MARCH 1969 ■ 75 CENTS

AMERICAN Cinematographer

International Journal of Motion Picture Photography and Production Techniques

CREATING A COLORFUL, LOW-BUDGET, MIXED-MEDIA "SEE-IN"

EXCLUSIVE! SUPER SILENT SYNC SOUND CAMERAS...EITHER 12 VOLT OR 115 VOLT

When you use F&B/CECO's Cinevoice* Conversion with CINESYNC.

Complete power supply mobility is at your disposal, whether you operate the camera from our 4 lb. 12V CINESYNC battery, 12V belt battery, A 115V Frezzi, or in an emergency, a 12V dry cell, auto battery, etc.

With our conversion, you get (at no extra charge) our exclusive process that reduces camera noise over 50%. Plus the optional CINESYNC versatility that lets you shoot double system wireless full sync sound.

Features:

★ CINESYNC crystal frequency control and inverter weighs only 9 ounces, and is built right into the camera.

★ 12V DC-115V AC power supply selector switch.

★ A complete range of accessories from short viewfinder and shoulder grip for hand held shooting to buckle trip, sync output, etc.

Prices:

Basic conversion to 400′ or 1200′ capacity with sync motor, clutch, filter slot, etc. ..... $ 695.00
Basic conversion with CINESYNC modification 1640.00
CINESYNC modification only 995.00

F&B/CECO'S CONVERSION CAMERA PACKAGE IS AS LIGHT OR LIGHTER THAN ANY OTHER

Send for free illustrated literature and complete list of accessories with prices.

*Registered Trademark of Bach Auricon, Inc.

F&B/CECO INC.
Branches in: Cleveland/ Atlanta/ Washington, D.C./ Buffalo

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New York, N.Y. 10036
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THE INVERTER AND A HALF. 5 POUNDS.

To the cameraman who's tired of being a pack horse, good things come in small packages. Like the new Frezzolini-designed 1000D Inverter. Complete with quick change battery, it weighs all of 3 ½ pounds. Throw in a spare battery pack and you've got a five pound package that'll keep you shooting all day long. Compare that to the 15 or 20 pound pack you're using now.

But if you couldn't care less about an inverter's weight, try these features for size: Choice of transistor or crystal control modules. Integrated Microcircuits for power control and reliability. Automatic rapid recharge in four to six hours. Gold plated electrical contacts. Instant start. Temperature stability. Selection of low, medium, and high AC output voltage. And a dozen other features that make this inverter an incredible advance in portable power supplies.

You've got to see it to believe it. And since we're the people who have it, we'd like to show it to you. The price of a phone call will get you a free demonstration.

General Camera Corporation
321 W. 44th St., New York, N.Y. 10036
Call: (212) LT 1-1060

AMERICAN
Cinematographer

International Journal of Motion Picture Photography and Production Techniques

MARCH, 1969 Vol. 50 No. 3

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• FEATURE ARTICLES

• DEPARTMENTS

ON THE COVER: Motion pictures, slides, a light show and a rock band combine to form a colorful, somewhat "psychedelic" mixed-media "SEE-IN" against the huge screen of theatre in Seattle's Pacific Science Center. The show was created and staged by technicians of ABC affiliate station KOMO-TV, Seattle, to introduce new shows of the upcoming season.

