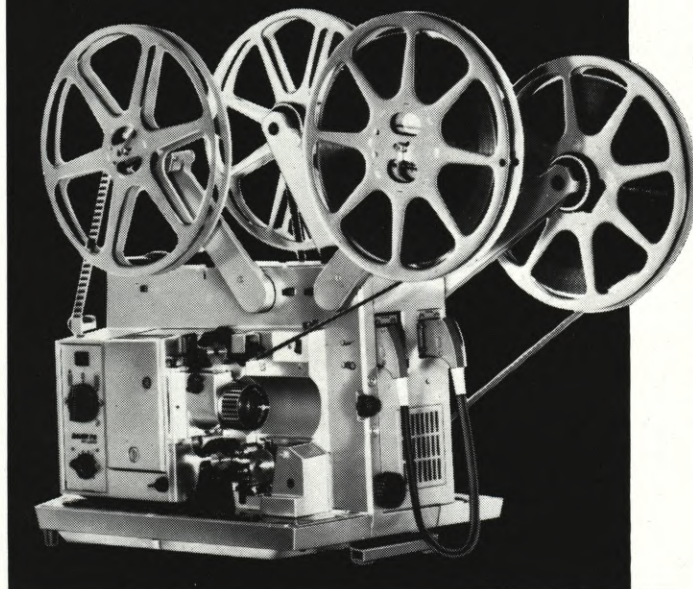
Order Directly from our Plant - All items are fully guaranteed

10661 BURBANK BLVD. NORTH HOLLYWOOD, CALIFORNIA 91601 (213) 766-3715



Bauer introduces  
the P6 Studio:

## AN ADVANCED DOUBLE-SYSTEM 16MM SOUND PROJECTOR.



You know what a double-system projector can do for you. The P6 Studio, with its advanced-design 16mm projector and hi-fi magnetic recording deck interlocked on one portable chassis, can do it better!

Use it to assure perfect lip sync; as a preview and editing projector for TV and theatre screenings; as a multi-lingual projector and 25-watt portable sound studio!

The P6 Studio also offers you: Optical-magnetic playback and magnetic record on the film deck; magnetic record-playback on edge track or center track on the audio deck. Sound-on-sound. Sound transfer. Synchronous motor. And much more!

**Bauer P6 Synchron.** Sync motor for critical TV work. For synchronizing with tape recorders. Manual threading. Optical playback, magnetic record-playback.

**Bauer P6 Automatic 300.** Super-quiet and super-bright. Uses the G.E. Marc-300\* lamp (almost 4 times brighter than conventional tungsten lamps). Optional change-over device permits continuous showing of any length film.

**Bauer P6 Automatic.** A superb A-V projector. Self-threading, with optical playback, magnetic record-playback. Sound-on-sound facilities.

\*TM—General Electric



ALLIED IMPEX CORP. DIVISION OF AIC PHOTO, INC.  
168 GLEN COVE ROAD, CARLE PLACE, N.Y. 11514

\*Bauer, a Reg. TM of Robert Bosch Photokino GmbH

For more information, write Dept. AC-11

# Super 8

Super Quality  
Super Service

Super Sound  
Super Delivery

Send today for your free copy of this informative "Colburn Comments on Super 8" booklet.



GEO. W. COLBURN LABORATORY, INC.

164 NORTH WACKER DRIVE • CHICAGO, ILL. 60606 • 332-6286

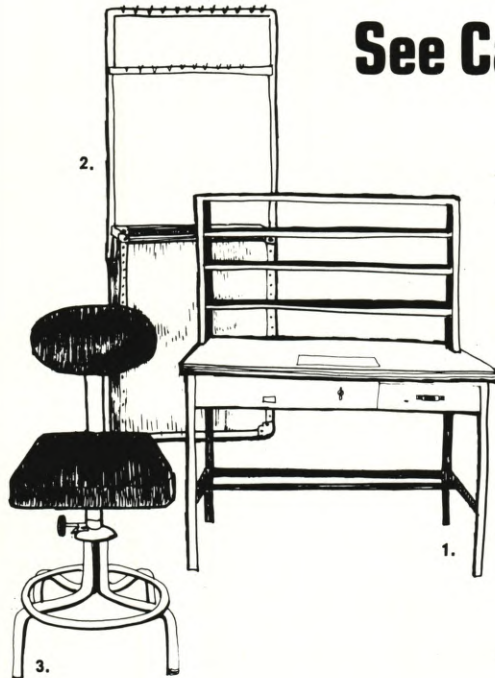
COMPLETE LABORATORY SERVICE FOR 16MM / EDITING / RECORDING / WORK PRINTS / SUPER 8, 8MM & 16MM RELEASE PRINTING / TITLING / 35MM SLIDE AND FILMSTRIP SERVICE





# 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 \$139.95, without light box \$119.95, other sizes, prices on request. (Packing charge for deliveries outside New York City Area.)

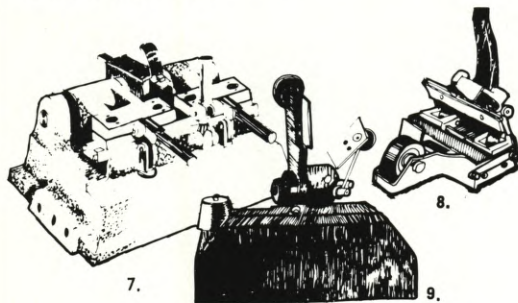
**2. CAMART FILM BIN** • Rectangular construction—30" x 24" x 12" • Vulcanized fiber with reinforced metal frame • Double-row racks. Complete with rack and scratch-proof liner. With skids \$49.00, with casters \$56.00

**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 \$39.25, with casters \$42.65.

**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. \$180.

**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 \$140.

**6. MOVIOLA OPTICAL SOUND READER MODEL SRB—35 mm—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 \$369. Model 116-8/16 mm \$264. Model 8/16S-\$314.

**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 \$155 35mm Model \$180

**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 \$165. diagonal \$175.

For Editing Equipment catalog write:



**The Camera Mart Inc.**  
456 W. 55th St., (Bet. 9th & 10th Aves.)  
New York, N. Y. 10019 Phone: (212) 757-6977

"DIRECTED BY JOHN FORD"

Continued from Page 1141

in making the dupe negatives for the clips from CHEYENNE AUTUMN and THE SEARCHERS, but both of these pictures posed additional problems. CHEYENNE AUTUMN was shot in 70mm Panavision with an aspect ratio which was not compatible with the format of our film. The aspect ratio selected for our documentary was 1.33:1, since it was destined primarily for 16mm and perhaps television release. Also, most of Ford's films from which excerpts had been taken were shot in 1.33:1. There was a good bit of debate as to how wide-screen clips should be incorporated into the film. Bogdanovich felt that it was important to retain the wide-screen composition within the 1.33 frame, and in the case of pictures with a 1.85:1 format, this was done by simply leaving a black border at the top and bottom of the frame. With CHEYENNE AUTUMN, however, the problem was more complicated because making a negative with the picture area unsqueezed and stretched across the middle of our frame would have required an elaborate optical printer set up. If the dupe negative were to be a CRI from the camera negative it would have been necessary to make mattes in order to get black borders at the top and bottom of the frame rather than clear borders. In the end, since the two short clips from CHEYENNE AUTUMN would have been the only clips in the picture using this format and it was felt that the radical change in format might distract from the flow of the sequence in which the clips were used, we decided to make the dupe negatives from a scanned dupe negative that had already been made for television release of the picture.

In the case of THE SEARCHERS, we had problems getting a good CRI dupe negative, the reason for which I have yet to understand fully. Our frustrations were doubled by the fact that the workprint we had used for selecting the clips was beautiful. THE SEARCHERS was shot in VistaVision, which means that the negative consisted of a horizontal format on 35mm film that was slightly reduced to make a normal 1.85:1 or 1.66:1 release print. The workprint we had was replacement footage made, I believe, from a 35mm dupe negative designed for making television prints of the picture. It had an aspect ratio closer to 1.66:1 than 1.85:1 and excellent color quality. When the time came to order the dupe negative for our clips I felt confident we could get a CRI



# AMERICAN CINEMATOGRAPHER MANUAL

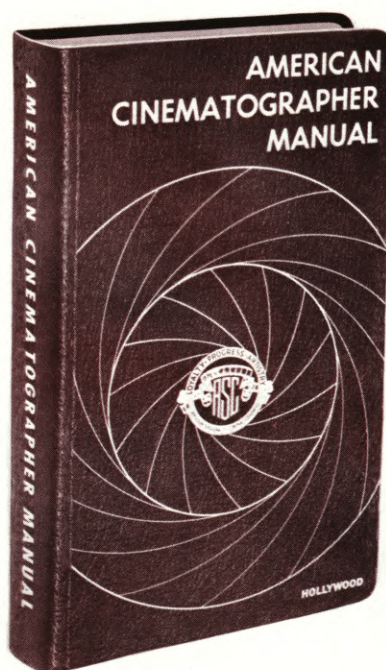
COMPILED AND  
EDITED BY

Two Veteran Cinematographers  
ARTHUR C. MILLER, A.S.C.

AND

WALTER STRENGE, A.S.C.

THIRD EDITION



OFFICIAL PUBLICATION



AMERICAN SOCIETY OF CINEMATOGRAPHERS

THE AMERICAN CINEMATOGRAPHER MANUAL  
P.O. BOX 2230  
HOLLYWOOD, CALIFORNIA 90028

THIRD EDITION

Please send \_\_\_\_\_ copies of the AMERICAN CINEMATOGRAPHER MANUAL @ 15.00 each, postpaid. No C.O.D.'s.

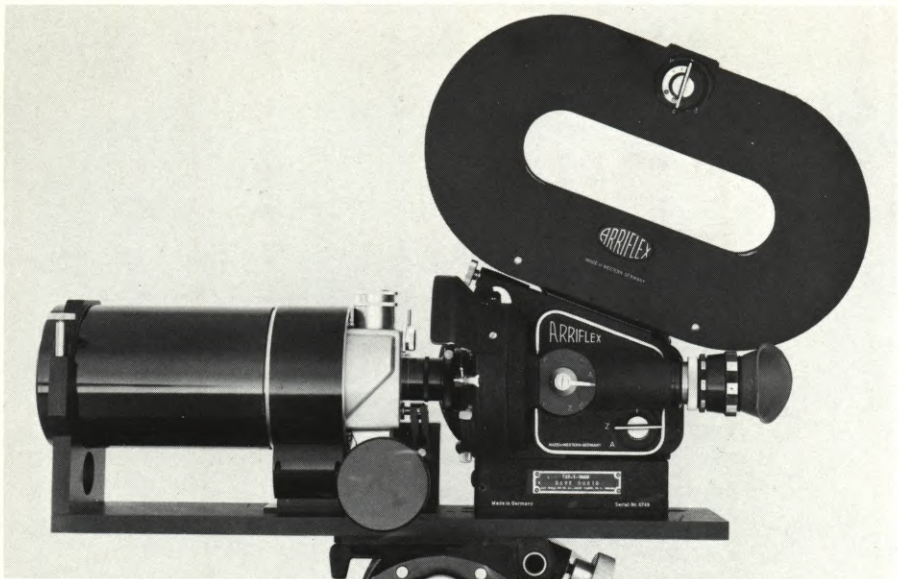
NAME .....

STREET .....

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

California residents please remit 5% Sales Tax (.75 per Manual).  
Foreign Buyers please pay by International Money Order or U.S. Funds





## THE QUESTAR CINEMA MODEL

can focus  
from the craters  
of the moon  
to the eye of a fly  
... *instantly!*

Questar, with the assistance of famed cinema photographer David Quaid, has redesigned the focusing mechanism of its world-reknown telescope especially for the professional cameraman. Now this lens system, the only one in the world of 1400 mm. focal length that can focus from 8 feet to infinity, permits the cinematographer to adjust his focus from an extreme telephoto situation to a macro-closeup within the same film take. And all of this, the barrel containing the optical system, the control box, and the beautifully engineered system of controls, all mounted on a supporting platform, is light in weight. Moreover, it is possible to mount the Questar system on the Arriflex 35 mm. camera in approximately the same time required to mount a conventional lens.

The great thing about this system, David Quaid says, is that it will permit the cinematographer to do something that nothing else in the world will let him do. For example, from a distance of 8 or 10 feet, he can pick up an ant full screen, balanced on the tip of a blade of grass, and as the ant begins to move he pans, keeping it in exact focus as it crosses over to a tall tree and then climbs to its very topmost branch, the whole trip in perfect focus. He may then, if he wishes, switch to a woodland a mile away and focus sharply and instantly on leaves swaying in the breeze.

The precise engineering that has gone into this equipment makes it virtually vibration-free. It can be used not only with the Arri 35, but with 16 mm. reflex cameras. Special accessories are available, such as the Questar Calibrated Follow-Focus Gauge, a Barlow lens to increase the size of a distant object on the film, a positive lens which will diminish the size while increasing the light on a nearby object, and an aerial-image groundglass.

David Quaid says that the prototype of the Questar Cinema Model was used in producing several of the award-winning films made by David Quaid Productions.

© QUESTAR CORPORATION 1971  
All Rights Reserved

Questar, world's finest, most versatile telescope, is described in our booklet containing photographs by Questar owners that demonstrate its superb resolution. Send \$1 for mailing in N. America. By air elsewhere in West. hemisphere, Europe, N. Africa, \$3. Others, \$3.50.

# QUESTAR

BOX 100, NEW HOPE, PENNSYLVANIA 18938

from this negative which would yield a print comparable to our workprint. For some reason we were not able to. The lab, first of all, had problems achieving a density that would print well and then there were problems with irregularities along the frame line caused by the liquid in the wet gate optical printer. Normally these defects, which looked like stains of some sort, might have been cropped in projection, but in our case they are visible on the screen since the picture does not fill the 1.33:1 frame.

For a scene from *THE QUIET MAN* the dupe negative was made from separation positives which had been made for preservation purposes. Making a dupe negative from separation positives is an expensive procedure, but it can yield excellent results as it did in the case of our clip from *THE QUIET MAN*. If a picture was photographed some time ago on color negative, a dupe negative from separation positives might yield better color than a CRI from the original negative since the dyes in the original negative may have faded. With the other color clips from *DRUMS ALONG THE MOHAWK*, *SHE WORE A YELLOW RIBBON*, and *THE BATTLE OF MIDWAY* we made the dupe negative from a release print. While this is obviously not the best way to make a dupe negative, it can, in certain instances, yield surprisingly good results. It can also be disastrous.

*DRUMS ALONG THE MOHAWK* and *SHE WORE A YELLOW RIBBON* were shot in the three-strip Technicolor process. Originally we had planned to make a CRI dupe negative from the original camera separation negatives. The technicians at C.F.I. told us that, while they had not actually done this, they felt confident that it would be possible to get an excellent negative this way. Then the negatives were found to be nitrate, which meant that C.F.I. could not work with them. It would be necessary to make separation positives on safety stock, which C.F.I. could then use to make a dupe negative. We became wary of the costs involved and began looking for another method.

It was suggested that in a documentary of this sort the customary procedure was simply to make a dupe negative from a color release print. C.F.I. told us that they had done this for the clips used in the Academy Award presentations. We tried it with a clip from Ford's 1952 version of *WHAT PRICE GLORY* and got very good results. This particular clip was later eliminated from the picture, but it encouraged us to try the same approach with *DRUMS ALONG THE MOHAWK* and *SHE WORE A*



**YELLOW RIBBON.** The problem was that there were no 35mm prints of these films available in this country. In order to proceed with the editing, we made black and white autopositive blow-ups of the clips from 16mm prints. Even a 16mm print of *SHE WORE A YELLOW RIBBON* was hard to come by, but we managed to borrow John Ford's personal print.

David Shepard finally prevailed upon a friend at the BBC in London to make their 35mm prints of the films available for duping but, of course, the lab work would have to be done in London and communications were hampered by the postal strike. We were ready to begin negative cutting when the dupe negatives finally arrived, and we were distressed to discover not only that one clip was about ten feet too short, but also that the color was almost completely drained out of the scenes. Proper timing of the negatives helped some, but the results are still disappointing. Acceptable color dupe negatives can be made from good release prints, but the exposure and processing of the negative is extremely critical.

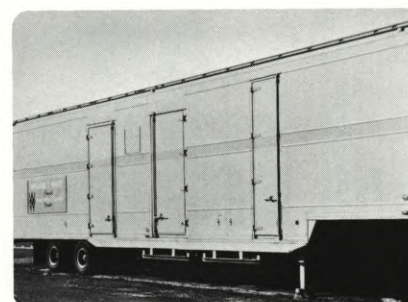
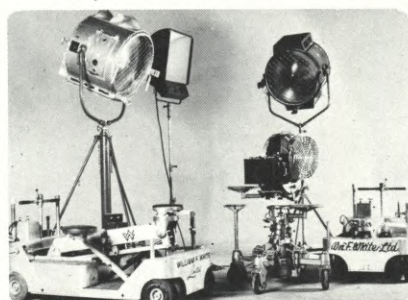
**THE BATTLE OF MIDWAY** was, I believe, shot on 16mm Kodachrome. The only material we had to work from was a 35mm nitrate Technicolor blow-up owned by the Academy. The print was scratch-tested and a dupe negative made by Foto Kem, which produced surprisingly good color in our release prints.

The editing of the picture was done at the American Film Institute Center for Advanced Film Studies using a Steenbeck editing table. The Steenbeck was ideally suited to this kind of work since I was working mostly with long sections of film rather than building sequences from very short cuts. The first assembly of material was over five hours long, and the fact that the Steenbeck can handle 2000 foot reels of picture and track and is capable of fast-forward and rewind greatly facilitated the cutting.

The structure for the picture evolved gradually during the course of the editing. Bogdanovich knew how he wanted the picture to start, and he knew that the last portion would sketch John Ford's history of the United States, but the middle portion of the film dealing with Ford's style and his working methods had to be constructed by trial and error. Bogdanovich wanted the film to have an informal, conversational tone to it and to be entertaining rather than pedantic or academic. To achieve this it was necessary to find just the right rhythm for the editing and, needless to

# SHOOTING IN CANADA?

## MOTION PICTURE & TV EQUIPMENT SALES · RENTAL · SERVICE



- CAMERAS AND ACCESSORIES
- LIGHTING EQUIPMENT
- GRIP EQUIPMENT
- GENERATORS
- CAMERA CARS
- SPYDERS, DOLLIES & CRANES
- SOUND EQUIPMENT
- MOBILE TRAILERS
- COMPLETE STAGE FACILITIES
- PRODUCTION STORES
- EQUIPMENT SALES

WRITE OR PHONE FOR CATALOGUE



**WILLIAM F. WHITE LIMITED**

356 Munster Ave., Toronto 18, Ontario. Tel. (416) 231-6569  
 1382 Main Street, North Vancouver, B.C. Tel. (604) 980-3022  
 SALES OFFICE: 41 SCOLLARD ST., TORONTO 5, ONTARIO. Tel. (416) 920-2600





## **SPECTRA® PROFESSIONAL**

**WHERE THE PROS GO!**

For their PROFESSIONAL STANDARD incident light exposure meter . . . DIRECT READING f STOPS OR FOOTCANDLES. . . LARGE EASY-TO-READ SCALE.

**Featured at these leading dealers:**

### **ALABAMA**

**MOBILE**  
Van's Photo Supply

### **CALIFORNIA**

**HOLLYWOOD**  
Birns & Sawyer Cine Equipment  
Alan Gordon Enterprises  
F & B Ceco of California  
Lloyd's Camera Exchange  
Mel Pierce Camera  
Jack Pill & Associates  
Schaeffer Photo & Camera Supply, Inc.

### **LOS ANGELES**

American Camera Exchange  
Bel Air Camera  
Campus Camera  
Bob Gamble Photo Supply  
Pan Pacific Camera Center

### **SAN FRANCISCO**

Brooks Cameras  
Adolph Gasser's Inc. Hobby Center

### **SAN JOSE**

Royal Camera  
San Jose Camera

### **SAN MATEO**

Foreman's Cameras

### **SANTA BARBARA**

Anderson Camera  
E. B. Enterprises Inc.

### **STUDIO CITY**

Harry's Camera  
Studio City Camera Exchange

### **COLORADO**

**BOULDER**  
Mike's Camera Inc.

### **DENVER**

Western Cine Service, Inc.

### **FLORIDA**

**MIAMI**  
Camera South Company

### **ORLANDO**

Champagne Color Inc.

### **HAWAII**

**HONOLULU**  
Anderson's Camera House  
Central Camera  
Francis Camera  
Hawaii Camera

### **ILLINOIS**

**CHICAGO**  
Altman Camera Co. Inc.  
Behren's Inc.  
Helix, Inc.  
Standard Photo Supply Co.

### **LOUISIANA**

**NEW ORLEANS**  
Pan American Films

### **MASSACHUSETTS**

**BOSTON**  
Copley Camera Shop Inc.

**CAMBRIDGE**  
Ferranti-Dege, Inc.

### **MICHIGAN**

**DETROIT**  
Victor Duncan, Inc.

### **MISSOURI**

**ST. LOUIS**  
W. Schiller & Co.  
St. Louis Photo Supply

### **MINNESOTA**

**MINNEAPOLIS**  
Treck Photographic Inc.

### **NEW JERSEY**

**TRENTON**  
Moyers Photo Shop, Inc.

### **NEW YORK**

**NEW YORK CITY**  
Advance Camera  
Alkit Camera  
Belin Radio  
Camera Mart  
Camera Sales Center Corp.  
Cine 60 Inc.  
Empire Exposure Meter Service  
F & B Ceco  
Ferro Inc.  
47th Street Photo  
General Camera Corp.  
Motion Picture Camera Supply  
Olden Camera  
Photo Equipment Repair  
Royaltone Inc.  
Treck Photographic Inc.  
Valen B. Peters  
Willoughby-Peerless Inc.

### **OHIO**

**CINCINNATI**  
Western Hills Camera Co.

### **OKLAHOMA**

**TULSA**  
Engler Photo Supply

### **PENNSYLVANIA**

**PHILADELPHIA**  
Calvin Cinequip Inc.  
O. H. Hirt Inc.  
Peerless Camera  
Williams Brown & Earle

### **PITTSBURGH**

Motion Picture Equipment Co.  
Peerless Camera

### **TENNESSEE**

**NASHVILLE**  
McGinnis Inc.

### **TEXAS**

**DALLAS**  
Professional Cine Products  
Universal Cine Products

### **HOUSTON**

Motion Picture Equipment Co.  
Southside Camera Center

### **WASHINGTON**

**SEATTLE**  
Glazers  
Treck Photographic

### **WASHINGTON, D.C.**

Barker's Photo Supply Inc.  
Brenner Photo Co.  
Penn Camera Exchange Inc.

### **WISCONSIN**

**MILWAUKEE**  
Photoart Visual Service Inc.

say, many clips and moments from the interviews had to be sacrificed in the process.

Most of the sound transferring and the final mixing of the tracks were also done at the A.F.I. Center for Advanced Film Studies. The scoring for the silent clips was done by Gaylord Carter on the huge Wurlitzer organ in the home of Richard Simonton, and Orson Welles' reading of the narration was recorded once the fine cut was completed.

In order to superimpose the titles of pictures over scenes to identify the clips, we decided to use what is essentially a bi-pack printing technique in which a reel containing opaque titles on a clear base is run through the printer with the cut negative. This is a technique which is often used for making subtitles for foreign language pictures, and it saved us from having to go an extra generation or two in order to have the subtitles built into the dupe negatives. It is not, however, a completely reliable method for making 16mm reduction prints or a 16mm CRI negative from the 35mm negative as the lettering has a tendency to become illegible.

The production of DIRECTED BY JOHN FORD was fraught with difficulties and we were forced to make compromises all along the line. The results, however, were extremely successful, and everyone involved is quite pleased with the picture. It was presented at the Venice, New York, and San Francisco film festivals, and it is hoped that the reception it has received will make possible a series of similar films. To anyone embarking on such a project I would offer the following suggestions:

1) The more tightly the film is scripted the less it will cost. Some of the decisions that we made in the course of the editing could probably have been made at the scripting stage. When clips are being considered for inclusion, their running time can be carefully calculated, and it will probably be possible to keep the cutting ratio for the clips as low as two-to-one.

2) The budget should definitely include a substantial sum to cover the acquisition of the rights to the clips. The sources for the clips and the costs should be thoroughly investigated before the budget is finalized. This, of course, will vary according to the use for which the picture is intended. Commercial rights are more expensive than non-theatrical or educational rights.

3) Considerable expense can be saved by producing the picture in 16mm rather than 35mm, and the image quality will probably not suffer significantly. Many old pictures are much more readi-

**PHOTO  RESEARCH**

Division of Kollmorgen Corporation  
3000 No. Hollywood Way • Burbank, Calif. 91505

Distributed by SCOPUS, Inc.  
Box 1070, Woodside, New York

A DIVISION OF  
**Berkey**  
PHOTO INC. 



ly available in 16mm, so that the task of getting workprint for the clips will not be so great, and when the time comes for negative assembly reduction dupe negatives can be made from 35mm materials to insure optimum quality. Even if the picture is intended to be released in 35mm, it would probably be worth shooting the interviews and editing the picture in 16mm. When the time came for negative assembly, 35mm blow-up negatives could be made for the interview sections and 35mm negatives ordered for the clips. The image quality of the interview footage could be comparable to the quality in the best clips if the interviews are carefully photographed.

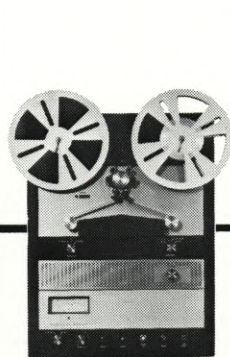
4) If the picture is intended purely for television, it might be worth investigating the possibility of using video tape for the final stages of the production. Rather than making dupe negatives, it might be better to transfer clips from good release prints directly to video tape.

5) The production should be scheduled so as to allow ample time for making dupe negatives after the fine cut has been completed. Editing should be done with dirty dupes from prints or with replacement footage. If dupe negatives are not ordered until after the fine cut is completed, any optical effects or superimposed titles can be built into the negative. At least a month should be allowed for making the dupe negatives, and the availability of printing materials should be determined well in advance.

6) The sound track for the clips should ideally be made from the magnetic or optical master and, in some cases, it might be helpful if the music track for a clip can be obtained separately. For the most part, however, a good 35mm release print can be used to make a satisfactory magnetic track. Transferring sound from a 16mm print should be avoided for anything other than a temporary track.

7) Finally, and most important, everything possible should be done to insure good communications with the laboratory. The image quality in a picture of this sort is almost wholly dependent upon lab work, and the lab should be consulted well in advance concerning the problems involved in making the dupe negatives. The editor or someone overseeing the production should be thoroughly familiar with all of the laboratory procedures that will be involved and, preferably, he should have experience in film preservation work so that he can know what kind of quality it is possible to get with dupe negatives of very old pictures. ■

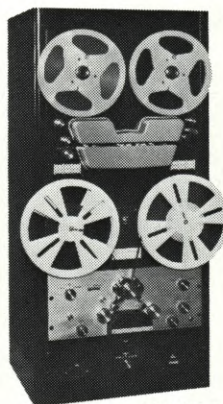
## MAGNASYNC SOUND EQUIPMENT FOR MOTION PICTURES & TELEVISION



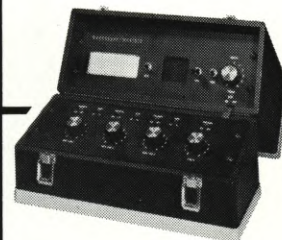
MODEL 2300-R



MODEL 230



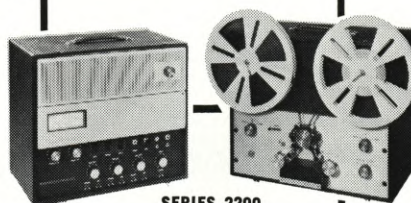
SERIES 2500



MODEL 250



SERIES 900



SERIES 2200

**MODEL 2300-R SOLID STATE DISPLACEMENT RECORDER** — makes single system editing possible. Automatically re-positions the sound track of a processed 16mm single-system release print film to "editors sync" . . . sound and corresponding picture "in line" . . . for rapid, accurate editing, and then automatically re-positions sound track to "printer's sync" or "projection sync" for immediate projection. The unit may be interlocked with other magnetic film recording equipment and projectors including conventional TV chain projectors. \$2495.00

**MODEL 230 MIXER — NAGRA COMPATIBLE SOLID STATE MICROPHONE MIXER** — Specifically designed to conform to the input characteristics of the Nagra 1/4" tape recorder, with special consideration given to their aesthetic compatibility. \$395.00

**SERIES 2500 SOLID STATE TRANSFER SYSTEM** — 16mm, 17.5mm or 35mm synchronous magnetic film. Unit consists of a heavy-duty quarter-inch magnetic-tape reproducer, a solid state sync pulse amplifier, and a sprocket magnetic film recorder/reproducer, all mounted in a single rack cabinet. This system is capable of transferring a pre-recorded quarter-inch tape to sprocketed film without tying up the field recorder. From \$4650.00

**SERIES 2200 SOLID STATE PORTABLE RECORDER** — for 16mm, 17.5mm or 35mm synchronous magnetic film. Utilizes Magnasync Transport Mechanism. Available with all standard film speeds and voltages for complete international compatibility. Extremely versatile input switching circuits allow use of three low or high level microphones and line, or up to four line inputs. Input and output transformers on all channels for complete isolation and minimum noise. Modular plug in construction. The unique "quick slip" head cover permits sync marking directly over head gap. From \$2775.00

**MODEL 250 — SOLID STATE PORTABLE FOUR CHANNEL MICROPHONE MIXER** — is designed for motion picture sound recording and remote broadcast transmission. The high level mixer features dialogue equalization on each incoming channel, master gain control, built-in microphone talk-back system. Versatile input circuitry allows various combinations of microphones and lines (high & low level) to be mixed. Portable. Self contained rechargeable batteries provide economical operation where A.C. power is not available. \$795.00

**SERIES 900 SOLID STATE STUDIO MIXING CONSOLE** — Features non-obsolete solid state circuitry, modular construction. This unit is capable of fulfilling the requirements of any studio . . . large or small. Other special features include up to 12 microphone or line inputs, complete 6-position equalization with echo send and cue on each input channel, up to 4 program output channels with large illuminated VU meters and echo & cue channels as required. \$5255.00

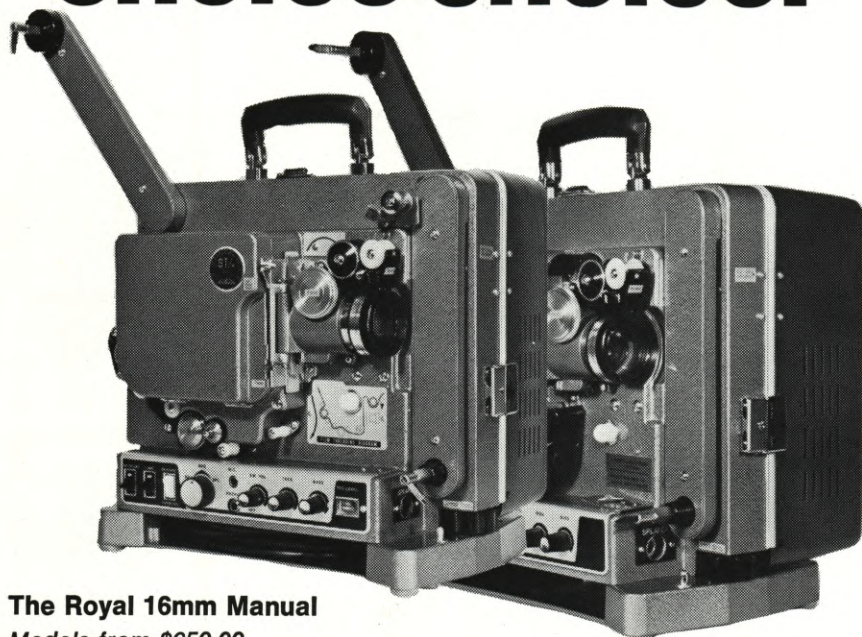
Send for complete information & descriptive literature.



**THE CAMERA MART INC.**  
456 W. 55th ST., NEW YORK, N. Y. 10019 • (212) 757-6977  
RENTALS ○ SALES ○ SERVICE



# now there's a choice choice.



**The Royal 16mm Manual**

Models from \$650.00

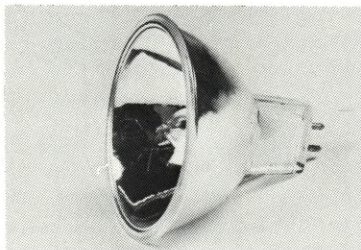
**The Royal 16mm Self Threader**

Unique features on both projectors:

## HIGH POWER LAMP

### TWICE AS BRIGHT

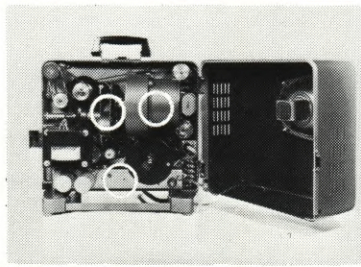
Newly designed General Electric or Sylvania EJL200 W, 24 V Halogen lamps produce double the screen brightness of 1000 W Tungsten lamp. Won't blacken during entire 25-hour rated life, yet generates less heat than standard lamps.



## MAINTENANCE

### TWICE AS EASY

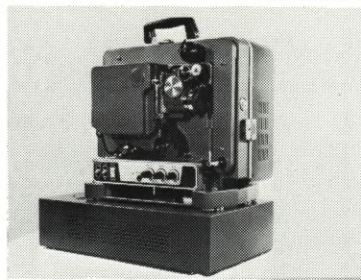
Fewer moving parts. All major parts (amplifier, film pull-down mechanism, and motor) are modular units which can be quickly replaced with simple tools. Full year warranty on parts and labor. Royal projectors cost much less than competitive equipment when true Total Life Cost (purchase price plus 5-year maintenance) is figured.



## CONVERTIBLE

### TWICE AS USEFUL

Standard Royal projectors convert to special power source and Marc 300/16 lamp or Colorarc 300/16 in minutes. The classroom projector can produce auditorium brightness for special shows, then go back to work in the classroom with the standard Halogen lamp. Conversion kit can be purchased with the projector, or added any time in the future.



For further information call or write Mr. Bob Roizman:



**THE CAMERA MART INC.**  
456 W. 55th ST., NEW YORK, N. Y. 10019 • (212) 757-6977  
**RENTALS ○ SALES ○ SERVICE**

## HAVASUPAI: PEOPLE OF THE BLUE-GREEN WATER

Continued from Page 1117

In addition, I would like to elaborate a little further and suggest that in the field of ethnographic filmmaking the most valuable insight into other cultures could be gained by establishing a relationship with the tribe and giving select individuals the rudiments of training in the use of, for example, the Super-8 camera, with the hope in mind of interpreting that culture from the inside out. Now the drawback of this revolutionary new technique is that conceivably any individual you might select could be as biased a person as yourself, coming from the outside and interpreting from the outside in. But this is an obstacle in the filming of the social sciences which has to be met and taken into account, toward the end of obtaining this rather unusual perspective of other people, to the end of illuminating man, in order to learn the areas in which all mankind is similar, to learn just how universal man is and, equally important, to learn the areas in which he is dissimilar.

Being a veteran of military service, I was afforded the opportunity, while in uniform, to learn how to get along with many different kinds of people, which becomes a necessity when you are living in close proximity to one another over extended periods of time. I received a "booster" for what I had already learned, while working on this picture.

I learned, also, that research into one's subject cannot be overdone in preparing for such a project. During the first shooting phase, fortunately, I came to realize that my subject was not as well researched as it should have been and that I would have to delve into the archives to learn every documented fact about these people. I did exactly that after having returned from the first two-week filming excursion in the spring.

Thirdly, I might say that I have learned how important it is to come to a preliminary understanding with the person who, I feel, is most important in relationship to the director—namely, the cameraman. That understanding involved the realization that there might be human friction on location under such trying circumstances, and that if there were a problem which arose which might conceivably work to the detriment of the production, then and there that problem would be brought up in a calm, collected and gentlemanly manner and discussed, so that the rapport between the director and cameraman



would not be damaged, so that idiosyncracies and grudges would not be harbored and develop into a cancer, so that the production would not fall apart gradually through false pride or the insensitivity of either partner. I feel this is very important and cannot be over-emphasized.

Fourthly, working in a semi-isolated location, as we were, it was necessary that the logistics problem be taken into consideration beforehand so that once we arrived we would not find ourselves seriously short of food and so that only a minimum amount of effort would have to be exerted to organize the domestic needs we would have there. To this end, great care was taken in organizing the food situation and the equipment, as well as preparing the equipment for a rather arduous ride into the canyon lashed to the backs of sure-footed animals, but over very, very rough terrain. So, again, I would like to emphasize that preparation, in terms of logistics and protection for the equipment, was very important.

I feel that these were the principal things which I learned. But the making of this film was not fundamentally a learning experience. I do feel that I have gained some confidence in the academic pursuit of motion pictures as a career and I wasn't going into this situation cold. Otherwise, the challenge of the film might have been too great. One of my notions about the project was that, having the desire to find and capture the spirit of the Havasupai people and their canyon and to convey this visually and orally, I felt that it would be desirable, if at all feasible, to have the Havasupai people themselves tell their own story. That is, I preferred to have individuals in the tribe speak for themselves, hoping that in the post-production phase, the story which they related would be articulate enough within the bounds of audience comprehension that I would not have to resort to a narrator for the major portion of the film. At this point, having listened to many of the tapes, I think that I may be somewhat successful toward this end, though not entirely so. I do believe that it is important for minority peoples, especially in the United States where they are seeking to find an audience for their views, to do their own talking.

Although we shot more than 13 hours of film, in terms of uncut footage, I envision that, in its final form, the picture will be a 30-minute sound and color documentary. It will be called "HAVASUPAI-PEOPLE OF THE BLUE-GREEN WATER", because that's what it's all about. ■

# SHOOTING IN CANADA ?

*Rent from the complete rental house*

## INEQUIP

Mitchell SPR & Mirror Reflex – NC Reflex  
 Standard High Speed – Arriflex – 16 mm & 35 mm  
 Blimps & Zooms – Worrall – O'Connor  
 Dynalens – TODD-AO 35  
 Studios – Dollies – Lighting & Grip Equipment  
 Generators – Nagras – Cranes  
 CAMERA MAINTENANCE & MACHINE SHOP

*DISTRIBUTOR FOR*

**TYLER CAMERA MOUNTS**  
 Vibrationless Mini-mount  
 and Middle-mount

**O'CONNOR FLUID HEADS**

**TIFFEN FILTERS**

**TODD – AO 35**

Anamorphic lenses

**DYNALENS**

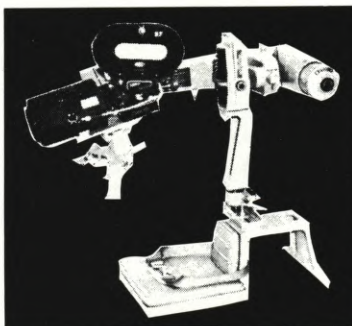
**CINEMA PRODUCTS**

Joy Stick Electric Zoom

BNC – Crystal Motor

35 mm Arri-crystal motor

**HALLIBURTON CAMERA CASES**



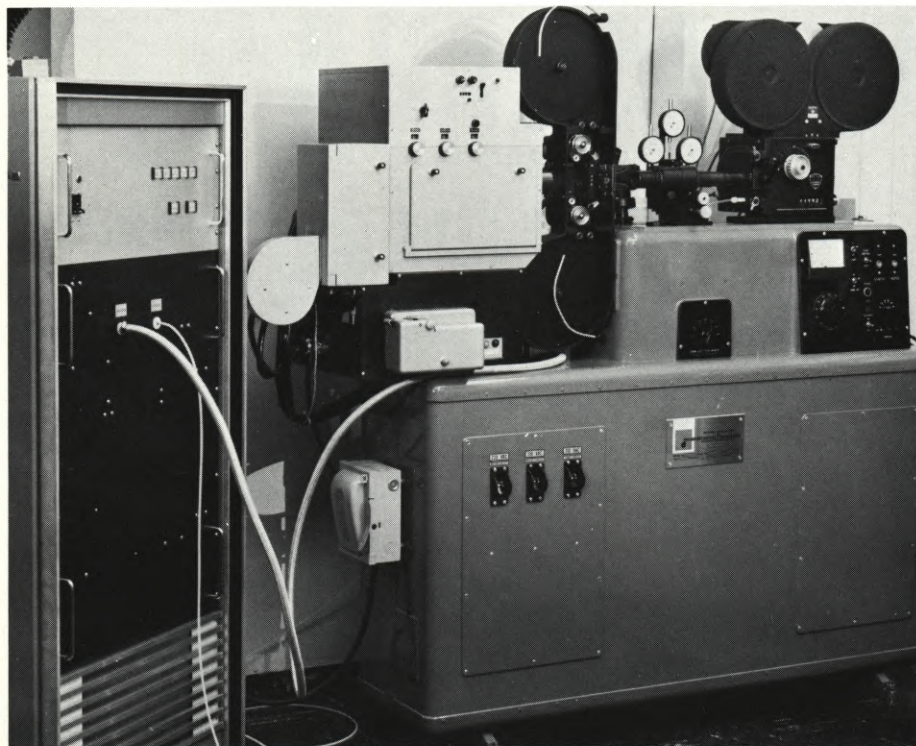
**CINEQUIP- Motion Picture Camera and Equipment Rentals**

41 Scollard Street, Toronto, Ontario, Canada. Tel.(416) 920-5424

1382 Main Street, North Vancouver, B.C. Tel.(604) 980-3022



# Introducing The Fully Automated Blow-Up Printer



The first fully automated optical blow-up printer with liquid gate printing capabilities onto 5271 fine grain stock has recently been placed in operation at CFI.

This new blow-up printer will enlarge 16mm images to 35mm and Super 16mm to 35mm (1.85 format). The finished optical negatives are produced automatically with individual scene-to-scene and intensity corrections, as well as laps and fades.

The tape-reader, computer, Bell and Howell lamphouse and shutter are the components which make this blow-up printer system fully automatic. The printer operator need only thread the original and raw stock, along with the control tape, into the machine and flip a switch. The printer automatically produces 35mm dupe negatives from 16mm positive images. This is the first machine with an automatic tape-reader computer capable of doing this type of sophisticated blow-up. Because of the cue system of the blow-up printer, the fader system is fully automatic, eliminating the necessity of operator controlled fades and dissolves.

Wet printing is highly essential to quality optical printing. The liquid gate, through which the film passes, performs an impor-

tant function. Using this gate, unblemished negatives can be produced from original material where tiny blemishes perhaps not reproduced in contact printing would be objectionable in blow-up optical printing.

When passing through the wet tank, scratches on the original are filled with liquid. The liquid has the same index of refraction as the base of the film, thus scratches and abrasions do not reproduce on the finished negative.

An important and vital feature of the automatic blow-up printer is that it performs the printing operation on Kodak film, type 5271, rather than the negative type 5254, which has been most commonly used. The 5271 film is extremely fine grained but very slow in speed. The original concept of this printer from the outset specified a light source and optical system capable of utilizing this duplicate negative stock together with a system for changing the color and intensity of light for any scene so as to produce a fully balanced negative.

The automated optical blow-up printer was constructed for Consolidated Film Industries by Producers Service Corporation in accordance with outlined specifications.

## WHAT'S NEW

Continued from Page 1090

the groundglass reflex finder of the Bolex H-16. The lens is 4-1/8 inches long and weighs a mere 11 ounces.

Series 5.5 filters are used with this Vario-Switar and drop into a filter adapter, which is held in place by the sunshade.

The lens is available in two versions: the C thread version for the H-16 turret camera and the bayonet mount version for the Bolex SB, SBM and EBM models. When combined with other lenses, the Vario-Switar is mounted in the top turret opening.

This Kern lens is distributed exclusively in the United States by Paillard Incorporated.

## JOHN A. MAURER RECEIVES EASTMAN KODAK GOLD MEDAL AWARD

John A. Maurer, President of Optronics Technology, Inc., has been awarded the Eastman Kodak Gold Medal for 1971 by the Society of Motion Picture and Television Engineers. The Award was given at the Annual Awards Presentation of the Society at the Queen Elizabeth Hotel, Montreal, Monday, October 4.

The Eastman Kodak Gold Medal Award was given to Mr. Maurer for his continuing work over forty years in behalf of achieving the highest quality possible in the recording and reproduction of both the visual image and sound record for 16mm and smaller format films.

John A. Maurer was educated at Adelbert College and Western Reserve University and has an Honorary D.Sc. from Western Reserve. From 1929 to 1937 he was at RCA Research Laboratory where his work resulted in 17 U.S. patents. Further work on a system of double 4mm motion pictures with optical sound on 8mm film and on 35mm to 16mm optical reduction picture and sound printers led, in 1934, to his joining with Eric M. Berndt in founding the Berndt-Maurer Corp. to manufacture professional 16mm cameras and sound recording equipment. The 16mm recorders developed by this company and its successor, J. A. Maurer, Inc., established the standards of performance for the 16mm industry.

In 1967 Mr. Maurer was awarded the first Samuel L. Warner Memorial Medal by SMPTE, and served the Society as Engineering Vice-President from 1945 to 1949. He is also a member of OSA and SPIE.

# CFI

## CONSOLIDATED FILM INDUSTRIES

959 SEWARD STREET, HOLLYWOOD, CALIFORNIA

AREA CODE 213 • HO 2-3161



**STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION.** (Act of August 12, 1970: Section 3685, Title 39, United States Code)

1. Title of Publication: **AMERICAN CINEMATOGRAPHER.**  
 2. Date of Filing, September 27, 1971.  
 3. Frequency of issue: Monthly.  
 4. Location of known Office of Publication: 1782 North Orange Drive, Hollywood, California 90028.  
 5. Location of the Headquarters or General Business Offices of the Publishers: (see above).  
 6. Names and addresses of Publisher, Editor, and Managing Editor. Publisher: A.S.C. Holding Corporation, 1782 North Orange Drive, Hollywood, California 90028; Editor: Herb A. Lightman, Same as above.  
 7. Owner (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given). **A.S.C. HOLDING CORPORATION, 1782 North Orange Drive, Hollywood, California 90028.**

8. Known Bondholders, Mortgagees, and other Security Holders owning or holding 1 percent or more of total amount of Bonds, Mortgages or other Securities: None.

9. Paragraphs 7 and 8 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Names and addresses of individuals who are stockholders of a corporation which itself is a stockholder or holder of bonds, mortgages or other securities of the publishing corporation have been included in paragraphs 7 and 8 when the interests of such individuals are equivalent to 1 percent or more of the total amount of the stock or securities of the publishing corporation.