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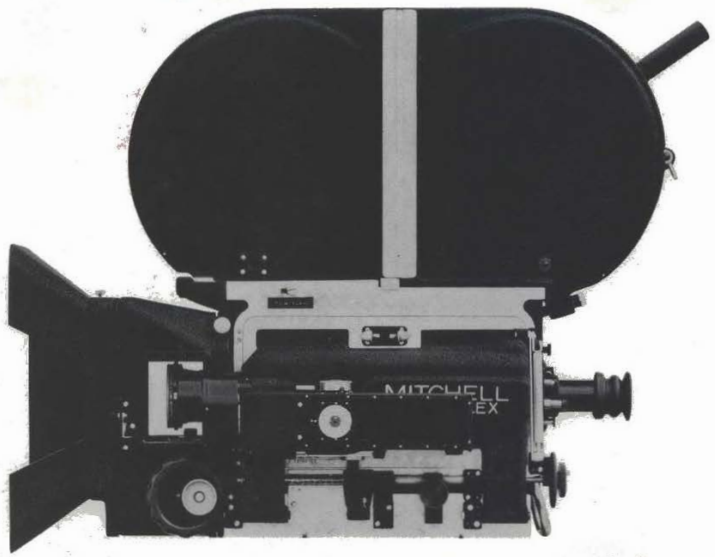
THE NEW STANDARD

Mitchell has designed an incomparable reflex system into the BNC, the accepted standard in studio cinecameras.

The BNC REFLEX is no makeshift "conversion." It is the time-tested BNC with remarkable new versatility designed as an integral part of it, not added on. The optics and other features are of unique Mitchell design, produced in our tradition of excellence in engineering and craftsmanship.

The BNCR is a master tool that gives the film-maker every desired studio capability, including exceptional zoom lens control. Consider some of its features.

93% reflective stainless-steel mirror alternates full light between reflex optics and film / Mirror and film shutter rotation engineered for dynamic balance and flicker-free film / Built-in power rectification for silent zoom lens controls and inside-housing illumination / Operating sound below 24 db at 36 inches from pickup microphone / Coated glass 5 times more anti-reflective than any previously available / Standard BNC operation and controls but without rack-over requirement / Accepts wide range of fixed focal length and zoom lenses including Panavision.®

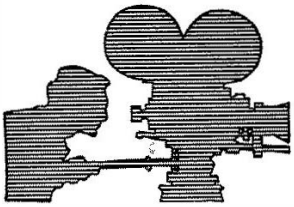


MITCHELL BNC REFLEX

For complete data on the Mitchell BNCR, contact Mitchell Camera Corp., 666 West Harvard Street, Glendale, California 91204, Tel: (213) 245-1085

Vinten Mitchell Ltd., Bury St. Edmunds, Suffolk, England, Tel.: Bury St. Edmunds 2121

Nagase & Company, Ltd., 2-chome Kobunacho Nihonbashi, Tokyo, Japan, Tel.: (662) 6211



BEHIND THE CAMERBS

Where directors of photography are shooting this month

By THREE TYLER

ABC, N.Y.C.

VINCENT GAITO, IRVING HEITZNER, JOHN FLETCHER, OIRK ROY, "ABC Scope", (tv)

JOE BIROC, ASC: "Too Late the Hero", 70mm - Metrocolor

PETER JESSOP: "The Avengers" (tv)

CASCADE

ROY SEAWRIGHT: Commercials

NELSON CORDES: Commercials

DONALD PETERMAN: Commercials

COLUMBIA

DANNY FAPP, ASC: "Marooned", Frankovich-Sturges Prod, Technicolor

GORDON WILLIS: "Loving", Brooks Ltd. Prod,, Color, shooting in New York and Connecticut

BILLY WILLIAMS: "The Mind of Mr. Soames", Amicus Prod. Ltd., color shooting in England

LUIGI KUVERILLER: "Well, Grandma's Dead", Vides Films, Color, shooting in Rome

TONI SECHI: "Brief Season" Dino De Laurentiis Prod, color, shooting in Rome

LATHROP WORTH, ASC: "I Dream of Jeannie" (tv)

HAROLD STINE, ASC: "The Outcasts" (tv)

ROBERT TOBEY, ASC: "Bewitched" (tv)

FILMEX STUDIOS NY & HOLLYWOOD

SOL NEGRIN: Commercials

TOM MANGRAVITE: Commercials

INDEPENDENT

HEINZ PEHLKE, "De Sade", American International, shooting in Berlin

JACK PRIESTLY: "Stiletto"; Avco-Embassy Pictures; shooting in Puerto Rico

RICHARD MOORE: "The Reivers", Ravetch-Kramer/Solar Prod., color, Panavision

ROBERT HAUSER, ASC: "A Man Called Horse", Sanford Howard Prod, color, shooting in Durango, Mexico

JACQUES MARQUETTE: "Crossroads", Commonwealth United, color

RICHARD KLINE, ASC: "A Dream of Kings", National General, Technicolor, wide-screen

WITOLD SOBOCINSKI: "The Mercenary", United Artists, color, shooting in Spain

MICHAEL REE: "On Her Majesty's Secret Service", Eon Prod., Technicolor, Panavision, shooting in Muvven, Switzerland.

GIUSEPPE RUZZOLINO d'ERAMA OPPO: "Quemada", P.E.A. Prod. shooting in Colombia, Italy and France

BURNETT GUFFEY, ASC: "The One with the Fuzz", Mirisch-DFI-TFT Prod, color

PETER BARLOW: "Royal Hunt of the Sun", Royal films, Color, shooting in Peru

AUSTIN MCKINNEY: "Is this Trip Necessary?", Dorn Thor Prod, color

HASKELL WEXLER, ASC: "Medium Cool", H & J Pictures, Inc.

PIERRO PORTALUPI: "The Heroes", Moulin Rouge Prod. Technicolor, Cinemascope, shooting in Iran

RON WINSTON: "The Gamblers", U-M Prod. Eastmancolor, shooting in Yugoslavia

LUIGI KUVEILLER: "The Lady", Clesi-Euro International, color, shooting in Italy

WILLIAM ZSIGMOND: "Futz", Guvnor Prod., color, shooting in Stockton

JERRY FINNERMAN: "Man Without Mercy", Cinerama-Cal-Master Prod.

NENOO JOVICIC: "Re: Togetherness", Cerberus Prod. color, shooting in Greece

JERRY MCCLAIN: "The Last of the American Hoboes", Titus Moody Prod., color, shooting in Britt, Iowa

JOSEPH BRUN, ASC: "The Wrong Mountain"—Taylor-Roffman Prod, shooting in Vancouver

VIC KEMPER: "The Husbands"—Husband Prod., Inc. shooting in NY

DAVID QUAID: "Did You Hear About Jenny Shapiro", Palomar Prod.

DICK KRATINA: "The Angel Levine"—Belafonte Enterprises, shooting in New York

DRUMMOND DRURY, ASC: Commercials

HARVEY GENKINS: "N.Y.P.D." (tv)

TOM PRIESTLEY, SR: "NBC Documentary Special", NBC-TV, shooting in Europe and Africa

JIM WILSON: "CBS Documentary Special", shooting in Denver

LESTER MANNIX: "Sport Short", Winik Films, shooting in Main

MIKE LIVESEY: "Industrial Film", Owen Murphy Prod., shooting in No. Carolina

GIL GELLER: "Industrial Film"—Peckham Prod.

MAX GLENN: "Travel Film", Max Glenn Prod.

LEN STARK: Commercials

BILL SOPANEN: Commercials

URBAN SANTONE: Commercials

DICKMONTGOMERY: Commercials

LLOYD RITTER: Commercials

LARRY WILLIAMS: Commercials

GENE FRIEDMAN: Commercials

STEVE KOLAREK: Commercials

AKOS FARKAS: Commercials

ALLAN GREEN: Commercials

LEO LEBOWITZ: Commercials

VIC VALENZIO: Commercials

BILL GARRONI: Commercials

MOE HARTZBAND, ASC: Commercials

FRED HOFFMAN, Commercials, "Take the Money & Run", Palomar Prod, shooting in New York

RAY LONG: Commercials

VACHEL BLAIR: Commercials

WARREN ROTHENBERGER: Commercials

JIMMY KOLOGORATOS: Commercials

DON COHEN: Commercials

PETE PASSAS: Commercials

RICHARD FRANCIS: Commercials

JERRY FEIL: "Documentary Film" Feil Prod, shooting in New Guinea

Continued on Page 351

WHY NOT SPYDER POWER...

from the industry's most versatile dolly?