10. This item must be completed for all publications except those which do not carry advertising other than the publisher's own and which are named in sections 132.231, 132.232, and 132.233, postal manual (Sections 4355a, 4355b, and 4356 of Title 39, United States Code)

11. Extent and nature of circulation. A. Total No. copies printed (Net Press Run): Average No. copies each issue during preceding 12 months, 15,800; single issue nearest filing date, 17,000. B. Paid circulation: 1. Sales through dealers and carriers, street vendors and counter sales: Average No. copies each issue during preceding 12 months 2,313; single issue nearest filing date, 2,910. 2. Mail subscriptions: Average No. Copies each issue during preceding 12 months, 11,174; single issue nearest to filing date, 12,277. C. Total paid circulation: Average No. copies each issue during preceding 12 months, 13,487; single issue nearest to filing date 15,187. D. Free distribution by mail, carrier or other means: 1. Samples, complimentary, and other free copies: Average No. copies each issue during preceding 12 months, 1,713; single issue nearest to filing date 1,200. 2. Copies distributed to news agents, but not sold: Average No. copies each issue during preceding 12 months, 0; single issue nearest to filing date, 0. E. Total distribution (Sum of C and D): Average No. Copies each issue during preceding 12 months, 15,200; single issue nearest to filing date, 16,387. F. Office use, left-over, unaccounted, spoiled after printing. Average No. copies each issue during preceding 12 months, 600; single issue nearest to filing date 613. G. Total (Sum of E & F—should equal net press run shown in A); Average No. copies each issue during preceding 12 months, 15,800; single issue nearest to filing date, 17,000.

I certify that the statements made by me above are correct and complete.

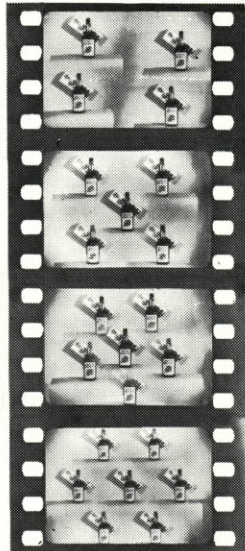
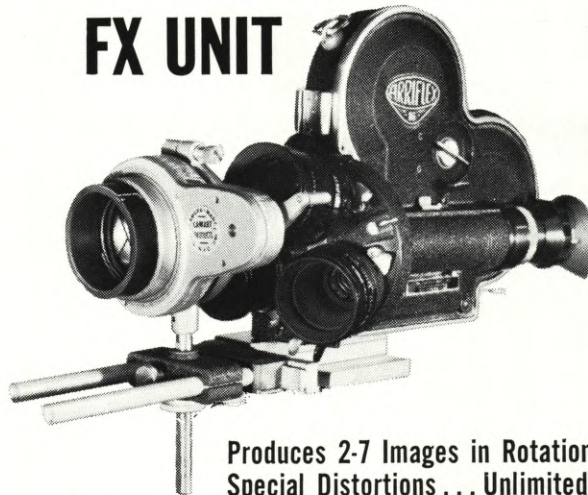
Herb A. Lightman,  
Editor

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.

another fine **CAMART PRODUCT**

**NOW SHOOT MULTIPLE IMAGES FROM A SINGLE SUBJECT WITH THE CAMART OPTICAL FX UNIT**



Produces 2-7 Images in Rotation ... Montages ... Special Distortions ... Unlimited Variations

Create unusual optical effects right in your own camera. Give your films drama and impact. The Camart Optical FX Unit can be used with motion picture cameras ... TV cameras ... animation cameras. The unit reproduces up to 7 multiple images from a single object. These can be rotated clock-wise or counter clock-wise ... fast or slow ... or photographed "still."

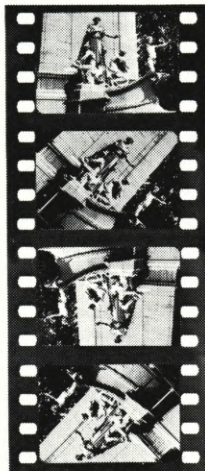
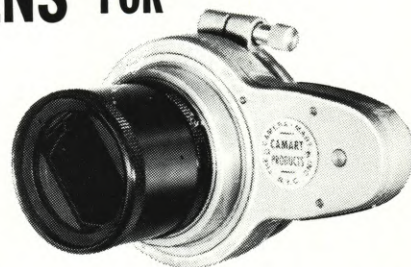
Camart Optical FX Unit with four surface prism, mount, revolving housing, camera base plate and double arm assembly ..... \$249.50

Additional Prisms & Accessories Available. Prices on Request.

**ARRIFLEX • BOLEX • FILMO • MAURER • MITCHELL & MANY OTHERS**

**ROTATOR LENS FOR CAMART OPTICAL FX UNIT FOR**

16-35mm & TV Cameras



The Rotator Lens reproduces images upside down, sideways or tilted at any angle. Scenes can be rotated a full 360° in clock-wise or counter clock-wise directions to create a spinning effect at any speed. Or by cranking back and forth, you can create a ship-board motion. Uses and applications are limited only by your imagination. Ideal for animation and live action commercials.

Camart Rotator Lens ..... **\$150**

Adaptor for TV Cameras Available. Prices on Request.

For further details write:



**THE CAMERA MART INC.**  
456 W. 55th ST., NEW YORK, N. Y. 10019 • (212) 757-6977  
**RENTALS • SALES • SERVICE**



P. O. Box 8037 • San Francisco, California 94128

**DAVID HAYLOCK PRODUCTIONS**

P. O. Box 38-517 • Miami, Florida 33138 USA • (305) 754-4141

**MICROFILMED**

BACK ISSUES OF  
**AMERICAN CINEMATOGRAPHER**  
 4¢ Per Page—Sold only by complete issues  
 1921 through 1967 available

**UNIVERSITY MICROFILMS**

EDITORIAL SERVICES  
 300 N. ZEEB RD.  
 ANN ARBOR, MICHIGAN 48106

**L.A.'s FIRST "FILMEX"**

Continued from Page 1147

to horizontal. This adheres to the choreography of the city, and is in opposition to the horizontal tradition of Griffith and Ford. Oblique lines tend to splinter a screen, making it more restless and unstable. Light enters the dingy rooms of *film noir* in such odd shapes that one suspects the windows were cut out with a pen knife.

"3. In lighting, the actors and setting are often given equal weight. An actor's face may be blacked out as he speaks, or he may be lost in the realistic tableau of the city at night.

"4. *Film noir* prefers compositional tension to physical action. A typical *film noir* would rather move the scene cinematographically around the actor than have the actor control the scene by physical action.

"*Film noir* was an immensely creative period—probably the most creative in Hollywood's history. This creativity is not measured by its peaks, but by its mean level of artistry. It seemed to bring out the best in everyone: directors, cameramen, screenwriters, actors. Cinematographers were able to do *tour de force* lighting and actors were often

**VEGA!**  
 WIRELESS  
 RADIO MIKES

**Image Devices Incorporated**

*Esoteric Film & Electronic Video & Audio Equipment*

811 Northwest 111th Street • Miami, Florida 33138 USA • (305) 754-4141

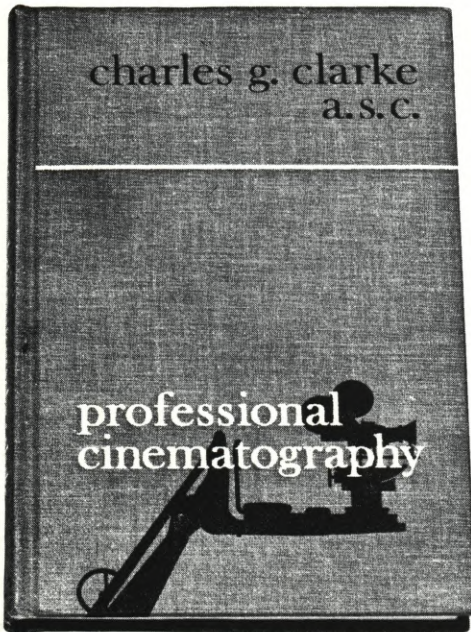
*Rentals \* Sales \* Service Worldwide*

**SECOND EDITION**

**PROFESSIONAL CINEMATOGRAPHY**

By CHARLES G. CLARKE, ASC

**Professional Guidance For Aspiring Cinematographers**



SUBJECTS INCLUDE: Camera, camera mounts... Lenses, wide-screen lenses... Filters and Filter effects... Day-for-night photography... Exposure for color and black and white films... Light meters and their use... Color temperature meters... Equipment for set lighting and its control... Camera angles and techniques... Special lighting problems... Color psychology... Composition... Special photographic effects... Set operation on the sound stage... New film emulsions... Forced development data.

ABOUT THE AUTHOR: Charles G. Clarke, ASC, a top Director of Photography at 20th Century-Fox for many years, and an ASC member, taught Advanced Cinematography at the University of California at Los Angeles, where he recognized a need for practical professional guidance for students striving to be the industry's future Directors of Photography. It is this need which has given rise to his publication of a book on the subject and subsequently the latest revised edition of *Professional Cinematography*. The first edition of this valuable book has become required reading at many universities and schools offering courses in cinematography.

Order now and be assured of your copy of the revised edition of this valuable book! Postpaid for only... **\$10<sup>00</sup>**

**The American Cinematographer**

P.O. Box 2230, Hollywood, California 90028

Please send me.....copies of **PROFESSIONAL CINEMATOGRAPHY** @ \$10.00 ea., postpaid. No C.O.D.'s. Single book orders will not be billed. Check or money order must accompany orders for single books.

Name \_\_\_\_\_  
 Street \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip \_\_\_\_\_

California residents please remit 5% Sales Tax (50¢ per copy). Foreign buyers please pay by International Money Order or US funds.



very well protected by the *noir* style."

The *Film Noir* series of presentations will include the following feature productions:

KISS ME DEADLY, Robert Aldrich, 1955, starring Ralph Meeker, photographed by Ernest Laszlo, ASC.

GUN CRAZY, Joseph H. Lewis, 1950, starring John Dall and Peggy Cummins, photographed by Russell Harlan, ASC.

THEY LIVE BY NIGHT, Nick Ray, 1948, starring Farley Granger and Catherine O'Donnell, photographed by George Diskant, ASC.

WHITE HEAT, Raoul Walsh, 1949, starring James Cagney, photographed by Sid Hickox, ASC.

OUT OF THE PAST, Jacques Tourneur, 1947, starring Robert Mitchum and Kirk Douglas.

PICKUP ON SOUTH STREET, Sam Fuller, 1953, starring Richard Widmark and Jean Peters, photographed by Joe MacDonald, ASC.

T-MEN, Anthony Mann, 1947, starring Dennis O'Keefe and Charles McGraw, photographed by John Alton.

Eight new films, never before seen in Los Angeles, and two special programs have also been set for the first Los Angeles International Film Exposition.

Four of the films will be receiving their American premiere at FILMEX, namely BLUSHING CHARLIE, from Sweden, directed by Vilgot Sjoman of "I Am Curious Yellow/Blue" fame; ANNA, directed by Jorn Donner of Finland; THE COW, a film from Iran directed by Daryush Mehrjui and the Canadian film RIP-OFF, directed by Donald Shebib, UCLA graduate.

The latest work of two respected French directors will also be shown: Robert Bresson's FOUR NIGHTS OF A DREAMER and Louis Malle's MURMUR OF THE HEART. A short subject will accompany each feature.

Two important and controversial documentaries by Americans, neither seen at any other American festival, will be included, BRAZIL: A REPORT ON TORTURE, by Haskell Wexler and Saul Landau, and THE MURDER OF FRED HAMPTON, by Mike Gray.

Two special programs of short films will be presented: THE ART OF ANIMATION featuring new works from many nations, and FILMS FROM THE UNDERGROUND.

The Exposition is being managed by Gary Essert, Director, Gary Abrahams, Assistant Director and Beverly Walker, Press Representative. The Hollywood Roosevelt Hotel serves as headquarters for the event. ■

**INTERLOCK  
SCREENING ROOM  
FROM ONE DAY TO  
ONE YEAR**

**10 MINUTES  
AWAY FROM LABS,  
HOTELS, TERMINALS,  
NETWORKS, ETC.**

**LOCATED IN  
THE SAME BUILDING  
AS BELLEVUE-PATHE  
SOUND FACILITIES**

**EDITING ROOM  
RENTALS**

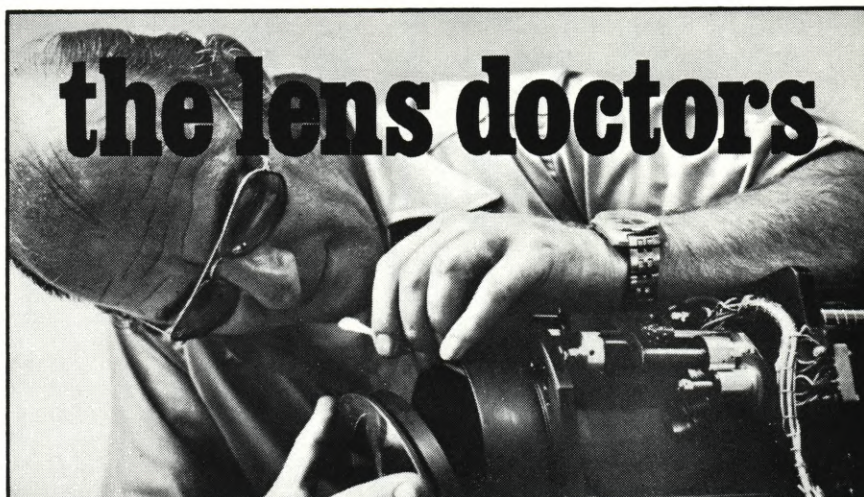
**MOVIOLAS**

**STEENBECK  
RENTALS**

**THE EDITING PLACE**

(division of Bruce Sabsay Productions Ltd., 290 Jarvis Street, Toronto)

121 ST. PATRICK STREET • TORONTO 2B, ONTARIO • TELEPHONE (416) 864-1440



They're good men to know. Because today's tighter schedules have less margin for breakdowns. Because today's higher standards demand more exacting performance. And because today's lenses are increasingly more expensive and complex.

When something happens, you need someone who knows what to do and does it. Fast.

**If it fits on the business end of a camera, they can fix it—television or film—manual or servo.**

The lens doctors aren't just lens mechanics...the foundation of their sizeable organization is lens repair. So service isn't just the name of a department to them... it's a way of life. They guarantee completion of most repairs in under 24 hours. And right—the first time!

But all the commitment in the world won't fix a stripped gear or damaged element. That takes skill.

And equipment. The calibre to repair virtually any lens on the market, including Angenieux, Canon, Taylor-Hobson and dozens more. And the kind of knowledge that convinced the selective Schneider people to bestow their coveted factory-service authorization. Backed by extensive optical and electronic testing facilities, including equipment to test color tracking.

Not that repair is all the lens doctors do. People around the world have created a demand for their innovations, including custom work such as special remoted and automated focus, zoom and aperture controls.

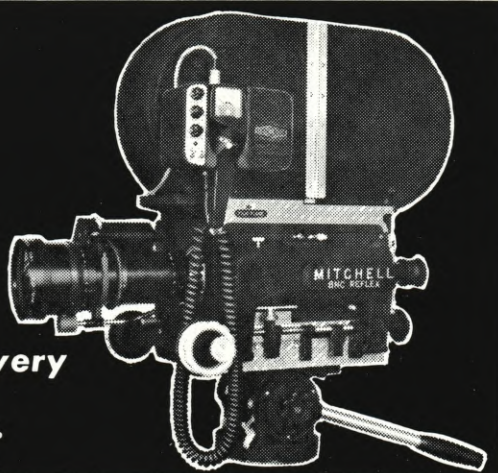
If you have a problem (or want to prevent one), call the lens doctors; Max Blaim and Walter Reiche. You don't need an appointment. And the staff makes house calls in emergencies.

**EASTCOAST  
CAMERA CENTER, INC.**

248 LAFAYETTE STREET, NEW YORK, N. Y. 10012 • (212) 966-5433



The only reason  
**MITCHELL**  
 offers  
**angénieux**  
 lenses is...  
 ...because they want  
 to ensure you of the very  
 best picture quality.



# ALL DAY

Developing  
 Ektachrome  
 7252 • 7241-2

and

Printing  
 Ektachrome  
 7389 silent &  
 sound

PLUS

16mm • 8mm / super 8mm

Internegatives

CRI<sub>s</sub> • MASTERS

release prints

at

**bēbell**

MOTION PICTURE LAB DIVISION

416 West 45 St.

New York 10036

(212) 245-8900

WRITE, PHONE FOR PRICE LIST.

## "THE BEST CAMERA ANGLES"

Continued from Page 1150

the field. So we went with the AKG, which is a good, rugged microphone, and also took along a 635A—a great old workhorse mike.

I feel that George did a good job on the sound—even though, in being responsible for the directing, recording and booming, he had to divide his attention somewhat. He pulled it off quite well, however, because he's really able to concentrate on what he is doing, and what I've heard sounds quite good.

We certainly had our share of background sound problems—a generator running constantly, helicopters flying in and out 37 times a day, a horse with a cowbell on it and the inevitable pack of screaming kids. Granted that all of this adds to the "naturalness" of the location, I could very well have done without the sounds of the helicopter and that damned generator.

Here again, if we'd had a third person on our crew, we could have rigged a couple of sound blankets for some of the sequences. I have three or four heavy "moving" blankets that I've grommeted, and which work quite well for deadening reverberation or background noise. I tie them onto trees or hang them from walls and they're very satisfactory. But doing without them was another compromise we had to make because of the mobility problem down in the canyon. With no wheeled vehicles in the village, everything had to be carried.

Our greatest problem during filming had to do with protecting the equipment against dust, dirt and rain. We carried a lot of plastic bags with us but, even so, there was so much dust that it wasn't really safe to set the Eclair down anywhere. It was a matter of holding it all the time and, whenever possible, keeping it draped with a plastic trash bag to protect it from dust. There was also the constant necessity for keeping the filter clean and checking the gate—perhaps double the attention you would give to such precautions on a sound stage.

The one time we were not as well prepared as we should have been was when we got caught in a sudden huge cloudburst down at Havasu Falls. We were shooting with the Bolex set up in the middle of the creek that day. It would have been nice to have the camera in an underwater housing when we were out there shooting with the lens two inches above the surface, with tons of water cascading over the rocks.



George had picked some great camera angles, but they were in five feet of water. It was difficult to keep it all together there—just the two of us to set up the tripod with only the head protruding above the water. While setting up, we kept the camera turned away from the spray of the falls and shielded it with our bodies. We'd set the exposure and focus, get everything ready, and then spin the camera around. George would sort of drop below the frame line and we would shoot for the six to ten seconds we had before enough water hit the front element of the lens to wash out the image.

Working on that travertine rock (which is very sharp!), with a swift current running was very interesting, too. I had visions of one of us getting knocked off our feet—and there would go the camera, but we were quite lucky in that we didn't encounter any major disaster of that sort.

The rather intense heat in the valley could have been a serious problem, but the precaution of lubricating the zoom lens mechanism with heavy grease kept it from getting so loose that it might creep. I was afraid that the heat would cause an excessive buildup of emulsion in the camera gate. However, I kept a close watch on it and we didn't seem to run into the problems that you do in a jungle area where the humidity is very high.

I think the major problem on this particular picture was just the logistics of being able to move your equipment around rapidly enough. We were working with people that you can't set up or manipulate, as you can when you're working with professionals—nor can you redo a shot. You've got to get it when you *can* get it because, other than with one or two people in the village, there is just no way to re-create anything.

We had perhaps greater than average difficulty with shifting exterior light. For probably two-thirds of the day—every day—we had overcast, which created a very nice quality of light for ECO. I was able to work between F/5.6 and F/8 under those conditions, with rather soft light. But two minutes later the exposure would shift to F/16 with hard sunlight. I used both an incident light meter and a spot meter, attempting to concentrate on the people's faces. Not being able to use fill lights or reflectors, we would, whenever possible, try to move the people into a similar light (if it had changed radically). Usually, all we could do was go with the person, using the spot meter and exposing for the faces—at the same time

Continued on Page 1174

# Now... Capital Film offers two Full Service Laboratories...

• in Washington, D.C. • in Miami, Florida

In May of this year, Capital Film completed expansion of its Miami lab into a full service facility with editorial, sound and processing capabilities.

Also, because of a growing demand from regional customers, the Miami facility has created a special slide film and film strip department.

Here's what a Capital Film customer NOW receives...besides the recognized quality and renowned customer service:

#### FROM MIAMI:

1. Full 35 and 16mm color positive printing and processing services as well as black and white.
2. Full 16mm color reversal printing and processing services including 7389 sound track prints.
3. Slide film and film strip department.
4. Optical printing department for blowup or reduction with new wet-gate.
5. Complete editorial and sound transfer facilities under one roof.
6. Color control with new Eastman Color Analyzer.

#### FROM WASHINGTON:

1. Full 35 and 16mm color positive printing and processing services as well as black and white.
2. Full 16mm color reversal printing and processing services including 7389 sound track prints.
3. Full Super 8mm color printing and processing services.
4. Super 8mm cartridge and cassette loading and repair.
5. Complete editorial and sound dubbing, re-recording, and transfer services—RCA WESTREX.
6. Optical printing department with wet-gate.
7. Color control with Hazeltine color analyzer.

It's a CAPITAL IDEA to give you full service...night or day.

For further information, fill in the coupon below for our NEW Corporate Information File, including price lists and reservation for 1972 desk calendar:

Please send me facts on the Full Service capabilities of Capital Film from \_\_\_\_\_ Washington, D.C. \_\_\_\_\_ Miami, Fla.

Name \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**CAPITAL**

FILM LABORATORIES, INCORPORATED

Capital of Washington 470 E Street, S.W. Washington, D.C. 20024 (202) 347-1717	Capital of Miami 1998 N.E. 150th St. North Miami, Florida 33161 (305) 949-4252
---	---



**TIRED OF  
MISSING  
DEADLINES?**

**SUPER SERVICE**

for  
**SUPER EIGHT**  
And  
**EXTRA SUPER  
SERVICE** for

**16mm Eastman Color**

High quality Super 8 release prints by optical reduction from 16mm internegative — acknowledged to be the best method in the industry today.

Printed for any cartridge or reel-to-reel system using magnetic track or silent.

16mm interneg and release with WESTREX optical tracks made in our own plant.

In and out, same day service for ME-4 and ECO 3 processing with or without work print!

**CALL or WRITE**



**PHOTO-TECH  
LABORATORY**

200 East First South  
Salt Lake City, Utah 84111  
Phone (801) 521-3505

## 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** Please give me the specifications and source of supply for the acetate sheets used in animation work.

**A** Clear acetate sheets used in animation work are generally supplied in panels .005 inch in thickness and 20 x 50 inches in size. This material may be cut to smaller size sheets to suit individual animation equipment. Quality requirements and the aspect ratio of the picture being filmed are additional factors that determine cel dimensions. The average cel size is 10 x 12½ inches. Eight such cels can be cut without waste from each 20 x 50 inch sheet. After the registration holes are punched, there remains a usable area of approximately 8½ x 11¼ inches, which is sufficient for most professional filming. Acetate sheets may be purchased from Celanese Corp., 290 Ferry Street, Newark, New Jersey, or the Eastman Kodak Company, Rochester, New York.