Available Exclusively in the Western United States from

alan GORDON enterprises

You now have the power to shoot in tight corners and narrow spaces with the only dolly designed expressly for inaccessible areas — the Elemack SPYDER Dolly. Its four synchronized rubber-tired wheels can crab, twist, turn, steer or track in any direction and can be changed for track operation in minutes. This ruggedly built, lightweight dolly features a smooth-action hydraulic center post, swivel seats for operator and assistant, a maximum height of 50½", weight of 221 lbs., fully opened diameter of 38½". Collapses to 25½" x 52½" x 24½".

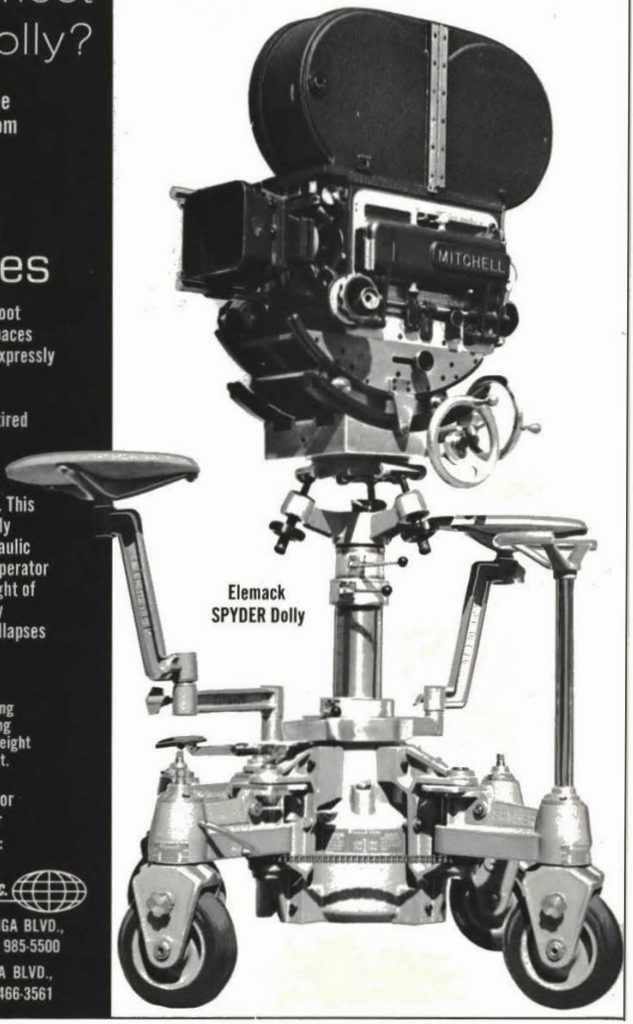
Jonathan Jib Arm Assembly — Mounts easily on the Spyder making it a dolly-crane capable of revolving 360° and raising camera to lens height of 7 feet. Minimum height is 3 feet.

For more information on SALE or RENTAL of the Elemack Spyder Dolly and accessories, contact:

SERVING THE WORLD
alan gordon enterprises inc.

GENERAL OFFICES: 5362 N. CAHUENGA BLVD., N. HOLLYWOOD, CALIF. 91601 (213) 985-5500

Rental Division: 1430 N. CAHUENGA BLVD., HOLLYWOOD, CALIF. 90028 (213) 466-3561



Elemack SPYDER Dolly

IN THE EAST: THE CAMERA MART INC. / 1845 BROADWAY / NEW YORK, N.Y. 10023 / (212) 757-6977

WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE

Cameravest New Carry-all Aid To Motion Picture And Still Cameramen

Ron Waller's Cameravest company is making available a multi-pocketed Cameravest for cinematographers through mail order.

After years in the field, Waller, a professional cine and still photographer, has found the need for portability of lenses, film, and other equipment to be a persistent problem for the location photographer. The easily accessible pockets of the Cameravest transport light meters (even a large spot meter), syringes, tape, filters, pencil light, still film, etc. (One pocket is even large enough for a 35mm 400 foot can.) In the back of the Cameravest the specially designed and easily accessible pockets allow three lenses (fish eye to 200mm) to be safely transported. The epaulets on the Cameravest prevent shoulder straps from slipping.

The Cameravest allows the photographer in difficult situations (on a crane, in a tree, in the middle of a field, on a large soundstage, etc.) immediate access to any needed equipment or accessories without leaving his shooting position.

The vest further allows the cameraman who works hand-held to run with "action" without being burdened by a gadget bag. By wearing the Cameravest it is no longer necessary for an assistant to throw everything in a tripod bag or be running back and forth to the camera case. The pockets of the Cameravest are so designed that, even while the wearer is running, valuable lenses and meters will not drop out or bang against each other.

The seventeen pockets of the Cameravest provide comfort, ease of movement and even weight distribution. The Cameravest is an attractive garment, fully lined, durable, machine-washable dacron and cotton poplin and comes in beige, blue, grey and green in small, medium and large sizes.

The Cameravest sells for $49.95, postpaid, with California residents required to add 5% sales tax. The Cameravest company states no C.O.D.'s are accepted and offers a complete money-back guarantee. Company is located at 9000 Sunset Boulevard, Suite 1006, Los Angeles, California 90069.

•

Alan Gordon Enterprises Announces Complete Line of New Star Filters

Alan Gordon Enterprises now has available a complete line of the new Gordon Star Filters, popular special effect filters designed to accentuate highlights with starlike patterns.

The hand-etched filters are offered in Series 5 through Series 8 and a special Series 9 designed to fit the Angenieux 12-120mm Zoom lens, a 4½-diameter filter to fit the 25-250mm Angenieux Zoom lens and 2x2 and 3x3 square-inch filters.

This is the first time a full line of Star Filters has been available to the professional photographer on a sales or rental basis, according to Gordon officials.

For further information on Gordon Star Filters phone or write Alan Gordon Enterprises, Sales Division, 5362 N. Cahuenga Blvd., N. Hollywood, Calif., (213) 985-5500 or the AGE Rental Division, 1430 N. Cahuenga Blvd., Hollywood, Calif., (213) 466-3561.

•

Recover 98% Pure Silver From Hypo Fix

An extended development program has led to the production of the new series of LANCO Silver Recovery Units. Two models are presently available, designed for maximum silver recovery in photo processing, cine processing, medical X-ray and industrial X-ray operations. Lanco equipment guarantees tight-grain, 98% pure silver yields from hypo fix . . . with quiet, efficient operation.

It is important to note that these units are designed to eliminate costly "down time" involved in stripping recovered silver. All Lanco Models require only 15 minutes for easy drum replacement.

Of exceptional interest is the small amount of valuable floor space required for either terminal or continuous recovery. For example, the Lanco "350", capable of recovering $700.00 of silver per week, occupies only 4 sq. ft. of floor space.

Lanco Silver Recovery Units are available for any requirement. The Lanco "200" (Laboratory Model) features recovery capabilities of 4 troy oz. per hr., while the larger Lanco "350" can recover up to 10 troy oz. per hr. As an alternate to standard Models offered, Lanco will custom design Silver Recovery Equipment to complement any print or film processing system. Dealer inquiries invited.

AKG Introduces Dynamic Shotgun Microphone

The AKG—D-900E is a new dynamic shotgun microphone with a narrow pick-up pattern and long distance "reach."