**Q** I wish to film a ballet dancer outdoors wearing a white dress with several yellow crepe-paper flowers. The center of each flower will be a small prefocus bulb. The script calls for the lights to show clearly as she dances about in front of a background of green trees and shrubs. How can I film a night effect with the bulbs shining brightly?

**A** The effect is achieved by shooting with as wide a lens opening as possible in order to have the light burn in, yet filming in as low an outdoor light as available to avoid overexposure. Try filming on an overcast day or in back-cross light and underexpose one and one-half stops. The bulbs used should be the brightest obtainable, or the voltage should be increased to overcome the underexposure.

**Q** I must use several 16mm motion picture cameras of different makes on an industrial film production. How can I be assured that the frame lines of each camera will match?

**A** The only sure proof is to shoot a short test strip with each camera, project the result, and have the aperture

plates or film movement adjusted by a qualified camera maintenance man so that they match. Cameras such as the Mitchell, Arriflex, or others with a registration pin will invariably match, since they are designed to place the frame line in the precise center of the perforation. Other cameras, which have a simple claw movement may get out of adjustment and cause trouble when scenes are intercut. This is particularly so with magazine-type cameras, since the magazines may vary. Frame-line trouble may also be encountered with shrunken film.

**Q** Please give details about using the traveling-matte process in the production of a training film, which we are about to undertake for a local client.

**A** The process of making traveling mattes is a highly technical procedure in which the skill and experience of the optical-effects cameraman is as important as high precision in the optical printer required to do this work. Unless you are contemplating a large number of traveling mattes, and unless you have easy access to competent laboratory facilities (which are highly important to this process), it would be far cheaper for you to send your traveling-matte work to some recognized optical effects laboratory.

**Q** Please explain why curved screens play such an important part in many of today's wide-screen systems. Also, how is the image kept uniformly sharp edge-to-edge on a curved screen? When I project my movies on a sheet of paper which is curved in the same fashion, over-all sharp focus is impossible to achieve.

**A** The reason the curved screen plays an important part in today's wide-screen systems is that it enhances the audience's sense of participation; and the more the screen seems to surround the people, the greater the effect. Better focus is obtained on a properly curved screen by using the projection distance as the radius of the curvature.



## CINEMA WORKSHOP

Continued from Page 1100

same time, inspect it carefully for warpage, cracks or rough edges. A worn or distorted take-up reel is the cause of the most common tape failure: edge damage. The cracked or warped reel will rub or snag the edge of the tape, creating a series of nicks or waves along the edge of the tape. Not only will this cause severe amplitude modulation and drop-outs, but the damaged section will tend to lose some of its oxide coating, which will be deposited on the deck and eventually recontaminate the entire width of the track. An excessive amount of oxide on the machine is a certain indication of either a warped, cracked reel or a misaligned guide or roller.

Tape cinching is another problem that can cause permanent tape damage. When tape is fast-wound or rewound, the tension may be uneven, causing the tape to shift on the reel. This results in the tape bunching up or cinching as in Figure 1. If left on the reel in this state, cinched tape will develop a permanent "wash board" deformation that renders the tape useless. Another problem that inevitably occurs when tape is fast-wound or rewound is uneven edge winding. As seen in Figure 2, uneven edge-wind leaves random tape edges protruding. These edges are susceptible to various types of damage and contamination. There is a simple procedure that can prevent both cinching and uneven edge-winding. *Do not* rewind the tape after recording or playback. Leave it in the unrewound state until just prior to its being used again. The tape is wound very evenly and with an almost constant tension during recording and playing, resulting in a perfect condition for storage.

Accidental erasure by stray magnetic fields, which is the greatest fear of most producers, turns out to be the least of recording worries. It takes quite a strong magnetic field to erase a tape, and the strength of the field is greatly weakened by distance. A bulk eraser produces a field of 1500 oersteds. At as little as three inches away, this is reduced to less than 50 oersteds, too slight to affect the tape. It is safe to assume that, in normal transit, a magnetic source as strong as a bulk eraser would not be encountered. However, even if it were, the field could be reduced to a harmless level by packing the tape in a box with approximately three inches of bulk (newspaper or cardboard) on all sides. The chance of accidental erasure is thus virtually eliminated. ■

The only reason **ALL MAJOR MOTION PICTURE CAMERA MANUFACTURERS** offer

**angēnieux**

*lenses is...*



*...because they want to ensure you of the very best picture quality*

**angēnieux** corporation of america  
440 MERRICK ROAD  
OCEANSIDE, NEW YORK 11572  
(516) 678-3520

**angēnieux** service corporation of california  
13381 BEACH AVENUE  
VENICE, CALIFORNIA 90291  
(213) 821-5080



## The Professional Touch of excellence.

And that touch goes into every area of the Southwest's fastest growing photo lab.

Advanced scheduled processing techniques move your jobs rapidly through a world of quality control.

- ☆ 16mm Ektachrome M-4 process
- ☆ Super 8mm Ektachrome SO-105
- ☆ 16mm Ektachrome ECO-3 process
- ☆ Super 8mm & 16mm B/W Reversal
- ☆ Silver Sound Track 7389
- ☆ 1/2" 4 channel Audition Tapes
- ☆ Bell & Howell Model "C"
- ☆ Complete Sound Facilities

**We keep Pros happy, at no extra cost.**



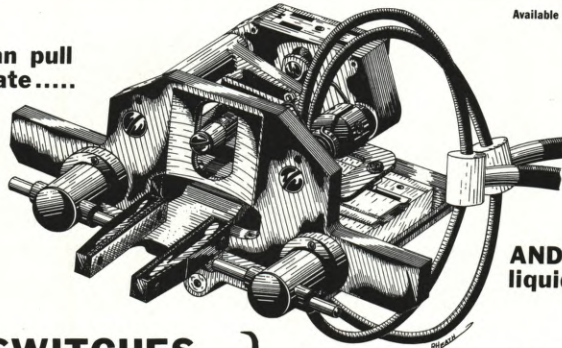
For further Information and Price List, write or call:  
**PHOTO PROCESSORS INC.**

Box 2116A • Austin, Texas 78767 • Phone AC512-472-6926



# OXBERRY'S NEW LIQUID GATE

NOW you can pull  
out a dry gate.....



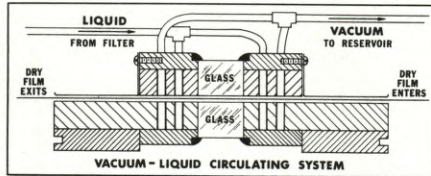
Available for ACME &  
RESEARCH PRODS.

AND plug in a  
liquid gate.

✓ TWO SWITCHES }  
✓ TWO REGULATORS } VACUUM & PRESSURE

A self contained, normal loading, unit that's ready to go in minutes. Virtually eliminates scratches and passes splices easily without causing bubbles, liquid spillage, streaks or turbulence, at freeze frame, normal speed and up to 600 f.p.m., with a pin registration system.

The systems liquid is maintained at approx. two pounds pressure by a pump and regulator, bypassing all excess pressure back to the reservoir, which contains a regulated bubble trap. The vacuum pump maintains approx. five inches of mercury vacuum, which returns all fluid to the reservoir. With a constant flow of filtered fluid, the film is totally immersed and eliminates scratches and dirt. The two thick optically flat glass windows minimize the effect of dust and dirt on its' outer surface, and is specially coated to maximize light passage. The film is held at your normal focus plane for follow focus.



Division of Richmark Camera Service, Inc.  
**OXBERRY** 516 TIMPSON PL., BRONX, N.Y. 10455  
Tel. [212] 585-0730 Cable OXBERRY, N.Y.

## THE BOOKSHELF

By GEORGE L. GEORGE

Independent producer William O. Brown has summed up his professional experience in **LOW BUDGET FEATURES**, an up-to-date and thoroughgoing book. He discusses with obvious expertise and a realistic approach the guidelines for the production of inexpensive, good-quality theatrical films, and offers efficient rules in financing, budgeting, script breakdown and shooting schedules.

Calling the Director of Photography "the highest paid and most important man in the crew," he states that "the picture will assuredly reflect his talent, ability and style just as much as it will the technique of the Director, at least in the pictorial sense." Production forms, charts and other useful data are included. (Available from the author, 1054 N. Cahuenga, Hollywood, CA 90038).

\* \* \*

Film-making in the eight Socialist countries that lie between the Western democracies and the Soviet Union is surveyed in Alistair Whyte's **NEW CINEMA IN EASTERN EUROPE** (Dutton), an informative and concise appraisal of current film trends in Albania, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Rumania and Yugoslavia.

The film-makers' creative contribution, their interpretation of the "socialist realism" theory, the style and contents of the many films that have won worldwide recognition are discussed in specific context, with a generous helping of excellently reproduced stills.

\* \* \*

Thorold Dickinson's extensive film-making experience in Europe and the U.N. is evident throughout **A DISCOVERY OF CINEMA** (Oxford U. Press), his panoramic study of the technical and esthetic evolution of film leading to its contemporary manifestations. His discussion of cinematic styles is particularly stimulating and reveals an original outlook on this essentially artistic medium.

His knowledge of photographic techniques helps him to analyze perceptively the work of such diverse cameramen as Gregg Toland, Gabriel Figueroa, Raoul Coutard and Dziga Vertov. A wealth of

\* \* \*

An extensive pictorial and statistical record, **SCREEN WORLD 1971** (Crown), now in its 22nd year, offers an appealing combination of a profusely





illustrated almanac and a reliable reference tool. More than 1,000 stills and some 8,000 entries thoroughly document all features released last year in the United States. Cinematographers are duly included in the full cast-&-credit listings.

\* \* \*

Indian film-maker Satyajit Ray's life and work are perceptively explored in *PORTRAIT OF A DIRECTOR* (Indiana U. Press), Marie Seton's engrossing and informative biography. She sees Ray's artistic development decisively influenced by his country's native culture and Europe's experimental film circles. Particularly insightful is Miss Seton's sensitive analysis of Ray's cinematic style, and her assessment of his innovative directorial methods.

The contribution of Subrata Mitra, who photographed most of Ray's films, is consistently credited with creating the neo-realistic mood that underlies the lyrical depiction of nature. Numerous stills convey accurately the esthetic value of Mitra's photography.

\* \* \*

Picture-making need not necessarily be glamorous or stormy, but Paramount publicity staffer Nicholas Meyer manages in *THE "LOVE STORY" STORY* (Avon) to give a consistently interesting and reasonably detailed account of the circumstances surrounding the production of that highly successful film.

He reports objectively on the usual headaches and general confusion that prevail, but instead of making a big thing of it, he takes it all in stride, substituting reasonable inquisitiveness for hoked-up sensationalism. Stars Ali MacGraw and Ryan O'Neal, producer Howard Minsky, director Arthur Hiller and author Erich Segal are pictured in well-rounded sketches, displaying their personalities with just the right pinch of artistic temperament. Curiously, the solid contribution of cinematographer Dick Kratina is hardly mentioned.

\* \* \*

Director Stanley Kubrick's special talent for developing essentially unique visualization and story-telling techniques for each of his films is the subject of Alexander Walker's rigorous analysis in *STANLEY KUBRICK DIRECTS* (Harcourt Brace Jovanovich).

From *Fear and Desire*, Kubrick's 1953 first feature, to *A Clockwork Orange*, soon to be released by Warner Bros., Walker examines the facets of Kubrick's "conceptual talent" that created the appropriate styles for intellectual eroticism (*Lolita*), satire on annihilation (*Dr. Strangelove*) and man's future (*2001: A Space Odyssey*).

Tilts to 30 degrees up or down. The Leo-Pod does the moving, not the cameraman.

Mounting for flat base camera. Also available for Eclair Camera.

The pod withstands all types of weather.

Even distribution of weight makes shooting easier.

Strong lightweight construction (less than 5 lbs.) for easier handling.

Quick release enables cameraman to dispose of camera and pod fast.

Telescoping camera support.

One time adjustment makes the Leo-Pod customfit to all.

## Hands off the ugly Leo-Pod!

The Leo-Pod is now available to all cameramen no matter what type of camera he uses. The pod is specifically designed to leave his hands free for zoom, iris, focus or sound adjustments. It is completely adjustable to the individual cameraman. The Leo-Pod comes equipped with a mounting for flat base cameras, designed to hold the Arriflex 16 or 35mm, Auricon, Bolex or Kodak cameras or is also obtainable with a mounting for the Eclair camera. Guaranteed for 1 year.

**LEOPOLD**  
ENTERPRISES, INC.

Model 125A for flat base cameras priced at only \$85.00  
Model 125B for the Bolex camera priced at only \$85.00  
Model 125E for the Eclair camera priced at only \$99.50

Call or write now for further information. Leopold Enterprises, South  
729 West Sunrise Blvd. • Fort Lauderdale, Fla. 33311 • (305) 764-1315  
Canadian Distributor: Photographic Analysis, Ltd.  
8 Brian Cliff Drive, Don Mills (Toronto), Ontario • (416) 445-6410

## CHANNEL 8 COLOR LAB FOR BEST TELEVISION TRANSMISSION

# 7389 SILVER SOUND TRACK

16mm EXTACHROME ECO-7252 PROCESSING  
16mm EKTACHROME ME-4 PROCESSING  
16mm COLOR WORKPRINTING (1 DAY SERVICE)  
16mm RELEASE PRINTING 3400K — 5400K  
16mm SOUNDTRACK APPLICATION  
16mm ULTRASONIC CLEANING

16mm CREATIVE & CONFORMING EDITING  
16mm CREATIVE SOUND PRODUCTION (INTERLOCK)  
PROFESSIONAL SLIDE PRODUCTION  
TRANSPARENCY DUPLICATION FROM  
35mm TO 30" x 40"  
35mm FILMSTRIP SERVICE

**905 JACKSON STREET / P.O. BOX 1410  
TAMPA, FLORIDA 33601 / 813 229-7781**





The only reason *Beaulieu* offers  
**angénieux** lenses is...  
...because they want  
to ensure  
you of the very  
best picture  
quality.

## If you're in a bind for lab service, Reela can bail you out.

When deadlines loom large, and you keep running into one delay after another, call Reela. Nobody offers faster service. And nobody will give you better quality work.

Reela's speed and high quality come about because of three things:

1. Competent, dedicated people.
2. Jet transportation, and an outfit that knows how to exploit it.
3. Sophisticated new equipment.

How many release prints do you need — 20? 100? Reela can make them.

Perfect. Sharp. Color-balanced. Back in your hands (or drop-shipped if you want) before you know it. Why settle for less than the best? Call Reela now.

REELA OFFERS:  
Complete editorial services • complete producer's services — animation — titling — sound • complete 8, 16, and 35mm laboratory services, including black and white or color dailies for Florida filming  
• Super 8 printing and cartridgeing.



**Reela** FILM LABORATORIES, INC.  
A DIVISION OF WOMETCO ENTERPRISES, INC.  
65 N.W. Third Street, Miami, Florida 33128  
Reela in Manhattan: (212) 279-8555  
100 West 40th Street  
For service in other cities call Reela  
in Miami. (305) 377-2611



16mm ——— TRANSFER ——— 35mm

**\$15.00 PER HOUR**

Fast Personal Service      Transfer Logs

**FPS**  
film production  
services, ltd.

7046 Hollywood Blvd. • Suite 603  
Hollywood, California 90028  
(213) 466-8239

## HOLOGRAPHY

Continued from Page 1130

move your head from side to side the magnifier enlarges whatever it appears to fall in front of. This quality is used to produce some of the most remarkable microscope shots I've ever seen.

Lasers are almost essential in making holograms, but not in viewing them. It turns out that mercury vapor light, with the proper filter, is good enough to view most holograms.

*White light* holograms can be seen without a special light source. Any point source or sharp edge light will work. The white light *reflects* from the film, as opposed to more traditional types of holograms, where laser or mercury vapor light shines through them.

If you want to make a hologram, let me advise you against it. It requires apparatus that most photographers will not have in their inventory. Here is a partial list:

1. a 12-ton sheet of slate, designed to eliminate all vibration on the work surface (some arrangements of heavy steel plating floating on inflated inner tubes will also work)
2. a laser (check with the manufacturer before you buy. Some lasers will not make holograms).
3. a set of front-surface mirrors
4. a few beam-splitting mirrors
5. a set of divergent lenses
6. a film holder (this you may pirate off your old view camera)

All the components must be weighted down to eliminate the slightest vibration. Even a sound in the room can cause vibration enough to totally ruin an exposure.

*How does it work?* The "trick" involves recording the interference of light waves. A laser is used, since it provides the purest source of light available. This is what we mean by "purest source": if a normal incandescent bulb were to give off sound waves instead of light, it would sound like a white noise hiss. A laser, on the other hand, would be a pure sinusoidal tone, like an electronically produced note. Since light, however, produces waves millions of times smaller in length than those of sound waves, our analogy will have to end here.

Imagine now we have a pure light source (laser), sending pure waves of light through a film emulsion. At the same time, we split off part of the light to illuminate an object. The light bounces off of every point on the object, and strikes the film as well. The



two wave fronts from the laser and object interfere with each other in the film emulsion, setting up microscopically small patterns in the emulsion. (FIGURE 1) Every square millimeter of the film contains these patterns. They have no recognizable relationship to the object. After exposure, the film is processed. The processed film is placed in the light of a laser beam. As the light strikes the film, the interference pattern bends the light, reconstructing the original wave fronts that carried the pattern. The result is a lifelike reconstruction of the object. (FIGURE 2)

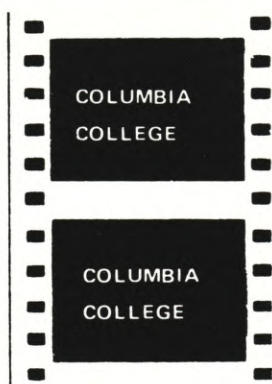
*Circular holograms* work on basically the same principle. Laser light strikes objects surrounded by film (mounted inside a cylinder). The same laser spills over and shines directly onto the film. Where the reflected light and the direct light meet on the emulsion, interference patterns are recorded. (FIGURE 3)

*White light holograms* are easier to make, yet much more difficult to understand. Imagine several coins arranged on a table as our subject. A sheet of film, sandwiched between two plates of glass, is placed on the coins. A spread-out beam of laser light passes through the film, bouncing off the coins. (FIGURE 4) The interference pattern has a unique quality. When white light subsequently shines on the processed film, the layers of silver in the emulsion cancel out unwanted wave lengths of light, reflecting back a 3-D image of the coins. (FIGURE 5)

Before filming "INTRODUCTION TO HOLOGRAPHY", tests were run to determine proper exposure of the laser illumination. I used 16mm Ektachrome EF film and found, in most cases, that a Luna-Pro Light Meter gave the correct reflected light readings. However, I recommend that anyone shooting film of holograms should run his own tests, since exposures are very critical.

Most of the shooting was done with an Arriflex SB 16mm camera, equipped with an Angenieux 12mm-to-120mm and a 9.5mm-to-95mm zoom lens. The wider angle zoom was useful in the lab, where space was limited. Since we worked quite close to the subject, much of the time, the lenses were outfitted with diopters. Results were uniformly sharp despite the fact that we often worked between F/2.8 and F/3.5.

Much of the film had to be shot at a low light level in order to capture the holographic effects. Because of the contrast problems normally encountered with EF film, lighting was kept as flat as possible. A Mole-Richardson soft light with spun glass cover was suspended above the holographic table. This pro-



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

# CRYSTAL!

CONTROLLED  
CAMERAS/RECORDERS



## Image Devices Incorporated

*Esoteric Film & Electronic Video & Audio Equipment*

811 Northwest 111th Street • Miami, Florida 33138 USA • (305) 754-4141

*Rentals • Sales • Service Worldwide*

## the automatic thermal unit

With recirculating system / Type 316 S.S. construction



**model  
70a-20**  
(for 250 gallons  
or less)

**price:  
\$1295**

- cools or heats as set
  - 1/10 degree temperature maintained
- smaller models available

write for details

**FRIGIDHEAT INDUSTRIES**

Box 12037, 1401 21st Avenue South  
Nashville, Tenn. 37212  
Telephone: (615) 383-4255



## excellent wildlife stock footage

North American and African

Great slow motion action scenes  
Superb close-ups

Buy only what you know you can use  
at far less cost than sending a  
cameraman afield.

Our film vault protects 300,000 feet!

**BORDEN PRODUCTIONS, INC.**

Great Meadows Road - Concord, Massachusetts 01742 - 617-369-5030



**HIGHEST  
PRICES PAID**

**CASH WAITING  
FOR YOUR SURPLUS  
MOTION PICTURE  
AND EDITING  
EQUIPMENT**



**camera service center, inc.**

625 West 54th Street  
New York, N.Y. 10019 (212) PL 7-0906

Gentlemen:

I want to sell (items & description—attach separate sheet if necessary) \_\_\_\_\_

Please rush me your quote by return mail:

Name \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

vided almost shadowless illumination. Highlights were provided by edging with small 750-watt quartz lights. In a sense, our key light was a fill light. We did not post-fog the EF film, as is often done. I usually try to avoid post-fogging wherever possible since it introduces extra lab handling and therefore more opportunities for scratching, color shifts or edge fogging. I do not categorically oppose post-fogging; I feel, however, that contrast control is best accomplished during the shooting.

Our film was subject to the usual two-dimensional limitations of movies. To emphasize the three-dimensionality of holograms, carefully planned dolly shots were used. The change in perspective as the camera moves convinces the audience of the 3-D effect.

Of course, lasers can be dangerous to the eyes. I would recommend that you never view through the camera eyepiece when the beam is aimed directly at the lens. Direct-on shots can be aligned while the eye is off the eyepiece. When the beam is striking the lens, pass a white card behind the eyepiece. It should glow from the red light. Never try to photograph or experiment with lasers unless you understand the dangers of laser light.

Contrary to what you may have seen in science-fiction films, the laser's red light will not show up when passing through clean air. Blowing smoke into the path of the laser will help show off the red line of the beam. This is a tiresome thing to do in each shot, and if you aren't careful, it looks as if the table is on fire and smoking. We only used this effect in a few brief scenes.

In still photography, you can capture the beam by making a double exposure. Expose first with the room lights out, tracing the beam path with a white card. This will burn the image onto the film. Next, light the entire scene and make a second exposure on the same film. This trick is certain to succeed and will save on the cigar bill. No doubt this double exposure method could also be modified for motion picture filming. I did not experiment with it, however.

Holography is now in the "daguerreotype" stage of development that photography went through over a hundred years ago. Experiments are currently under way toward creating full-color holograms. Perhaps some day holography will be applied to theatrical motion pictures, in color, with genuine three-dimensional life. If it seems hard to imagine this, think of what Daguerre's reaction would be to the applications we now have of his primitive invention. ■



**TYLER CAMERA SYSTEMS**

*Academy Award Winning 16-35-65mm  
Vibrationless Camera Mounts*

Write or call TYLER CAMERA SYSTEMS  
c/o EGON STEPHAN, Tel. (305) 757-5988

SERVICE  
RENTALS  
SALES



**CINE TECH INC.**

7330 N.E. 4th CT., MIAMI, FLORIDA 33138

Tel. (305) 754-2611 — 24 hr. Service

*HAS NOW LARGE RENTAL INVENTORY OF*

16-35 MM ARRIFLEX CAMERAS, MITCHEL R-35, NC, & BNC "SPR" REFLEX CAMERAS, CINE 60 & METAL BLIMPS, AURICON CAMERAS ZOOM LENSES, UNDERWATER HOUSINGS, SOUND, GRIP & LIGHTING EQUIPMENT.

*Send your Cameras, Moviolas, & Zoom lenses for professional servicing.*

**"NEW SERVICE TO THE PRODUCER"**

**23' PRODUCTION VEHICLE**

Accessible from **all sides** for quick setups.  
Stocked with the finest motion picture equipment.

Will go anywhere in USA. Available on daily basis in Miami.



**The only reason eclair  
offers  
angénieux  
lenses is...**

**... because they want to  
ensure you of the  
very best picture quality.**





# attention-- auricon ma-11 owners

Have you ever wished that your amplifier had one more dynamic mike input? ... or that you could use your Sennheiser 804/805 mikes without that d#\*x preamp dangling from it? How about the times that the Sennheiser batteries fade out during filming?

Is that what's bothering you, fella?

Join the club! We've had the same problem. So ... we've done something about it. We've converted our MA-11's so that we can plug a dynamic mike into the third (phono) input—we can switch it to line as well. Better yet—we can use a Senn. 804 or 805 on that third channel without the dangling battery and matching transformer.

What's more ... we can convert your MA-11 to look and act just like ours for as little as \$125.00 and in just three days.

Want more information?  
Call or write

## BRENNER PHOTO CO.

5215 Wisconsin Avenue, N.W.  
Washington, D. C. 20015  
(202) 244-3800

puzzles both of us.

As I am busily taking still pictures of the stupendous panorama below, Scotty decides to try to find some way to get even higher. I feel as though I am standing on the rim of the world. In the distance I can see the distinctive double rock formation of the Wigleeva, standing like twin sentinals on guard above the village. The Havasupais believe that if these two rocks ever fall, the entire world will be destroyed by fire. That is why Clifford Siyuja had no qualms about locating his new pre-fab government-built house directly beneath the towering Wigleeva. If his house goes, so will the rest of the world.

As I am clicking away at the visual feast below, I hear a shout. There stands Scotty a couple of hundred feet above me, about halfway out on an overhang. It occurs to me what a helluva picture it would make if I could get him to set up his tripod on the very edge. I keep urging him to go farther and farther out until he is clinging to the very lip of the rock, with nothing under him but thousands of feet of air. I snap a couple of great pictures.

"Am I on an overhang?" he asks, with childlike innocence.

"Are you on an *overhang*?" I shout back. "When you see the picture I've just taken, you'll have a heart attack."

Photographers on the trail of a good picture have absolutely no conscience!

### The Sweat Lodge

"Earl says that if it's hot enough today, he'll build a sweat lodge," says George.

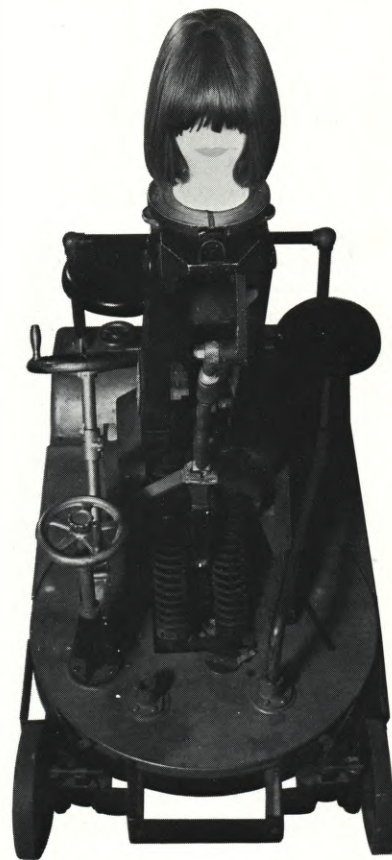
"It's hot enough today to die from it," I tell him, dripping wet while merely standing still.

The sweat lodge is about six feet in diameter, four feet high at the apex of its dome, and shaped like an igloo—except that it is constructed of dried mud several inches thick, over a framework of bent saplings. Strictly speaking, it is already "built", but the term refers to heating rocks until they're red hot and then placing them inside to serve as the basis for a kind of Indian *sauna*. This is done, for some strange reason, on only the very hottest days of the year.

The sweat lodge, I'm told, has a dual significance. It not only purges the body of everything from hangnails to cancer, but cleanses the soul, as well. Its ritualistic importance is signified by the fact that the Indians chant ancient incantations while par-boiling inside.

"We've got to get the sweat lodge on film," says George, pacing up and down

Continued on Page 1183



## Like to lease a reasonable dolly?

Or how about a tripod, mo-viola, changing bag, rewinds, cutting barrels, quartz lamps, animation field charts, light meters, 16 mm and 35 mm motion picture cameras, recorders, projectors, film and magnetic stock?

Or a ton of other professional photographic equipment, all available for sale, daily or weekly rental, or long term lease.

Compare our prices



## CALVIN CINEQUIP, INC.

An Affiliate of Calvin Communications Inc.

215 W. Pershing Road  
Kansas City, Missouri 64108  
Phone: (816) 421-1230

1909 Buttonwood  
Philadelphia, Pa. 19130  
Phone: (215) 563-1686

05699



# ECLAIR HAS TWO FACTORY SERVICE CENTERS: LOS ANGELES AND NEW YORK

Plus a nationwide network of franchised Eclair dealers, offering sales, rental and maintenance services. Dealer list is available on request.

## LOS ANGELES

7262 Melrose Avenue, Los Angeles, California 90046.  
Telephone: (213) 933-7182  
(Central Hollywood area)

## NEW YORK

73 S. Central Ave., Valley Stream, New York 11580.  
Telephone: (516) 561-6405  
(10 mins from JFK Airport)

Factory-trained Eclair service engineers are at both centers, ready to go to work for you.

**eclair**  
CAMERA MAKERS SINCE 1909

## ADVENTURE IN SHANGRI-LA

Continued from Page 1113

There are 52 families living in the village, with about 200 Havasupais actually in residence. However, their ranks will be decimated in a week or so when the children, above fourth grade level, are shipped off to boarding schools in various outside localities.

Local law and order is represented by two exotic-looking Indian mounted deputies, wearing cowboy hats and brass stars. They give out "tickets" for such offenses as drunken horseback riding and speeding (on horseback) down the village street. The village judge (or, more accurately, Justice of the Peace) is Mrs. Robert Sinyella of the Hualpai tribe, who is known to everyone in the village simply as "Nannie" and who dispenses frontier justice in large doses. A stern matriarch of incorruptible integrity, she did not hesitate to send her own husband to jail when he broke the law. Just now the tiny two-room jail is filled up with teenagers (five boys and two girls) given 60-day stretches for some crime or other (with an extra 40 days added on, in one case, for "sassing back"). The San Quentin group thinks *they've* got it tough!

The village politics are complex and it's a good thing George Williams is a master diplomat. Even though he has the full blessing of the tribal council to make this picture (all possible profits being ear-marked for their fund), there are certain villagers who are firmly opposed to being photographed. Shooting around them during group activities is a neat trick. Also, at the other extreme, are those who are offended if another family gets more closeups than they do.

Among the most cooperative to the film-makers are the four generations of the Paya family, headed by Lemuel Paya, who is also the acknowledged patriarch of the tribe. He is an extraordinary old Tiger of a man who, at the age of 84, still rides with his grandson in the team-roping event of the annual rodeo. Lemuel's son, Earl, is the village mailman who makes the thrice-weekly run down the mountain, in fair weather and foul, to deliver the U.S. Mail on muleback. He is also the gutsy fellow who drove the village's single tractor down the sheer cliff from the rim, even before there was a decent mule trail. Having been in the military service and spent many years working on the outside, Earl is far more sophisticated than most of the villagers, but (like almost all of the Havasupais), he has returned to

# Who forgot the cookaloris?

You're 1,000 miles from a studio—in the middle of a set-up—and no cookaloris.

Lucky if that's all you're missing.

Suppose you had to work without flags. Or a cutter, sun diffuser, background support, floor-to-ceiling poles... any piece of grip equipment. It happens all too often. And it's just as embarrassing whether you've brought a truckload or a trunkload of conventional gear.

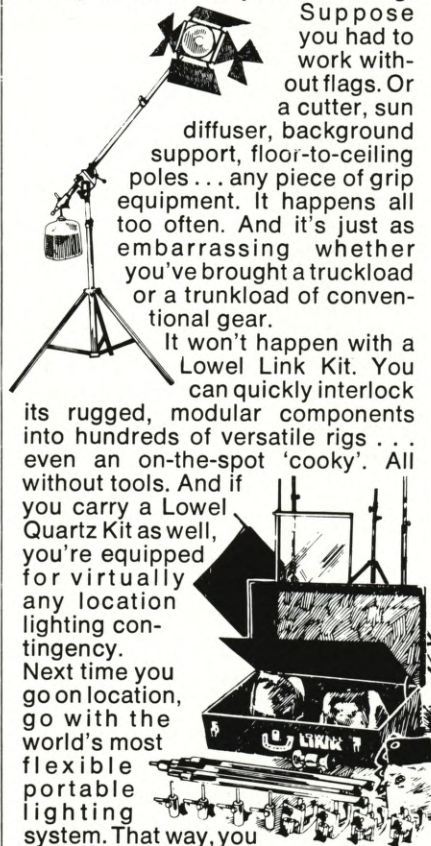
It won't happen with a Lowel Link Kit. You can quickly interlock

its rugged, modular components into hundreds of versatile rigs... even an on-the-spot 'cooky'. All without tools. And if you carry a Lowel Quartz Kit as well, you're equipped for virtually any location lighting contingency.

Next time you go on location, go with the world's most flexible portable lighting system. That way, you won't forget anything... even if you don't need a cookaloris.

For more information, visit your Lowel dealer or write/call:

**lowel**  
421 West 54th Street  
New York, N.Y. 10019  
(212) Clrcl 5-6744





# avid reader!



**GOSSEN**  
**Luna-Pro**<sup>®</sup>  
SYSTEM  
CdS EXPOSURE METER

**brightest  
sunlight  
candlelight  
moonlight  
plus\*  
microscope  
spot and  
enlarging!**

Outdoors, studio, darkroom, laboratory—wherever, whenever and whatever your exposure problem, the incredibly sensitive Luna-Pro SYSTEM CdS meter reads you the precise answer. As no other meter can! Three optional lock-on attachments instantly convert the Luna-Pro from a reflected-and-incident light meter to a: Variable Angle 'spot' Meter; Photomicrography Meter and En-

larging Meter. You may never need them all but when you do, your Luna-Pro's ready. It's famed 2,000,000:1 sensitivity range and unique convertibility SYSTEM make the Luna-Pro your best long-term investment. See this 'avid reader' at your camera dealer.

**SPECIFICATIONS:** Smooth, one-hand operation ■ Measures reflected and incident light (with built-in hemispheric diffuser) ■ For still and movie cameras ■ 30° light acceptance angle ■ single "see-saw" selector button for high and low range ■ Automatic "memory" needle lock ■ Computer range: ASA 6 to 25,000; f/1 to f/90; 1/4000th sec. to 8 hours; Cine from 8 to 128 fps ■ EV—8 to EV +24; .016 to 32,000 foot candles ■ Weighs only 7 ounces.

*Luna-Pro*

\*OPTIONAL ATTACHMENTS  
for every light measuring need



VARIABLE ANGLE ATTACHMENT



ENLARGING ATTACHMENT



MICROSCOPE ATTACHMENT

**KLING PHOTO COMPANY**  
P.O. BOX 1060, WOODSIDE, N.Y. 11377



live in his native village, the best of all possible worlds.

Bernard Paya, Earl's son, is in his early twenties and, like his daddy, an expert packer. He is also a demon bronc rider and a very mystical fellow. Of all the Payas, he is the only one who is camera-shy, though he eventually becomes less so. Bernard has a lovely little wisp of a wife and three beautiful children, none of whom is in the least camera-shy. One little girl is named "Whirlybird" because her mommy didn't quite make it out of the valley when the time came and she was born in the helicopter.

If anyone could be described as the "star" of this film, it would have to be Lemuel Paya. He is extraordinarily cooperative. Nothing is too much trouble for him and he seems not at all bothered by the supposed taboo against being photographed which some of the others share. He appears in a good bit of the film, tanning a deer hide in the old way, singing the ancient chants, recounting traditional stories of the tribe.

His cooperation is not prompted by vanity, but rather his zeal to preserve the last vestiges of the old Havasupai culture on film. Showing us some beautiful old baskets woven by the women of the tribe, he says, "There is only one woman left in the village who knows how to make these, and the young girls don't want to learn how."

He shakes his head sadly. "The young people of the tribe don't want to be Indians anymore," he says. "They want to be Americans."

The irony of that statement really rocks me.

#### The Rim of the World

Since George has a morning of palavering and politicking to do in order to line up forthcoming sequences, Scotty and I decide to climb to the top of the plateau and get some panoramic shots of the village.

We clamber up the steep Apache trail, which is almost impossible to distinguish from the rest of the sheer cliffside. On the way up we pass several semi-circular rock fortifications, obviously very old, but definitely man-made. It was from behind these barriers that Havasupai bowmen, clad completely in leather, used to fight off marauding Apaches in the old days.

Farther up, we come upon ancient granaries hollowed out of the rock and used by the forebears of the present-day tribe when they were still cliff-dwellers. Beyond one of these granaries the trail appears to end abruptly, a fact which

# FINALLY!

*The book  
that takes the mystery  
out of movie making*

## "Low Budget Features"

A "HOW-TO" HANDBOOK FOR  
INDEPENDENT PRODUCERS

Packed with up-to-the-minute  
information on:

- FILM FINANCING
  - ORGANIZATION
  - SCRIPT BREAKDOWN
  - PRODUCTION BOARDS
  - SHOOTING SCHEDULES
  - COST ESTIMATING
  - UNION CONTRACTS
  - TALENT CONTRACTS
  - EQUIPMENT
  - CREW REQUIREMENTS
- and hundreds of other topics

— PLUS —

**Source Directory  
Craft Dictionary**

and

**27 Page  
Sample Budget**

(COMPLETELY WORKED OUT)

**\$20.00**

(Plus Tax in Calif.)

SEND CHECK WITH ORDER TO  
**"LOW BUDGET FEATURES"**

1054 N. CAHUENGA, DEPT. A  
HOLLYWOOD, CA. 90038

NO COD'S ON SINGLE ORDERS



# We're BIG...

but we'll never lose  
our personal touch!

Western Cine's capabilities in processing and printing are limitless because we are continually researching new and better techniques for serving you. That's one reason why we've grown big.

But we are also staffed with people... good people who know and understand your needs... people whose skills and desires are bent on delivering quality work, excellent service and a full measure of value. Try us and see!

- EASTMAN  
INTERNEGATIVES  
with COLOR CORRECTION
- EASTMAN  
COLOR POSITIVE  
RELEASE PRINTING
- COMPUTERIZED  
PRINTING

## Complete Producers' Services!

COLOR PROCESSING  
— VIDEO TIMING

"FRONT-END SERVICE"

OPTICAL PRINTING 16mm to 16mm  
35mm to 16mm — 8mm PRINTING

SOUND RECORDING, DUBBING,  
MIXING

EQUIPMENT RENTAL & SALES

A quality-oriented lab —

We do the job right!



DENVER

312 So. Pearl St. - Denver, Colo. 80209

Cine Craft

8764 Beverly Blvd. - Hollywood, Calif. 90048

having to sacrifice some of the surroundings or the background, which would go over-exposed.

Frequently I found, when the rains would come up in the afternoon, that I was shooting a lot of stuff wide open, which left very little depth of field—and there was always the chance that someone would move out of position and make me lose focus momentarily. I don't like to "hunt" focus, if I can avoid it. I'd rather stop down and cheat with the depth of field. But there were many times when we couldn't do that, because there would be unplanned and unrehearsed action over which we had no control.

What I was primarily concentrating on throughout was getting the best possible image on film. It would have been helpful to be able to rearrange some of the elements in order to gain a bit more control, but usually that wasn't possible. I would have liked to have a little more light or be able to move someone away from in front of a cluttered background—or at least move them into the same light as that on the background—but many of the villagers were somewhat reluctant to be photographed, so it was a matter of getting it when it was happening and having to sacrifice a bit of photographic quality in the process.

Except for a "circle dance" sequence filmed outdoors at night, the entire picture was shot on ECO. Although we carried an ample supply of EF with us, I tried to avoid using it because of the differences in contrast and graininess. On several daylight exterior sequences, when the sun had actually gone down and there was little ambient light left, I risked going a bit underexposed in order to stay with the ECO, because I wanted to maintain the consistency of the film.

On one occasion, we had set up late in the afternoon to shoot a dinner sequence outside one of the tribal member's homes. When the sun disappeared into the clouds, I still had enough light to shoot with the ECO, but when the sun went down behind the canyon rim, it was a toss-up whether to switch to EF or continue with the ECO and push it one stop in processing. I didn't want to push it two stops, because that seems to give it a greenish cast.

The decision was especially critical because the people we were filming are rather dark complexioned and their flesh tones do not have a very high reflective index. In the end, I made the conscious choice to stay with the ECO, even though the exposure might be

Continued on Page 1179

## 16 mm PRODUCERS RELY ON SOUTHWEST FILM LABORATORY

FOR  
PROCESSING  
QUALITY &  
SERVICE

1. Daily processing of the entire family of 16mm Ektachrome films, B&W Negative & B&W Reversal.
2. Color & B&W Dailies.
3. Exclusive TRIAD® Additive Computerized Duplicating Process.
4. Color Internegative/Positive with TRIAD® Additive Scene-To-Scene Color Corrections.
5. Editorial Services — Creative Editing, Conforming, Editing Room Rental, Interlock Projection Facilities.
6. Complete Recording, Re-Recording, Music Scoring, Multiple Channel Mixing, Westrex Optical Track Royalty Free, and Westrex Electroprint Transfers.
7. 1:1 Optical Printing.
8. Ultra Sonic Cleaning.
9. Equipment Sales and Rentals.

An inquiry for additional information regarding complete in-house laboratory and sound services that are available to you, will receive a prompt response at no obligation.

## SOUTHWEST FILM LABORATORY, INC.

3024 FORT WORTH AVE. DALLAS, TEXAS 75211

PHONE: 214-331-8347



# Rentals at the right price!

How about a NAGRA III  
for \$10 per day?

Or zoom lenses starting  
at \$12.50 per day?

The newest 16mm  
camera and sound  
equipment . . . perfectly  
maintained . . .

Arriflex S, M or BL . . .  
Single or double system

Eclairs, Auricons or  
Scoopics . . .  
Crystal controlled motors

Wireless microphones . . .

High speed Millikens -  
Photo-Sonics cameras to  
500 frames per second . . .

Colortran lighting . . .

CINELEASE . . . your  
dealer for leading lines of  
production equipment . . .  
Our prices are always  
RIGHT!

For more information . . .  
Phone (203) 966-1671  
or write . . .



Rentals • Sales • Service  
1331 Ponus Ridge  
New Canaan, Conn. 06840

## "ALL THE BEST ANGLES ARE IN FIVE FEET OF WATER"

Continued from Page 1175

borderline on the "under" side.

We did carry a Sun-Gun with us, but I hesitated to use it on the exterior daylight sequences for a couple of technical reasons. It would have worked fine in the full-frame closeups, but if there were any background showing I'm afraid it would have gone so blue that it wouldn't have matched the rest of the footage. Then, too, although the Sun-Gun is a very useful tool, it's a fairly concentrated source that tends to throw a rather harsh beam of light. The rest of our footage had been shot in a quite straightforward manner with available light used primarily. I felt it might be jarring, after going along at a rather low light level, to suddenly turn on lights right in the middle of a sequence. Printing could have smoothed out the exposure, but the light quality would have been quite different.

The shooting of the rodeo sequence went quite smoothly, except for the thunderstorm that pretty well wiped us out for about forty five minutes. There was a light overcast, so I didn't have any brightness contrast problems with the lighting. Although I'd rather not shoot static subjects hand-held, the rodeo involved so much activity, color and movement that I'm sure it will turn out very well. Any disadvantages of hand-holding were outweighed by the flexibility of being able to move around fast enough to stay with the action.

While shooting the rodeo, I made an interesting discovery regarding the reluctance of some of the people to be photographed. I found that when they were involved in something that they were interested in and did very well, their aloofness pretty well disappeared. I always made a point of asking the people if it was all right to film them, before pointing a camera their way. One person in particular, a very good rider, had previously refused to be filmed, but I asked him again just as he was about to go into the calf-roping event and he said, "Sure, go ahead." Two days later, while I was filming on the village street, he came out of the store and reacted just fine to being photographed.

The circle dance sequence which I referred to earlier was one of the most difficult to shoot and one which left me a bit frustrated. It is a ritualistic dance, accompanied by chanting, in which the participants join hands and shuffle in a circle around the chanters and drummers. Signaling the wind-up of the

what has a  
bushy tail,  
weighs  
17 lbs.  
costs  
\$395.00  
and has  
a 6 month  
guarantee ?

A new battery pack  
from Colortran!  
The 30 Volt Power Pro!

25 minutes of continuous  
power in a compact portable  
design. Weighs 17 lbs. in use,  
23 lbs. with charger/carry  
case. It features a built-in  
state-of-charge meter and  
recharges overnight.  
Reliable and economical.  
Guaranteed  
6 months.

Only  
\$395.00

Sorry.  
No tail.



Colortran®

A DIVISION OF Berkey Photo Inc. Berkey Colortran • 1015 Chestnut St.  
Burbank, Calif. 91502 • 213 843-1200

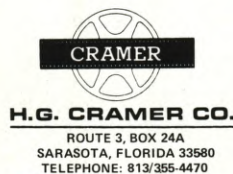


# WHO

offers the following  
FILM PROCESSORS?

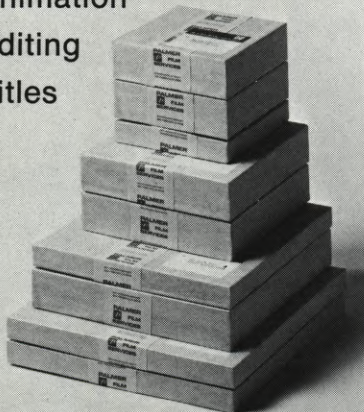
- \* 8-16MM. B & W REVERSAL-NEGATIVE-POSITIVE. \$695.00
- \* 8-16MM. B & W REVERSAL-NEGATIVE-POSITIVE. \$1450.00
- \* 8-16MM. B & W REVERSAL-NEGATIVE-POSITIVE, & E-4 COLOR \$1850.00
- \* 16-35MM. B & W REVERSAL-NEGATIVE-POSITIVE. \$1925.00
- \* 8-16MM. B & W REVERSAL-NEGATIVE-POSITIVE, & E-4 COLOR \$2250.00

What makes each one so special? Write for free brochures and find out.



## 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

tribe's annual Peach Festival, it was held outdoors at night on the newly completed concrete basketball court. There was no light on the subject and no source available other than our single Sun-Gun.

We were given permission to film for only two minutes—which made it necessary to get in and get situated in one spot, get the light on, get an exposure for the main character (who was chanting) and then go with him primarily until enough people started shouting to turn the light off—at which point we simply turned off the light.

I would have liked to be able to cover that sequence more completely, but, again, when you are working in a documentary situation where you are not paying the people and can't control them (and they have a natural reluctance to being filmed, on top of that), it was a matter of getting as much on film as possible in the very short time allotted to us.