Applications for the new microphone are numerous because of its novel design. It is especially useful for surveillance, commercial sound, motion picture, broadcast work and audience participation sound reinforcement.

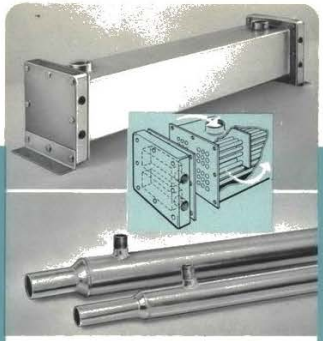
The new microphone's high degree of directivity is achieved by the combination of the gradient and interference principles. Its performance is characterized by smooth frequency response and an off-axis sound rejection which is maintained over the entire range.

The unit incorporates a two-position bass roll-off switch (-7 and -20dB at 50Hz), which permits use of the micro-

Continued on Page 350

Look to TREISE!

for finest quality PROCESSOR ACCESSORIES & REPLACEMENT PARTS



HEAT EXCHANGERS

Shell and tube type heat exchangers are designed specifically for temperature control of processing solutions. May be used for single control or dual control systems. Single-pass heat exchanger offers the greatest amount of heat transfer area in the least space. Design permits in-line installation. Both models come in lengths from 10" to 60" and are available in heliarc welded Type 316 stainless steel or Hastelloy Type C.

FILM ROLLERS

Special ball-bearing design provides a remarkable free-rolling characteristic that eliminates drag and promotes smooth processor operation. Available in 16, 8/16, 35, 16/35, and 70mm. For shaft diam. ½", ⅜" (also ¼" — 35mm only). Choice of stainless steel, pyrex, or nylon ball bearings.

FILM SPROCKETS

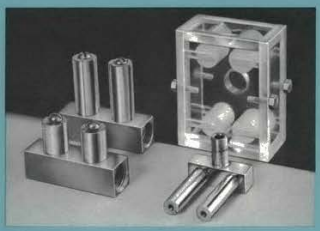
Made primarily for lab processors and engineered to sprocket tolerances found only in finest quality motion picture cameras. Available for all film sizes and all types of perforations. Choice of a wide range of diameters and shaft sizes.

WATER MIX VALVE

Designed to mix hot and cold water in a pneumatically operated proportional temperature control system.

BACKING BUFFER

for removal of all antihalation backings requiring mechanical scrubbing. Employs water jets and air squeegee in combination with power-driven buffing wheel.

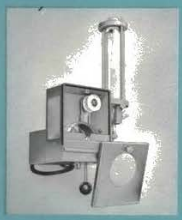


SQUEEGEES

Illus. are knife squeegees for prevention of carry-over of both chemicals and water, and high efficiency box-type squeegees for final squeegee-ing before drying. Both types are available in 16mm and 35mm sizes.

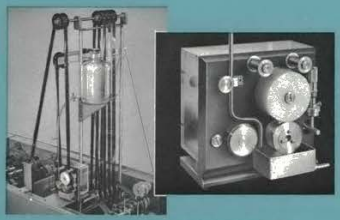
OTT SQUEEGEE

High efficiency air squeegee is principally designed to remove all surface moisture before sound track application or where complete removal of surface moisture is critical before drying.



WAXER

Full-width wax applicator for use at take-up end of processor. Completely self-contained, self-powered unit with automatic fluid level control. 16mm and 35mm sizes.



SOUND TRACK APPLICATOR

for 35mm, 16mm, and 35-35/32mm combinations. Concentricity of backing wheel to applicator wheel is held to within .0005". Applicator wheel is micrometer-controlled to insure precision adjustment and repeatable settings.

DRIVE CLUTCH ASSEMBLY. An adjustable friction-type clutch for use on tendency-drive processors or as a take-up clutch on chain-driven processors.

HOLD-BACK CLUTCH ASSEMBLY. An adjustable hold-back unit for maintaining tension on the feed spindles of the processor loading end. May be supplied with various types of output shafts.