The time-lapsing we did for this film was sort of fascinating. George felt that he might want to use one or two such scenes for bridging purposes, or possibly under his titles. Prior to going to Supai, he had gotten together with a friend who is apparently pretty sharp with electronics and they started to build an intervalometer to use with the Bolex. The idea was to design one that worked off a very small, lightweight battery. The Frezzolini battery would have been perfect, but it was too costly for their budget. They found, however, that a motorcycle battery would work quite well and they were in the process of putting it all together when George's friend joined the military. The intervalometer was never finished. So we ended up by doing all our time-lapsing by hand with a cable release and a stop watch.

I got up one morning at 4:30 and set the camera up on top of the talus against the canyon wall. Then I settled down for three and a half hours of time-lapsing, with an exposure every 15 seconds. I filmed the sunrise, with the light coming down the white wall of the Grand Canyon main gorge and then down the red walls of Havasu Canyon, spreading across the valley floor like a giant searchlight. We later got some time-lapse footage of a storm coming in, with a lot of good lightning strikes.

I was amazed at the little Nizo Super-8 camera Herb Lightman was using, with its built-in automatic intervalometer. The whole camera, including this sophisticated feature, weighs only about three pounds, and it's amazing to me that they can't seem to come up with such an intervalometer built into a

## MAJOR EQUIPMENT FIELD (East of Rockies) REPAIR SERVICE

Specializing in:

**OXBERRY**

(We are former Oxberry principals)

**ACME CAMERA\***

(Mfgd. and Sold by Photo-Sonics)

**SICKLES\***

**HOLLYWOOD\***

(Inspection Projectors)

**FOROX\***

Caesar-Saltzman • Statmaster • Optical Contact printers • Cameras • Animation • Film Strip • Slide Stands • Moving • Retrofitting • Custom Work • Alignment

• **USED EQUIPMENT** •

If you would like us to alert you when we have a technician in your city, send us your name, address, phone number and the type of equipment you own. We will then inform you whenever a technician is to be in your city. No obligation.

\*We are an authorized factory repair service; we supply factory parts. Our experienced technicians repair your equipment right on your premises.

Pat Mathison / Hans Jaggi / Ed Willette

**P PHOTOGRAPHIC  
E EQUIPMENT  
S SERVICE, INC.**

695 Main Street/New Rochelle, N.Y. 10801

Phone: (914) 235-2720

Nites and Weekends: (914) 834-1240



## Offers today's most comprehensive professional Motion Picture Training

Work in modern studios with the latest equipment. Professional instructors. Co-ed. Day/evening. Courses in preparation for Fall include:

- Writing for Film and TV
- TV-Videotape Production
- Documentary Film Production
- TV News Production
- Film Editing
- Sound Recording
- Animation
- Film Directing
- Business Films
- Underwater Film Production
- Camera Repair

Student loans/Veterans benefits available. Licensed by N.Y. State. Accredited by Natl. Assoc. of Trade and Technical Schools. Approved for foreign (non-immigrant) students.

FREE BOOKLET. Write, phone, or visit

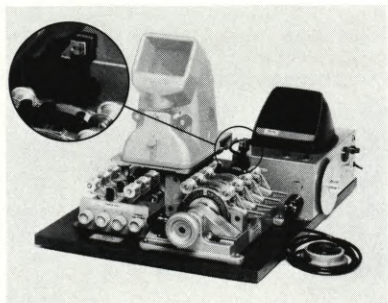
## New York Institute of Photography

Motion Picture Production Center, Dept. 331-11  
112 W. 31st St., New York 10001  
Phone (212) 244-3462

Leadership in professional training since 1910



**CUTS EDITING  
TIME 50%**



**FILMKRAFT EDITOR  
MODEL 16 O/M**

Runs up to 3 16mm magnetic tracks with a picture — Also runs single-system optical and mag-stripe — Sync motor drive — Automatic clutch — Free wheeling — Portable — Self-contained — Built-in solid state mixer and amplifier.

Prices start at:

**\$1385 F.O.B. Los Angeles**

For further information contact:

**FILMKRAFT SERVICES**

Dept. A  
6850 Lexington Ave., Suite 217  
Hollywood, California 90038  
(213) 464-7746

**IC-30 \***  
Solid State  
amplifier for  
film editing



**\$125.00**

\*All Solid State, integrated Circuit Design

Free Editing Equipment Catalog on request. Write or call:

**LAUMIC COMPANY, INC.**

35 West 45th Street  
New York, N.Y. 10036  
Telephone: (212) 586-7666

**SALES • RENTALS • SERVICE**

professional 16mm camera. The next best thing would be a small intervalometer that would work off a couple of penlight batteries—one that wouldn't weigh 40 pounds and cost \$500. Such a tool would be very useful, although somewhat limited, and I certainly wish we'd had one.

The only time that I used neutral density filters on this picture was during the time-lapse sequences, when single-framing at 1/30th of a second into a bald sky, and then I had to use an ND9 to keep from overexposing. I don't particularly like to use shallow focus. Some people stack ND's up in front of and behind the lens and shoot everything wide open—which I think works well as an effect—but I think that on this type of film, particularly, anything except straightforward photography would have been too arty. We weren't, after all, interested in going in there and trying to make the place look different from the way it really was.

George had told me that he wanted straightforward documentary footage showing as much unrehearsed everyday activity as possible. I couldn't see any need to stack up ND filters to shoot at F/2, when I had an F/8 light. Moving around as much as I did, I much preferred to take advantage of the available depth of field and keep the backgrounds in focus. In this film the environment is just as important as the people and their activities. We had neither the time nor the mobility to cover specifically everything that is integral to the life of the village, but it's all on film—if only peripherally—in the backgrounds, and it says a lot about Supai and the way the people live there.

I'm basically in favor of straight photography most of the time, which may be a carryover from my still photography background. I'm a great admirer of Edward Weston and Ansel Adams and others of the old F/64 school of photography. I personally believe in getting a good clear image, unless there is a definite reason for some other kind of effect.

I worked on a picture last year where the style called for us to use double fog filters and push EF for a particular effect. But I think that, in general, jerky hand-held camerawork or a lot of zooming and flip-focus are just technique for the sake of technique and that they are sometimes over-used. In my opinion, they are especially out of place in a documentary, whereas, in another type of film, they might be just fine. In a documentary I feel that they serve no purpose, except to make the audience

**NEW SMITH-VICTOR**

Model 710

**HI-FI STUDIO LIGHT**



New Smith-Victor Hi-Fi Quartz Studio Lights are made to meet the needs of the most discriminating professional photographer. Housing is of Double Wall Aluminum which provides coolness, strength and light-weight. They are high quality lights for photography or T.V., and are ideal for Key, Fill or Punch Lighting. Focusing lever adjusts the light from a 15° spot up to a 60° flood. Write for complete specifications and price sheet.

**MODEL 710 HI-FI STUDIO LIGHT**  
(less lamp) .....\$35.00  
**MODEL 711 BARN DOORS** ..... 13.50  
Single and Double Scrims available

AT YOUR PROFESSIONAL DEALER

**SMITH-VICTOR CORP.**

Griffith, Indiana 46319



**Film  
School**

**12-Week Intensive  
16mm Film Course**

- Camera technique
- Editing
- Lighting
- Sound
- Budgeting

**"MAKE YOUR OWN  
SOUND FILM!"**

Next course starts November 8.  
Other sessions begin January 10 and  
February 21.

**ENROLL NOW !**

**SOUTHERN  
CALIFORNIA  
FILM  
INSTITUTE**

8625 SANTA MONICA BOULEVARD  
LOS ANGELES, CALIFORNIA 90069  
PHONE: (213) 659-2320



## INSECTS

Rare views of insect life.  
Thousands of feet of Ektachrome Commercial  
and Ansochrome available.

**Irving Magilnick Productions**

102 Flint Ridge Road (203) 268-6313  
Monroe, Conn. 06468

## 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 Bolex Accessory Catalog  
**STEVENS ENGINEERING CO.**  
Dept. A, 340 Newport Blvd.,  
Newport Beach, Calif. 92660



**PROFESSIONAL  
UNDERWATER  
PHOTOGRAPHY**

A Division of Giddings  
Underwater Enterprises

(415) 362-6694

584 Fourth St., San Francisco, CA 94107

# Listen to Irish



You'll hear nothing. Nothing but the original sound as you recorded it. Sharp, clear, resonant.

Irish offers a complete line of professional quality audio tapes in all configurations: reel-to-reel, cassette, cartridge and duplicating tapes. It offers you superb uniform quality. That's why most major recording companies and sound studios use Irish.

Try it once. You'll hear the dramatic difference.

For complete specifications write:

### Irish Recording Tape

270 Newtown Rd., Plainview, N.Y. 11803  
Export Dept. Morhan Exporting Corp.

conscious that the film-maker is trying to be arty.

Photographing a documentary about the Havasupai Indians was a fascinating experience, even though it had its frustrations. Some of the people were extremely cooperative, while others wanted no part of it, but I think that it's very understandable that they should be very suspicious of a group of white people coming into their reservation and saying, "We want to make a picture about you—for you."

They've had very, very bad experiences with white people for hundreds of years, so I think that their natural reluctance to be on film—which is partly superstition—might have been reinforced slightly by the fact that we were a white crew. I really think that an Indian crew would have been better to make this particular picture, because they have a shared past experience and a certain empathy that we just don't have, in that we come from a completely different culture. Ideally, it should have been made by a crew of Havasupai Indians from the reservation—or, as the second best choice, from a neighboring tribe, such as the Hualapai, the Hopi or the Navajo. However, there are just not enough trained American Indian film-makers at the moment. We have five or six Indian students in the Motion Picture division at UCLA right now—which is good—but they are still in the beginning stages.

My experience in Supai was personally somewhat frustrating, because I saw so many great things and I just wanted to get that camera in there and photograph them. But to have people turn away or say, "No pictures, no pictures!", I found, as a cameraman, to be very frustrating. I haven't worked under those particular conditions before.

The making of a documentary about the people of Supai has a very special significance right now, because the scene is changing fast. Soon the entire village will have electricity, inevitably followed by a tramway into the valley from the rim. These encroachments of "civilization" will make it a very different place.

In the meantime, the ferment of change that is going on needed to be captured on film—especially the culture gap and the generation gap which exist between the younger kids, the people in their early thirties and the older people of the tribe. I think it was important for somebody to make a documentary film record of this before the present culture is completely gone. I'm happy that I could be part of that effort. ■

# Charles Ross INC.

Sole distributor of Mole-Richardson  
Company Products in Greater New York

## IN CANADA

16mm & 35mm b&w processing and printing. Complete 16mm COLOR Ektachrome processing. Magnetic sound stripping for 16mm-8mm and Super 8mm. Vacuumate film treatment. 16mm Optical Transfers.

QUEBEC 265 Vitre Street West, Montreal, Quebec  
FILM LABS Telephone (514) 861-5483

If it's worth saying  
it's worth saying into  
a Shure Microphone

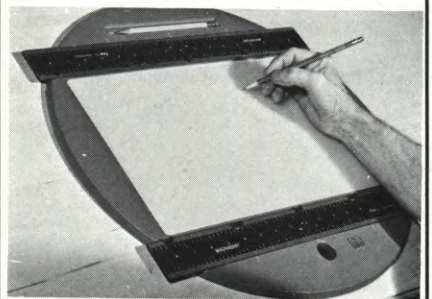
IN FLORIDA IT'S  
**WARREN SOUND STUDIOS**  
Complete sound production facilities

- Mixing ■ Dubbing ■ Transfer ■ Interlock Screening Facilities ■ 16 or 35 mm ■ Editing ■ Loc. Sound Trucks ■ Westrex, Nagra & RCA Equipment
- 35 NE 62nd St. • Miami, Florida 33138  
Telephone: (305) 754-9539

coming soon:

## Thrift FAX ANIMATION STAND

— an effective money-saver . . . precision at low-budget price. Advance information? Ask us!  
Meanwhile, FAX is your Thrift-source for ANIMATION DISCS:



FAX MAGNABAR® DELUXE 12/16 FIELD DISC (illustrated) is \$135. 12-field Discs, too, at \$115. Write for national dealer list.

- And for your convenience we stock
- Acme-Punched Animation Cells
  - Acme-Punched Animation Paper
  - Peg-Bars • Ink & Paint Boards

Tell us your Animation needs and we'll supply you! Need technical information? Ask ex-Disneyite Hubbard Hunt.

### FAX COMPANY

475 S. Santa Anita Ave.  
Pasadena, Calif. 91107  
213 / 681-3084

Interested dealers — write today!



## Automatic TIME-LAPSE MOVIES

Made Easy by SAMENCO® Controls  
Complete system  
See your dealer or write direct.

**Marion Van Ausdale & Associates**

33 Dellwood Court • Decatur, Ill. 62521

# ROSCO

## color media

ROSCO, PORTCHESTER, N.Y. 10573

**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

## 16mm camera repair



**ARRIFLEX • AURICON  
BEAULIEU • BELL & HOWELL  
BOLEX • ECLAIR • KODAK**

Fast, expert check-out and repair  
to factory specifications.

Lens collimation and  
correction for zooms,  
wide-angles, and telephotos.

Prompt estimates!



Phone (303) 433-3873, or write:

**Stan Phillips & Associates  
camera service**

2245 w. 30th avenue denver, colorado, 80211

## FILMING IN "SHANGRI-LA"

Continued from Page 1178

and (I'm sure) silently praying for even more heat.

His prayers are answered. When the mercury hits about 112 degrees, we see in the distance a wisp of smoke, which means that Earl Paya has started a fire to heat rocks for the sweat lodge. We buckle on our equipment and go racing over to record the event.

The smoke has been seen, also, by various braves of the tribe and they drop what they're doing to assemble at the sweat lodge, Lemuel Paya leading the formation. They strip down to loin cloths, as Earl lifts incandescent rocks out of the fire with a shovel and places them inside the lodge. Lemuel goes in first, followed by three others. The heavy canvas flap is lowered over the opening and he can be heard shouting,

"Han-e-ga, Han-e-ga!" ("Good, Good!"), as he sprinkles water over the hot rocks. Then the chanting begins. Meanwhile, I'm thanking all of the Druid gods that I'm not in there with them. After about ten minutes, they emerge, dripping with sweat and fling themselves into the icy waters of the nearby creek. Barbaric!

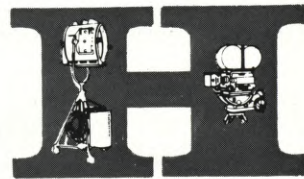
George and Scotty scurry about, getting all of this on film. While Scotty trains his zoom lens inside the lodge, George grasps the microphone between his knees and regulates the Nagra controls with one hand, while beaming a Sun-Gun inside with the other. Talk about *intrepid!*

"We need a reverse angle," says George, obviously a distant cousin to the Marquis de Sade. Without a word, Scotty drags the Eclair, the Sun-Gun and himself inside the sweat lodge to shoot the scene. Stout fellow! He crawls out eventually, observing, "It's so hot in there that I could feel the fat on my knees frying."

While I am trying to visualize that, a dread thing happens: We are invited to join the Indians inside the sweat lodge. I would, personally, rather be dead. But since it is considered a signal honor to receive such an invitation—especially if you're not a member of the tribe—it would be very bad form to refuse. Resigning myself to my fate, I peel down to my shorts and crawl inside the steaming black hole for what turns out to be a preview of Hell. When in Rome . . . and all that. One of our Indian buddies goes in with us, just to make sure that we don't bolt and run.

George is being very *macho* about the whole thing. He keeps saying ballsy

## PROFESSIONAL MOTION PICTURE EQUIPMENT RENTALS



# HARRISON

**WHERE THE SERVICE IS**

MOLE RICHARDSON / CRAB DOLLIES  
WORRALS / UNDERWATER CAMERAS  
GRIP EQUIPMENT / CABLES

**THE LARGEST  
EQUIPMENT RENTAL  
HOUSE IN FLORIDA,  
THE SOUTH  
AND THE CARIBBEAN**

**24 HOUR  
SERVICE**

**HARRISON CAMERA & LIGHTING CORP.**

3131 B N.E. 188th Street, North Miami Beach, Fla. 33160  
Phone: (305) 949-3337

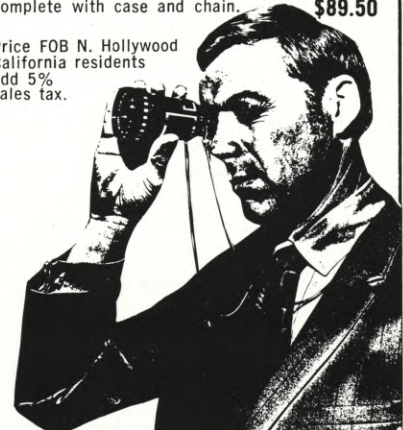
## Director's Zoom Finder

The Director's Zoom Finder is a precise zoom instrument that shows the field of view a camera will photograph with various focal length lenses. It eliminates the need of moving the camera to various positions while planning a shot.

**COMBIFINDER 16/35, ZOOM;** with zoom range of 8 to 75mm for 16mm format and 17.5 to 150mm for 35mm format. Complete with case and chain. **\$69.50**

**CINEMASCOPE 35/16 ZOOM FINDER MODEL IIIB;** with adjustable mattes for cinemascope and all other wide screen aspect ratios, standard and TV formats. Zoom range 9 to 50mm for 16mm format and 18.5 to 100mm for 35mm format. Complete with case and chain. **\$89.50**

Price FOB N. Hollywood  
California residents  
add 5%  
sales tax.



**Alan Gordon Enterprises Inc.**

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



OUT  
OF  
TRY  
SYNC?

**QUARTZ LOG**

\* CRYSTAL-SYNC GENERATOR

\$200.00 Less Battery Pack

The Lowest Priced Generator in the U.S.A.

IMAGE DEVELOPMENT CO.  
BOX 1014 PARSONS, KANSAS

- KEM Universal Editing Tables
- KEM Standard-Rapid Editing Tables
- KEM Transfer and Dubbing Systems

Revolutionary Systems for the Film Industry

**KEM**  
**ELECTRONIC**  
**MECHANIC CORP.**

a division of The Intercraft Corporation

225 Park Avenue S.  
New York, N.Y. 10003  
(212) 260-2150

## 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.

things like, "If you hold your head straight up, you'll find it's much hotter near the top."

At 200 degrees, who needs it hotter? I've got my nostrils pressed against the dirt floor, trying to sniff up the last traces of relatively cool air, but I'm determined not to be the first to give in. In the end, it's our Indian friend who yells "Uncle", and wants out.

We stagger down to the creek, more dead than alive, and it's heart attack time as we hit the freezing water. George skins his lip doing a porpoise thing. Tough!

Without pausing to dress, the UCLA film-makers grab their filming equipment and start shooting the next group to enter the sweat lodge. They form a funny tableau, standing there in their jockey shorts with nothing else on but an Eclair and a Nagra, respectively.

"The latest in basic garb for *cinema verité* film-makers," says Scotty, as he notices me cracking up at the sight.

### The Falls

During our first week in Supai, the indomitable UCLA filming team has been preoccupied with shooting various sequences of village activities, as well as filling in with pick-up shots bypassed during their spring excursion to the valley. I've tagged along with them everywhere, cameras clicking, totally fascinated by the whole exotic scene.

And yet, there has been a certain restlessness on my part. Being a waterfall-freak, among other things, there gnaws at my vitals the realization that within a short distance of the village are five magnificent waterfalls which I haven't yet seen. For a genuine, dyed-in-the-wool waterfall freak, that's like agonizing through the cold turkey treatment.

And so it is with great glee that I hear George decree one morning that today we are, indeed, going to the Falls. At last, I'm going to get my "fix"!

The waterfall nearest to the village (about a half-mile away) is called "Fifty-foot Falls"—which it, no doubt, once was. But by now, floods have chopped it down to about half that height. Nevertheless, it is a beautiful cascade of singing waters that tumble down travertine terraces into a clear turquoise pool that serves as the "ol' swimmin' hole" for the children of the village. Tom Sawyer never had it so good!

We stop by at Fifty-foot en route to the larger falls and pause for a quick dip in the bracing waters. I am intrigued by the "secret grotto" which George reveals to me. You dive into the pool

### FILMAKER SUPPLY

JIMMIE MUNDELL

The New Professional Motion Picture  
Equipment Supplier for the Southwest  
P.O. Box 1146 501/374-6005  
Little Rock, Ark. 72203

**SHOOTING IN CANADA?**  
Contact Jim Grattan for top equipped crews. Single and double system.  
1440 St. Catherine Street, West  
Suite 507, Montreal 107, P. Q. Canada.  
(514) 878-9638

**GRATTAN PRODUCTIONS**

### SHOOTING IN NEW YORK?

Production management service for independent and non-union producers.

Professional Crews

Camera and equipment rentals

Production office and facilities.

Stages, locations and permits.

The service of facilitating motion picture production is our sole business.

Universal Creative Personae

304-A W. 18th St. (212) 255-9321  
New York NY 10011

**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 Stripping
- 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.**



**TEKNI FILM**

Crystal sync. units for Super 8 Cameras, Beaulieu and Canon Scopic 16 and Super 8 — Pilotone Generators — Digital Projector Interlocks and Recorder Convertors — Complete Systems — Digital Film Equipment Division of Whitehead Enterprises, 1205 West Drew, Houston, Texas 77006.

## 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

## COMPLETE LABORATORY AND POST PRODUCTION SERVICES



**FOTO-KEM**  
**INDUSTRIES, INC.**

"Motion Picture Center"

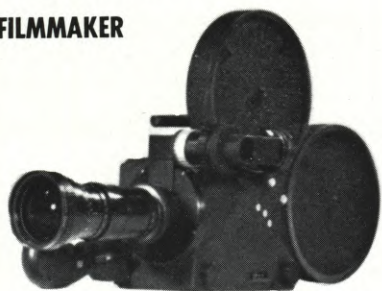
GERRY BRODERSEN • LOU VINCENT • REGINALD DUNN

• Fast service on developing ECO, EF and Color Dailies • Specializing in custom quality color-16mm and 35mm.

**Cutting Rooms & Facilities For Rent**

**HO 3-4111** 3215 Cahuenga West  
 Hollywood, Calif 90028

## AURICON REFLEX CONVERSION FOR THE PROFESSIONAL FILMMAKER



LIGHTWEIGHT 7 LBS  
 PERFECT BALANCE

ENGINEERED TO YOUR REQUIREMENTS

- SINGLE / DOUBLE SYSTEM
- STANDARD — 16 mm
- SUPER — 16
- DOUBLE SUPER 8

**CAMERA DEVELOPMENT CO.**  
 31 BREWSTER ROAD WEST  
 MASSAPEQUA, N. Y. 11758  
 (516) 799-5307

toward what appears to be a solid wall of travertine directly beneath the falls. Swimming about a foot underwater, you clear the ledge and pop up into a small cave penetrated by fissures that allow air and soft light to filter through. The only sound in this cozy cocoon is the murmur of tumbling waters above. It's back-to-the-womb time, for sure.

We press on toward Navajo Falls, which lies a mile farther down the canyon. We can hear the roar of its waters before we see it—and then, rounding a curve in the trail, we find ourselves looking down at a scene of spectacular beauty. Navajo is actually a complex of several interlinked water-courses, each with its own individual character. The main one is a powerful cataract plunging straight down from a ledge about 75 feet above. The second major flow begins high up as a cascade of rapids that divides into streams falling from split-level travertine ledges into the pool below.

To get down to the foot of the falls, we slip and slide down a steep, muddy trail and then pick our way through dense foliage that grows right to the edge of the rushing creek. It's a hairy maneuver all the way—but worth it. My film-making friends waded out to a spot almost directly under the main falls and set up the Bolex. Three camera angles later, we push on down the trail.

We cross the creek, using a large fallen log as a footbridge. It takes a bit of a balance to get across, even with a dry footing, and I find myself wondering what it would be like in a rainstorm. Little do I know that I will have ample opportunity to find out!

We pass magnificent Havasu Falls a half-mile down the canyon, but decide to press directly on to Mooney Falls, since the light should be just right for shooting there at this time.

Mooney Falls, almost 200 feet high, derives its name from the fact that a dude named James Mooney fell off of it (no pun intended) back in 1880. The face of the cliff adjoining the falls is so precipitous that it was 10 months before his companions could get down to bury what remained of old Jim.

Getting down the face of that cliff isn't a helluva lot easier to negotiate even now, despite a sort of trail hacked out by miners, but we decide to do it anyway.

Even for a mountain goat, it's a neat trick. The angle of the cliff is about 80 degrees and, just now, it's mighty slippery. Considering the height and steepness, one slip could spell doomsville, so we pick our way down gingerly, to say the least. Since I have half a dozen

## PRECISION CINE EQUIPMENT

Designer's and Manufacturer's  
 Super 8 and 8/16 continuous printers and film processing machines — 16mm - 35mm preview projectors.

WRITE FOR BROCHURE

**BI — CEA**

P.O. Box 1602, Orlando, Florida 32801



**Hollywood Valley Film Lab**

## 8MM Specialists.

We do it all. In house.

- Reduction printing
- Contact printing
- Magnetic or optical sound
- Treating and cartridgeing

For details write

**Hollywood Valley Film Lab,**  
 2704 West Olive, Burbank,  
 California 91505, or phone  
 (213) 846-7262.

## KEEP VALUABLE FILM CLEAN AND DUST-FREE

**ECCO 202**  
**FILM CLEANING AND**  
**CONDITIONING SYSTEM**  
**WITH ANTI-STATIC**  
**ECCO 1500**  
 Cleans Filmstrip and  
 Movie Film in 8, 16  
 and 35 mm —  
 Color and B&W



Weights 8 lbs.,  
 complete with  
 all accessories

Inexpensive compact system for do-it-yourself users. An extremely simple system to use wherever continuous or instant cleaning and conditioning of film is needed, it will clean, condition and stop dust-attracting static in one operation. Cleans 400 feet of film for less than 2 cents! Comes with ECCO 1500 Anti-Static solution — nationally known and accepted by leaders in industry.

See your supplier — write for literature

**ELECTRO-CHEMICAL PRODUCTS CORP.**  
 89 WALNUT STREET, MONTCLAIR, N.J. 07042



# ASIA IS COVERED BY

**FARKAS FILM COMPANY**

MARINA HOUSE  
HONG KONG

COMPLETE 16/MM & 35/MM  
PRODUCTION FACILITIES

## Cinemascope Lenses

New and Used  
Rent — Buy — Sell

16 - 35 - 70mm

Prime — Anamorphic — Zoom

Also complete stocks of

8 — S/8 — 16 — 35 — 70mm Cine Projectors  
Slide — Overhead — Opaque — Projectors  
Screens — Lamps — Parts — Teleprompters — Etc.

**Alan Gordon Enterprises Inc.**

5362 Cahuenga Blvd.

No. Hollywood, Calif. 91601

(213) 985-5500

### 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

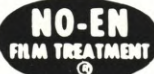
## BUSINESS FILM HEADACHES **CURED**

- FILM SERVICING
- COMPLETE TV FILM EXPEDITING
- MOTION PICTURE SERVICING

— 8mm CARTRIDGING —

FILM STRIPS CUT CANNED PACKAGED.

**VACUUMATE FILM PROTECTIVE TREATMENT**  
LASTING PROTECTION Against  
OIL · WATER · WEAR · CLIMATE  
SCRATCHES · FINGER MARKS



**NO-EN GIVES TROUBLE FREE PROJECTION TO LOOP AND CARTRIDGE LOADED FILMS. NO-EN INSURES SMOOTH UNINTERRUPTED SHOWINGS AND EXTENDS THE LIFE OF THE PRINTS.**

For information, write or call

**VACUUMATE CORPORATION**

427 WEST 42nd ST., NEW YORK, N.Y.

Offices throughout U.S. and Canada

cameras dangling from my neck, I decide to make this scene backside down, so to speak—which gives me a fine panoramic view of where I'll land if I fall. Several times I do slip and go bumping down on my bottom, managing to break the fall by grasping at one of the rusty pegs or short lengths of chain installed by long-departed miners.

At last—after what seems like 28 days—we reach the bottom, and *terra firma* never felt so good! The view from here of Mooney Falls is mind-boggling. Higher than Niagara, it plunges straight downward in a single roaring cataract into a pool fringed with scalloped travertine terraces. Magnificent!

We pick our way along the edges of the travertine in search of the best camera angle—which turns out to be right in the middle of the creek. Where else?

The boys grind off a few miles of film and, treading water, I snap my cover shot for *American Cinematographer*. Then we scale the cliff and head back toward Havasu.

### Thunder Over Paradise

As a serious, card-carrying *connoisseur* of waterfalls, I can truthfully say that for sheer form and symmetry Havasu Falls would be very hard to beat. At the top, the creek leaps through a relatively narrow travertine notch and immediately fans out into two main cataracts laced together by a kind of "bridal veil" spray. The whole fantastic arrangement plunges 100 feet into a pool of incredibly blue-green water, a favorite skinny-dipping spot for denizens of the campground located a short distance below the falls.

George goes ape with his director's viewfinder and keeps on walking until he finds himself literally up to his neck in water. Without taking his eye from the viewfinder, he yells, "This is it!"

Good old faithful Scotty, wearing his neon-green hat, comes trudging into the drink and sets up a tripod just barely tall enough to keep the lens of the Bolex above the water level. "Why is the best angle always in five feet of water?" he asks plaintively, of nobody in particular.

We have a picture-taking orgy at Havasu and then, suddenly—what was that? A raindrop? *Hell, yes!* There is a mad scramble for lens covers and plastic bags as the heavens open up and urinate all over us. It's not merely a rainstorm—it's a cloudburst, a deluge, the Johnstown flood. I wish to hell we had Noah's ark.

There is no place to stash the camera gear except under a shallow outcropping

## OKLAHOMA HEADQUARTERS

### SALES & RENTALS

- ARRIFLEX
- BOLEX
- BEAULIEU
- SONOREX
- NAGRA IV RECORDER
- COLOR-TRAN LIGHTING EQUIP.

### PROFESSIONAL CAMERAS

2216 S.W. 74 (405) 682-1101  
Oklahoma City, Okla. 73159

If it's worth saying  
it's worth saying into  
a Shure Microphone

## 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

## 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:

Uhlér Cine Machine Cable: Uhlcima  
15762 Wyoming Ave., Detroit, Mich. 48238  
(313) 861-4663

THE FINEST LINE OF  
PROFESSIONAL EDITING  
EQUIPMENT AND SUPPLIES  
IS SOLD BY?

..... NOPE  
..... NOPE  
..... NOPE

*Christy's* . . . . . YEP

Including dealer and distributorships with Moviola, Maier-Hancock, Ziess Ikon, 3M, HFC, MPE, CHRISTY'S MFG., GE and Sylvania.

*Christy's*  
EDITORIAL FILM SUPPLY  
2920 WEST MAGNOLIA BLVD.  
BURBANK, CALIFORNIA 91505  
Send for Price List to: Dept. A



For the best in quality and service

# RUSSELL FILM LABORATORIES

- Complete 16mm Lab
- 
- Color and black & White processing
- 
- Sound recording
- 
- Editing
- 
- Printing
- 
- Titles



Same day service on Ektachrome processing and work prints  
**RUSSELL FILM LABORATORIES**

P. O. Box 6938 • Jacksonville, Fla. 32205  
(904) 389-2316

## HARRY WALSH, A.S.C. for FLORIDA filming

Supplying Visiting Producers with Crews, Equipment, Locations etc. over 25 years.  
2711 San Domingo Coral Gables, Florida  
Phones—(305) 446-0566 and (305) 446-0811

## AIRPLANES - HELICOPTERS

Aerial Photography and everything in aviation including balloons, jenny's to jets, mock-ups and a fleet of single and multi-engine planes & helicopters, all with camera mounts. Complete motion-picture and TV service from the oldest and most experienced company in the industry. S. A. G. pilots.

### TALLMANTZ AVIATION INC.

Frank Tallman, Pres.  
Orange County Airport, Santa Ana, Calif.  
(714) 545-1193 or (213) 629-2770  
Plus: Certified Air Taxi Location Service

WE REPAIR

# ZOOM

LENSES

and all other types of mp lenses

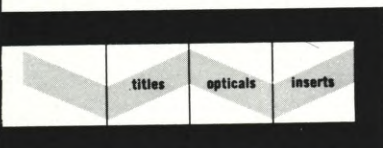
Coast to Coast Service  
Free Estimates

### STUDIO REPAIR SERVICE

1350 N. Western Avenue  
Hollywood, Calif. 90027  
(213) 464-1020

Also: Cameras and Meters

**WESTHEIMER** Company



Joseph Westheimer, A.S.C.

TITLES, TRAILERS, INSERTS AND OPTICAL EFFECTS  
FOR MOTION PICTURES AND TELEVISION  
HO 6-8271

736 Seward St., Hollywood, Calif. 90038

that soon dissolves into a big gob of mud. We huddle together like three shivering idiots under a ledge—which turns out to be a mistake, since it quickly starts pouring mud down our necks.

"My God!" exclaims George, suddenly getting religion, and I look up toward where he's pointing. Havasu Falls, which only minutes before had been a virginal veil of crystal-clear water, is now a raging torrent of chocolate-colored goo. Unbelievable volumes of the stuff come thundering through the notch and into the pool below.

We break out the cameras—the devil with the rain—and start taking pictures of this phenomenon. Water gets into everything—and my poor Hasselblad will never be the same—but we get some great shots of Nature's tantrum.

It suddenly dawns on us that we'd better get our tails out of there and head back toward the village, or we might not make it until next St. Michaelmas Day.

It's a pretty gooey exodus, as we go twinkle-toesing through suddenly-formed inland seas, hoping we won't get struck by lightning, because of all the metal we are carrying.

When we reach the fallen-log foot-bridge, the only possible way across the creek, an appalling sight greets us. The creek, so recently shallow and placid, is now a raging rapids about 15 feet deep and almost up to the slippery log. Getting across with all our gear is a nightmare prospect. One slip and we could get carried over four waterfalls clear down to the Colorado River. In the end, there's nothing for it but to waddle laboriously across on our bottoms like so many ducks—a really side-splitting sight!

Meanwhile, up on the mesa, billions of gallons of water have flowed toward the edge of the plateau, so that the entire rim of the canyon is now one colossal waterfall. I've hit the jackpot! We break out the rain-soaked cameras and photograph these giant cataracts pouring down on every side.

Nothing's really a disaster, as long as it's photogenic!

### The Peach Festival

In former days, when peaches were abundantly grown in this valley, the Havasupais celebrated the harvest with a Peach Festival. Though peaches are no longer grown as a major crop, the Peach Festival still remains—except that now it is held as a kind of send-off celebration for the kids of the village who are returning to boarding schools in the outside world.

## 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 Shows  
Airport - Song of Norway*

### FILM EFFECTS of Hollywood

1140 N. Citrus Ave., Hollywood, Calif. 90038  
Phone: 469-5808 Cable: FILMEFX

# 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

### CAMERA STOCKS

16mm EKTACHROME 7252	.....	.06
16mm EKTACHROME EF 7242	.....	.0575
16mm EKTACHROME 7241, 7256, 7255	.....	.0525
16mm B & W Neg. PX, DX, TX	.....	.025
16mm Color Negative 7254	.....	.065
35mm Color Negative 5254 from	.....	.07
35mm EKTACHROME 5241, 5242	.....	.16
35mm B & W Neg XT, PX, DX, 4X	.....	.035

### LABORATORY STOCKS

7387, 7385, 7253, 7302, 5302, etc.

### MAGNETIC SOUND STOCKS

35mm & 16mm New and Reclaimed

### FILM & EDITORIAL LEADERS

	16mm	35mm
Opaque leader 4.0 Den. ....	19.50	26.50
Dyed black leader 4.0 Den. .	16.50	18.50
Academy .....	35.00	38.00
Lightstruck .....	8.90	14.50
Clear .....	4.50	7.00

## studio film exchange, inc.

11555 Ventura, Studio City, Calif. 91604  
213-985-3303

### Distributors:

Studio Film Exch.  
5114 Alcott  
Dallas, Texas 75206  
214-828-1303

SFE Raw Stock, Inc.  
366 W. 46th St.  
N.Y.C., N.Y. 10036  
212-265-3740

### PROFESSIONAL LAMINATED MAGNETIC STRIPING

Since 1958

THE *Vitaton* CO.

SUPER 8'  
16mm  
& REG. 8

\$.03 Per Foot—380 Ft. Min. Order

18991 RADBY ST.  
LA PUENTE, CALIF. 91745  
(Rowland Heights)

FAST SERVICE—FREE BROCHURE



## J. Burgi Contner A.S.C.

Director of Photography  
SPR Reflex BNC, SPR-NC,  
ARRIFLEX, Lights, Sound  
P.O. Box F1532  
Freeport, G.B., Bahamas

## 16mm COLOR LAB

KODACHROME AND EASTMAN COLOR RELEASE  
Coast to Coast Service  
Write for Price List

### RICHARD ARLEN LAB.

2214 West Olive Ave.  
Phone 848-3132 Burbank, Calif. 91506

## IS YOUR FILM DIRTY?

Does your cleaner cloth leave lint?

### The HGA Film Cleaner pad

Removes dirt • Lint Free • Scratch Free  
\$1.50 Each

### HENRY GROSSMAN ASSOCIATES

519 S. 5th Ave., Mount Vernon NY 10550

## INDIA

• FILMING •

### ASIAN FILMS

72 JANPATH, NEW  
DELHI-1; Cable: Movi-  
photo, New Delhi (In-  
dia); Telephone: 47995

## Meris ANIMATION AIDS

213-789-4498 • 17040 OTSEGO, ENCINO, CA. 91316

Schools, Corporations, TV Stations, Producers

### BUY DIRECT — SAVE BIG!

Camera Stands, Punches, Discs, Pegboards,  
Cartoon Colours, Cels & Supplies

ACME OR OXBERRY STANDARDS

## SUPER 8 SPECIALISTS!

Any Quantity... BEST Prices

### Cine-Craft, Inc.

8764 Beverly Blvd., Hollywood, Calif. 90048 (213) 652-7357

### ALL MOVIE LAB SERVICES

16mm, Super 8, Regular 8

Write for free brochure

## MONTAGE

Editing & Complete Post Production Service  
Features — Commercials — Documentaries

(212) 279-0808

152 West 42 Street — Suite 816  
(Times Square)  
New York, N.Y. 10036

## JOYSTICK CONTROL

UNIVERSAL FILM AND TAPE  
REWIND DECKS

Audio-Visual Technical Laboratory

1616 Newportville Road, PHONE (215) 757-3915  
Cornwells Heights, Pa. 19020

The Festival kicks off with a rodeo. Steers and calves are driven down the trail from the plateau above especially for the event and all the Indian cowboys, including 84-year-old Lemuel Paya, get involved in the action. For the filming of the various events, Scotty climbs right into the ring and almost ends up with hoof-prints all over him a couple of times, but he gets some great shots.

The Havasupais, almost literally born in the saddle, are superb horsemen and they put on a spectacular show.

Later that night, the villagers, armed with flashlights, brave the ghosts which usually keep them indoors after sundown and assemble on the new concrete basketball court outside the Recreation Hall. A traditional circle dance is held, with the people shuffling around a cadre of drummers and chanters in the middle.

George and Scotty have been granted permission to turn their Sun-Gun on for only two minutes to film scenes of the dance. It's probably the shortest filming session in history, but they manage to get their shots.

The dance goes on far into the night. Then the Indians slip away, clutching their flashlights. The drumming and the chanting die out—and the Peach Festival is over for another year.

## Parting Is Such Sweet Sorrow

Time—which seems to stand still in Supai—also has a way of slipping by and, before we realize it, the time has come to leave. The last frame of film has been shot, the last inch of tape recorded—so there is really no reason to stay on, although I could think of a dozen quite easily.

I hate to leave the peace of this magic canyon. For one wild moment, I contemplate going AWOL, holing up near Havasu Falls and letting the rest of the world go by. But then I think of our constant readers and relent.

In the morning, crack of dawn, the ever-faithful Perry shows up with his mules and packs our gear for the long eight miles up to the Hilltop. I'm suddenly glad it's such an arduous trip. Otherwise, this lovely Shangri-La would be overrun with tourists.

Up on top, I don't look back, because I know that if I do I may never leave. The spell of Supai lingers, and I know it always will.

In my long-continuing love affair with the American West, I have known many infatuations—but, of them all, Havasu Canyon has to be the *Grand Passion!*

## PROFESSIONAL MAGNETIC SOUND STRIPING

- Super-8 and 8MM originals or prints
- 2¢ per foot—plus postage
- One day service

### AERCO

Box 171 Pennsauken, N.J. 08110

For Professional Equipment in

## PHILADELPHIA,

it's

## O. H. HIRT, INC.

39 N. 11th St. • Phila, Pa 19107  
(215) 923-0650



## Reflectasol™



LARSON ENTERPRISES, INC. • 12817 SO. BROADWAY  
LOS ANGELES, CALIF. 90061 • PHONE (213) 323-3252

## SOUND STRIPING

ORIGINAL OR PRINTS — 8/SUPER-8/16MM

24 HOUR SERVICE

Guarantee on Emulsion Side

## MAGNETIC FILM LAB

P.O. 13573

St. Louis, Mo. 63138

## 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 NY 10019

## FOR FILM PROCESSING EQUIPMENT

Contact:

# HILLS

Mfg. Co., Inc.

Chalfont, Penna. 18914

(215) 345-1944

## CAROLINA PHOTO-TECH INC. FILM LABORATORIES

Ektachrome Processing/B&W Processing/Work Prints/Release Prints  
Call or write David Conley for  
complete professional price list  
639 Wellons Village Shopping Center  
Durham NC 27703 (919) 688-7265

## CANADA

NCE equipment in Canada is available from

### Alex L. Clark, Ltd.

NATIONAL CINE EQUIPMENT, INC.

37 W. 65th St., N.Y., N.Y. 10023



# BUY — SELL — SWAP HERE

## STUDIO PRODUCTION EQUIP.

OXBERRY ANIMATION STAND \$14,500. 16/35mm Acme optical printer \$12,500. Acme 35mm camera \$1,995. 16mm automated stand \$3,500. Acme stand \$2,500. Filmstrip stand \$1,650. Filmstrip and filmstrip/slide cameras from \$695. O'Connor 200 fluid head \$1,200. Reflexed 400 ft. Eyemo with zoom lens \$1,500. Kodak AV-256 sound projector \$325. Kodak Mag/opt projector \$495. UNIVERSITY SUPPLIERS, 225 West Ohio St., Chicago, Ill. 60610 (312) 467-6457

ARRI-16S complete, many extras \$3,500  
Eclair NPR-16 outfit, extras 4,300  
Mitchell-35 Hi-Speed, clean 2,500  
Beaulieu-16; 12/120, Uher 1000L 2,100  
Auricon Pro-1200; Opt/Mag., Zoom 2,900  
Beaulieu-16 outfit, real sharp 1,200  
Auricon Pro-600; Opt/Mag., Zoom 2,500  
Yoder conv'sn Opt/Mag 100' and 400' 2,300  
Auricon Pro-200; Optical sound 750  
Cine Voice 400' conv'sn, optical 650  
Angenieux 25/250 elec. zoom-Arri 2,100  
Pan Cinor 17/85 zoom, finder, C-Mt. 225  
Schneider 25 & 50mm for Arri-16, each 50  
Cooke 100mm deep panchro (Arri-35) 275  
Nagra IV-L recorder 1,300  
NAGRA III recorder 990  
Uher-400 recorder 225  
Magnasync 602 recorder, new heads 1,400  
De Vry 35 interlock projector 1,150  
Bell & Howell JAN 16mm projector 600  
Zyco 8/8mm film splitter, new 1,200  
Cartoni tripod and head 375  
Pro Jr. baby or standard legs 45  
Will consider trades... COMQUIP, Box 12, Ridgewood, N.J. 07451 (201) 444-0196

ECLAIR NPR. Beautiful shape. Very silent. #1444 described by some as best NPR ever used. Maintained and serviced by Mitchell Bogdanowycz, camera technician. Complete with exceptional 12-120 Angenieux lens, magazine, DC sync motor. \$4,000. DICK ROBERTS, 364 Nassau St., Princeton, New Jersey (609) 924-9707

ONE AURICON SUPER 1200, model CM 74C, 16mm double system camera, serial #32308, 1200' mag., extra door, B&L Baltar 100mm F2:3, Berthiot SOM Lytar 25mm F1:8, Angenieux 50mm F1:5. \$2,000 Custom built horizontal filmstrip animation stand incl. B&H 2709 camera, two 50mm F2:3 lens, single frame motor, electronic timer, 400' mag. \$2,100  
Two, GE Marc 300 unmounted power supplies & lamps, each \$125  
Four, teleprompter juniors, model N2411, each \$100  
Mole-Richardson telescoping mike boom on rolling stand \$495  
Ampex, portable 2 track 1/4" recorder, Model 350P \$950  
Four hub, 16mm HFC synchronizer, with counter \$145  
DuKane auditorium filmstrip projector, including turntable and amplifier \$195  
LaBelle Maestro I, sound-slide projector, playback only \$100  
LaBelle II, sound-slide projector, rec-play \$150  
Moviola, 35mm model D, pix head, with all controls \$100  
Fairchild Mark IV, reg. 8mm projector \$225  
Budelman 12B wireless mike, complete with receiver \$175  
Misc. lenses, lights, generators, sound, editing and camera equipment. Write for complete list. TELECINE FILM STUDIOS, INC., 100 So. Northwest Highway, Park Ridge, Ill. 60068 (312) 823-1418

CANON SCOOPIC demonstrator \$795. Folding shoulder pods, new \$55. PROFESSIONAL CINE PRODUCTS, 2959 Ladybird Lane, Dallas, Texas 75220

## STUDIO PRODUCTION EQUIP.

REWINDS. COMBINATION 16/35mm. Heavy duty. 2000' capacity. Disengaging crank handle. Clamp base. Limited supply all in excellent condition. \$17 per pair postpaid. SUNSHINE PRODUCTIONS, 122 West Atlantic Ave., Haddon Heights, N.J. 08035

ARRIFLEX and Cine Special animation motors \$295. B&H 400 ft. magazines \$75. UNIVERSITY SUPPLIERS, 225 West Ohio St., Chicago, Ill. 60610 (312) 467-6457

ENTIRE INVENTORY of tooling, parts, drawings for manufacture of 16mm and 35mm camera sound blimps for Bolex, Beaulieu, Arriflex. Original cost over \$35,000. Ideal for one-man shop. Sacrifice for \$8,000 cash or offer trade. Distribution of production and leads available. (213) 766-3715, Box 717, North Hollywood, Calif. 91603

GET OUR CASH offer before you sell any of your cine equipment. COMQUIP, Box 12, Ridgewood, N.J. 07451 (201) 444-0196

AURICON CINE VOICE CM-72, guaranteed excellent working condition, with spare door for zoom lens. Cable with isolation transformer. WALTER J. KLEIN CO., LTD., 6301 Carmel Rd., Charlotte, N.C.

ECLAIR NPR GOVERNOR controlled 12 volt Perfectone motor #3441 generator 60 cycles Nagra bloop like new \$700 (213) 342-5654

GRAFLEX-16 ARC projector model 940. Used very little. \$900. (404) 428-6361 WILEY GROOVER, 21 Sessions St., N.W., Marietta, Georgia

SENNHEISER WIRELESS MIKE systems. Less than a year old. Two SK 1007 transmitters. R1010 and T203 receivers. Two MK 12 mikes. \$1195. (213) 355-7863

PRESTOSEAL MIRACLE 16mm butt-weld splicer. Heater blocks for splicing picture film and magnetic film. Mint condition, \$375. AUDIO VISUAL PRODUCTIONS, 111 Midstreams Pl., Brick Town, N.J. (201) 899-4342

NAGRA IIIB RECORDER, mike preamplifier; like new—\$995. CHARLES C. VANDERVORT, Laceyville, Pa. 18623

EQUIPMENT FOR SALE. Arri 16S body \$1000. Mitchell 1000 foot mags \$50. 400 foot mags \$35. Mitchell high speed motor \$295. Jan 16mm projector \$350. 35mm Moviola model D \$195. Much more. Buy Sell Trade. S. K. FILM EQUIPMENT CO., INC., 254 Giralda Ave., Coral Gables, Fla.

NC EXCELLENT condition, overhauled, 6 magazines, 5 lenses, 3 motors, finder, etc. \$2,950. Mitchell high speed—5 lenses, 4 magazines, high speed motor, 2 additional motors, etc. \$1950. (213) 454-9903

SYNC BEEP—1/4 inch tape prerecorded with high-level 1000 cyc. tone, backed with special pressure-sensitive adhesive for quickly affixing visual and audible sync indication on any magnetic film or tape. Industry-wide acceptance. Send \$2.50 cash, check or money order for postpaid packet containing 20 strips totaling 100 35mm frames. D. P. UPTON COMPANY, P.O. Box 5052, Tucson, Arizona 85703

16mm SOUND RECORDING system includes 2-dubbers, recorder, interlock projector (silent), sound projector (no sync motor), 1/4 inch Ampex, turntable, and custom control console. Has all new solid state electronics, and includes three mikes and two stands. Best offer over \$3,100. (313) 341-1071 JIM MITCHELL

## STUDIO PRODUCTION EQUIP.

ECLAIR NPR—with 12-120 zoom, crystal motor battery, 2 magazines, filters, other accessories, one year old, excellent condition. Paid over \$8,000 asking \$5,900. (213) 454-9903

MITCHELL BNC, SPR reflex camera. Excellent condition. 20mm through 100mm Super Baltar lenses, finder, cams, everything matches. Adjustable stroke, spare pellicle, 220V sync motor, cases for everything. \$29,000. firm. VICTOR DUNCAN, 11043 Gratiot, Detroit, Mich. (313) 371-4920

BELL & HOWELL 35mm model J—16 35mm printers  
Westrix 35mm editor (like new)  
Macbeth transmission densitometer (new)  
2—500 gallon—300 gallon stainless steel tanks  
35-16mm processor containing 22 stainless steel tanks (new)—60-12-gallons, suitable for all color & B&W  
Bell & Howell 35mm animation camera and stand

Still Equipment:  
E.K. 4c color printer  
17" Ozalid duplicator  
E.K. 5x7 automatic focus; 8x10 Saltzman enlargers.

Liquidating... no reasonable offer refused. CINEQUE COLORFILM LABORATORIES, 424 East 89th St., N.Y., N.Y. 10028

MOVIOLA 16mm model UL20S modified for composite. Excellent condition. C.E.C., P.O. Box 27276, San Francisco, Calif. 94127 (415) 661-9716 or (415) 392-8408

16mm ANIMATION STAND. Has Arri camera with animation motor and control. Also has lens and follow focus. Semi automatic fader also included. The compound leaves something to be desired, but what do you want for \$2,150. No haggling. Call (313) 341-1071 JIM MITCHELL

Mint Specials with our 6 month Positive Warranty

16mm Bell & Howell 535 Filmosound reconditioned \$395.00  
16mm Bolex reflex with 9-95mm Angenieux zoom lens, spotless 1,100.00  
16mm Bell & Howell 70DA body, excellent 129.50  
Above with 15mm f2.5 Ektar. 25mm F1.9 super comat and 75mm Bell & Howell Telate f:4 225.00  
New, Leicina Super 8 camera with factory registration, special 375.00  
Beaulieu Super 8, 4008 zoom, spotless 445.00  
Stanco Cine 8-16, hot splicer, special 247.50  
Above, used 199.50  
\$1295 16mm Bauer P6 automatic sound proj. demo model, almost new, our special demo price 875.00  
Bolex H16 Rex 1V with 9-95mm Angenieux zoom, spotless 1,145.00  
R16B Beaulieu w/17/68 Angenieux zoom f2.2, electric hand grip, charger and battery. Perfect 1,195.00  
On hand... 16mm new Bolex EBM camera and 16mm new Canon Scoopic.

What have you to trade? Write, call sales director Selwyn S. Schwartz, HELIX CAMERA, LTD., "Pro Shop to the Industry" 679 No. Orleans, Chicago, Ill. 60610 (312) 944-4400. Major bank cards accepted.

ACL or NPR ECLAIR sale or rent with any lens; also, for sale 9.5-95 zooms with eye-piece. A. MAYSLES, 1697 Broadway, N.Y.C. (212) 582-6050

16mm PRINTER PETERSON with sound-head and fader, complete with converters. Excellent condition presently in use. For sale \$6,800 or long term lease. MURRAY HILL PRODUCTIONS, 15 W. 46th St., N.Y.C. (212) JU-6-0357

RATES: Ads set in lightface type. 30¢ per word. Minimum ad, \$3.00. 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) \$3.00 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.

B&H MODELS J&D complete or convertible to Super 8. Plus a large stock of used parts. CARTER EQUIPMENT CO., INC., 232 So. Glasgow Ave., Inglewood, Calif. 90301 (213) 677-6117

### HELIX LTD. GUARANTEED SPECIALS!

Nagra IV-S Stereo-in stock  
Nagra IV-L3 mono synchronous-in stock  
Nagra SN recorders-in stock  
Concord F400 stereo tape recorder, like new \$109.50  
16mm professional Pathe reflex-16 complete with 2-400 ft. magazines, power supply and variable speed motor and battery charger w/matte box 429.50  
- w/17 to 70 Pan Cinor F2.4 zoom 579.50  
Canon 814 Super 8 auto zoom 7.5 to 60mm with case, mint condition 224.50  
New, Leicina Super 8 camera with factory registration, special 375.00  
300mm F35 Birns & Sawyer with 85 filter, Arri mount, excellent 349.50  
Pathe DS8 BTL body only, perfect 325.00  
Beaulieu 4008 zoom Super 8, mint condition 449.50  
Angenieux 9.5-95mm F:2 for Bolex H-16 Rex and shade, mint condition 895.00  
16mm Bolex uni motor and battery case 69.50  
Bolex H-16 reflex body 225.00  
Beaulieu Cinema Synchro pilot 60 per sync pulse for 60 cycle, perfect 125.00  
Nikon 8X super zoom, new but demo model 215.00  
800mm F:8 Auto Nikkor with focusing mount, used but very good 475.00  
Focusing mount for Bronica for above lens 95.00  
500 F:5 reflex Nikkor, Nikon, mint 325.00  
50/300 f4.5 Nikkor zoom auto lens, used guaranteed 375.00  
50/300 f4.5 zoom Nikkor, new but demo in original carton with guarantee 515.00  
What have you to trade? Write-call sales director, Selwyn S. Schwartz, HELIX CAMERA LTD—"Pro Shop to the Industry"—679 No. Orleans, Chicago, Ill. 60610 (312) 944-4400. All major bank cards accepted.

UHER 1000. Report L "Sync" tape recorder—demonstrator—\$495 with mic. DUECK PRODUCTIONS, 386 McLeod Ave., Winnipeg 15, Manitoba (204) 338-4415

FOR SALE. 2 Stellavox SP-7 tape recorders incl. 8 head assem. + other acces. pract. new \$3200 complete (213) 477-4537 DENNIS O'LEARY

INTERLOCK FOR B&H projector and Magnasync. Cost \$800. Sacrifice \$250. Also Pic-Cync 2-heads cheap. (416) 920-3495

MITCHELL-BNC w/extras, sharp	\$16,500
Mitchell-35 Hi Speed, clean	2,500
Arri-35/2B w/Blimp, sync motor	3,500
Eyemo-35 body, 2-mags, 24fps mtr.	100
Eastman-16 Reflex Spec' 1, extras	1,100
Eclair NPR-16, 2-mags, 12/120	4,600
Auricon Pro-1200, Opt/Mag, zoom	2,900
Auricon Pro-1200, optical, zoom	2,400
Aur. Pro-1200 body, 1-magazine	1,800
CineVce Cnvsn, opt/mag, M-10 Ampl.	2,200
CineVce Cnvsn, Opt, constant mtr.	650
CineVce Cnvsn, outside sync motor	500
Auricon Pro-200 outfit, Opt/sound	750
Nagra III recorder	990
Uher 4000 recorder, Mic., case	225
Recorder 35-Optical, Maurer galvo	950
Stancil Hofman 16-Mag recorder	1,400
Stancil Hofman 35-Mag recorder	1,500
Magnasync-602 16-Mag recorder	1,400
Angenieux 25/250 electric zoom	2,100
Pan Cinor 17/85 zoom, finder, C-mt.	225
Baltar 100mm lens, optical or C-mt.	125
16mm Processor & Uher duplicator	1,500

Ask for our FREE 1972 pocket secretary. We trade up or down... COMQUIP, Box 12, Ridgewood, N.J. 07451 (201) 444-0196

### SPECIAL SALE

New equipment, used once for SMPTE demonstration. Unique PERFECTONE 16mm portable recorder. 40 lbs. Has crystal motor drive and is self-resolving. 2 mike/lone inputs. 1200 foot capacity. Battery or AC operation. Special at \$3950. (Normally \$5300). Latest model PERFECTONE portable 1/4" tape recorder EP 6A IIS with built-in crystal & 2 mike inputs. Special price, \$1450. (Normally \$1675). Resolver for above recorder ± 20% speed correction. \$585. Call or write PERFECTONE AMERICA, 5213 Vineland, No. Hollywood, Calif. 91601 (213) 877-8887

## STUDIO PRODUCTION EQUIP.

16mm GEVAERT 8.63 Reversal 100 ft. \$2.50 Victor 40B good (as is) \$65. GLENN, 945 East 20th St., Los Angeles, Calif. 90011

B&H 35mm PRINTER-model DH separate soundhead, roller gate, voltage regulator, excellent condition and practically unused. \$2950. One 35/16 Peterson reduction printer with rectifier and 75 light board. \$1200. Needs gears. Now at Peterson's costing \$600. C. SMITH, 65 Bergen Ave., Ridgefield Park, N.J. 07660 (201) 641-1843

INVENTORY REDUCTION of equipment. Cameras, Moviolas, projectors, and more. Tremendous savings. Free listings. SK FILM EQUIPMENT CO., INC., 254 Giralda Ave., Coral Gables, Fla. 33133

ARRIFLEX BL's, S/N 50266, 12.5/75mm Zeiss, 1-400' mag., case, \$3,950. S/N 50432, 12/120mm Ang., 2-400' mags., battery, case, \$4,950. Both in new condition. New Angenieux 12/120 zoom, C-mt. \$725. Mint. Angenieux 12/240mm zoom, Arri Mt. \$1,550. Sync. motor for Arri S \$395. Reflex Cine Special II, 7 lenses, 2-100' mags. par AC/DC wild motor, case \$850. B&H 12 volt wild motor \$90. Griswold dbl. 16mm hot splicer \$27.50. Box 1740, AMERICAN CINEMATOGRAPHER (213) 662-4507

BELL & HOWELL 35mm motion picture camera Eyemo turret, 5 lenses and motor \$300. Excel. cond. J. R. WITULSKI, 591 No. Irving Blvd., Hollywood, Calif. 90004 (213) 467-3129

CAMERA CAR. Front & back running platform, full top platform w/tie-down rings, sliding side door for loading and shooting. Priced for immediate sale. SPALDING ASSOCIATES, 2416 Frankfort Ave., Louisville, Ky. 40206

SPOTLIGHTS/PROJECTORS accept reasonable offer for seven 2000 watt spots and stands, two 750 watt spots; bullswitch; Dukane 14A-230, Audio Scope Executive, Besseler Salesmate, MATT FARRELL PRODUCTIONS, 213 East 38th St., New York, 10016 (212) 683-8358

## SERVICES AVAILABLE

PRODUCTION AIDS. Write for literature. CINEPHONICS, Box 534, Del Mar, Calif. 92014

PRODUCER: Your program distributed through Europe, Africa, 16 or 35mm at no cost to you. Contact A.S.P. DISTRIBUTION, 5716 Vecino Dr., Glendora, Calif. 91740 (213) 963-6761

SUPER 8mm B&W processing \$1.50 per cartridge. 16mm B&W processing 2 1/2¢ per ft. One day service. SOUTHWESTERN CINE SERVICE, 2406 Classen, Oklahoma City, Okla. 73106

THE CAMERA DOCTOR repairs Arris, Eclairs, Mitchells. Call ALAN GORDON ENTERPRISES, 1430 No. Cahuenga Blvd., Hollywood, Calif. 90028 (213) 466-3561

CINEMATOGRAPHER — 2 Reflex cameras, sound — Telephotos — Parabola — Tripods — car pods — 4 wheel drive — etc. — will travel. L. L. RAIL, 649-1801, 2934 Las Vegas Blvd., No. Las Vegas, S.P. 19, Nevada 89030

NEW ZEALAND, cameraman available, cover any film making task, 16 or 35mm. Footage or finished film. Highly creative. Send for sample reel. McALPINE (FILM) PRODUCTIONS, LTD., P.O. Box 9416, Newmarket, Auckland, N.Z., Phone: Auckland 544-728

CAMERAMAN AVAILABLE with location camera car and complete location equipment including Eclair, Nagra, lights, etc. Twenty years experience with features, cinema verite, etc. Complete crew available on request. TOM SPALDING, 2416 Frankfort Ave., Louisville, Ky. 40206 (502) 895-1600

PROFESSIONAL CINE PRODUCTS builds a 15-oz. magnetic amplifier for Cine Voice.

ALASKAN CAMERA CREW ready to work in Alaska. Editing & sound production facilities. CINEMA ALASKA PRODUCTIONS, Box 646, Juneau, Alaska 99801 (907) 586-2249

## SERVICES AVAILABLE

PROFESSIONAL CINE PRODUCTS gives 48 hour service on Filmo & Auricon filter slots. Also quick service on Auricon and Filmo repairs

PROFESSIONAL CINE PRODUCTS repairs all types of conversions.

## WANTED

AGGRESSIVE ANIMATOR wanted to operate on his own. Have 16mm stand sitting idle. Reasonable terms. MATT FARRELL PRODUCTIONS, 213 East 38th St., New York, 10016 (212) 683-8358

WANTED: Mauer 16mm camera, B&H 400 ft. camera, Cine Special 200 ft. film chamber. JAY H. SCHIFF, 500 Cornelia Ave., Chicago, Ill. 60657

SOS PHOTO-CINE-OPTICS  
New York—New Jersey—California  
URGENTLY NEEDED USED EQUIPMENT  
Cameras, zoom lenses, accessories, projectors, sound recorders, mikes, Moviolas, editing equip. Anything and everything useful for film production. SPOT CASH OR ON CON-SIGNMENT

Flash!!!

USED VTR EQUIPMENT WANTED  
Call the SOS office nearest you  
N.Y. — Hy Roth — (212) JU6-1420  
315 W. 43rd St., N.Y.C. 10036  
CALIF. — Phil Dewald — (213) 466-9361  
7051 Santa Monica Blvd., Hollywood 90038  
N.J. — Wally Robbins — (201) 939-5250  
40 Kero Rd., Carlstadt 07072

KINODROME MOTION PICTURE machine (projector), model B or C, any condition. Mfg. by Bell & Howell Co., Circa 1913. Reply: W. C. MONSON, 916 So. Hamlin Ave., Park Ridge, Ill. 60068

WANTED: 35mm movie camera with hand crank for single exposures and focusing tube through the lens. NATIONAL PHOTOSTAMP CO., 34-11 Crescent St., Long Island City, N.Y. 11106

MAGNASYNC, 16mm, model 602E-5 spray processing machine. 16mm. Small unit. IRVING MAGILNICK, 102 Flint Ridge Rd., Monroe, Conn. 06468 (203) 268-6313

USED LIGHTING EQUIPMENT—price in first letter. WILLIAM EGGLESTON, 1716 19th St., N.W., Washington, D.C. 20009

FAST CASH for your used or surplus 16 and 35 cameras, lenses, sound gear, projectors, what-have-you. We buy, sell and trade up or down. COMQUIP, Box 12, Ridgewood, N.J. 07451 (201) 444-0196

## SITUATIONS WANTED

HARD WORKING young man desires any kind of job in a production unit. Experience: BA French (fluent), MA Sociology, UCLA Film School, combat cinematography in Vietnam, one year in 16mm-35mm film lab. Own new Arri 5/B, B&H 70DR. Will travel, accept low pay. Call (313) 824-1974 (collect) after 6PM.

YOUNG SCIENTIST — ADVENTURER — filmmaker seeks another expedition or adventure. \$10,000 of 16mm and sound equipment, 16mm and 35mm director of photography credits at your disposal for a very low figure. Just returned from Australia as director/cameraman on adventure feature for 35mm blowup. A professional film may pay for your entire expedition. W. SWENNING, 4436 1/2 Camino, Los Angeles, 90027 (213) 666-1310

## MISCELLANEOUS

Free from PROFESSIONAL CINE PRODUCTS 1 set zoom see rings, 1 sunshade, and 1 series 9 glass filter with every 12 to 120 zoom we sell.

## RENTALS

STEENBECK 16/35 for rent-low price in N.Y. or Toronto. (416) 920-3495

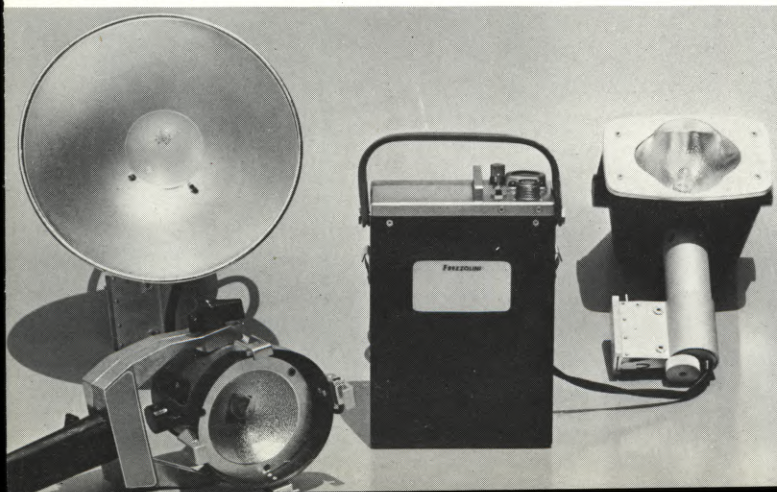


# FREZZOLINI®

## Model 800NC Portable DC Power Pack

New, reliable, low-cost light-weight, high-energy nickel-cadmium powered version of our Frezzi™ Model 800LL. List \$495 with our Frezzi™ Light Head. At Professional Motion Picture Supply Dealers or write, phone Jim Crawford, Vice-Pres. Engineering.

Reliable power for all professional light-heads.



This Frezzi™ Model 800NC is the new standard for newsfilm portable lighting.

Features a reliable, long-life nickel-cadmium battery. Fully automatic. Built-in Frezzolini charger. Battery protection during charge or discharge. Accurate color-coded DC voltmeter for continuous output monitoring. Indicating lights for Operation and Charge. Weight: 10 pounds. Size: 5 $\frac{5}{8}$ " x 9 $\frac{1}{2}$ " x 3". Supplies 250 watts at 30 volts DC for 30 minutes. Designed for use with all professional portable battery-operated light-heads. Ideal for running any 28 volt DC camera motor.

MANUFACTURED BY

**General Research Laboratories**



DIVISION OF

**Frezzolini Electronics Inc.**

7 Valley St., Hawthorne, N. J. 07506

PHONE: (201) 427-1160



# Byron Announces 5 Million Dollar Expansion Plan.

**NEW** high speed tape  
duplicating equipment

... includes two new Ampex AVR-1 recorders and one Ampex ADR 150-1 master and three slave high-speed tape duplicating machines. We will be one of the few companies able to produce five or more copies of a one hour taped show in six minutes.

**NEW** post-production  
Video tape equipment

... includes the latest audio and video switchers with special effects, telecine multiplexer chain with 16mm, 8mm and 35mm projectors, electronic editors and programmers.

**NEW** studio facilities with  
latest color cameras

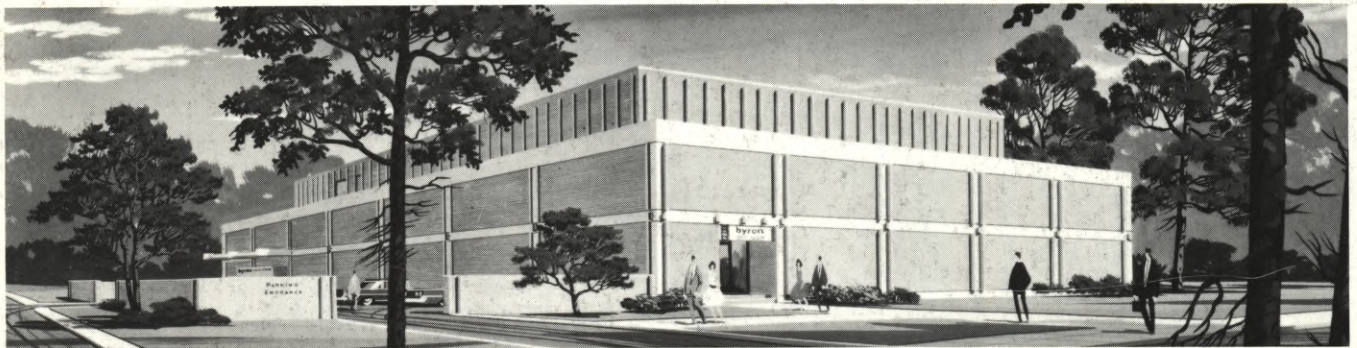
... with the acquisition of additional adjoining property, we are designing one of the most unusual production studios in the world. A small studio 60 x 80 and later a large studio 150 x 200. Two new model PC-100 Norelco color cameras will be available temporarily in a small studio in our present building. **THESE STUDIOS ARE DESIGNED EXCLUSIVELY FOR RENTAL TO PRODUCERS.**

**NEW** motion picture  
laboratory services


... will be added to our present services. This will include color reversal intermediate negative in 16mm and 35mm.

**NEW** film strips and 2x2  
slide film services

... we are presently completing installation of the finest film strip and slide film equipment available, incorporating new production techniques.



**byron** **COLOR-CORRECT®**

 ELECTRON BEAM RECORDING  
FOR BLACK AND WHITE

65 K Street, Northeast, Washington, D.C. 20002 202/783-2700  
World's Most Sophisticated Video Tape and Film Laboratories