TREISE ENGINEERING, INC.

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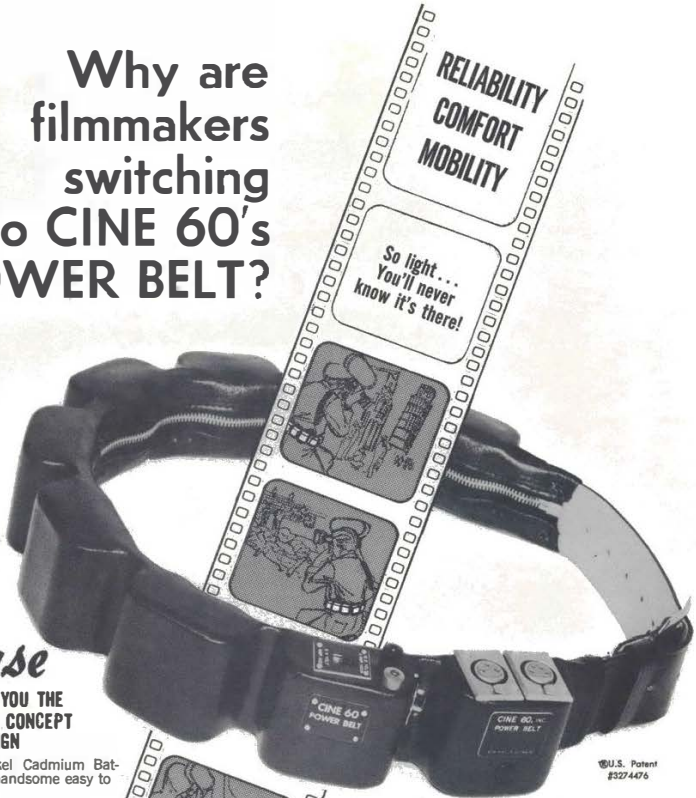
Why are filmmakers switching to CINE 60's POWER BELT?



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*Because

CINE 60 OFFERS YOU THE MOST ADVANCED CONCEPT IN BATTERY DESIGN

- Rechargeable Nickel Cadmium Batteries built into a handsome easy to wear belt.
- Completely sealed battery cells, maintenance free.
- Built-in charger and coiled charging cable.
- Automatic overload switch for protection against short circuit. This switch functions as an automatic fuse, which will reset automatically and will never have to be replaced.

Belt shown above is:
UNIVERSAL POWER BELT
with 8.4V-12V-16.8 Volt Output

- No awkward battery case to get in your way.
- No bulky weight tugging at your shoulder.
- Designed for comfort and mobility.
- There is a belt for each professional camera ranging in voltage from 6 to 30 volts.
- We also make a powerbelt, 30 volt, for the Sylvania professional sungun

Cine 60—First in Sales, Service, Rentals, Repairs. Write now for complete information and specifications.

CINE 60, INC. MOTION PICTURE EQUIPMENT SALES-RENTALS-SERVICE

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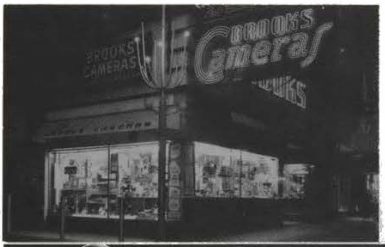
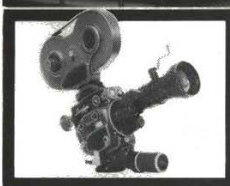
CINE 60 NEW YORK



BROOKS CAMERAS...

Serving Photographers Since 1940

Brooks Cameras is one of the largest retail suppliers in the West for professional 16mm motion picture and television equipment. We offer rush shipment on all famous-make cameras, accessories, recorders, amplifiers, mikes, stands, lights, tripods, editors, synchronizers, optical readers. Collect calls accepted: (415) 392-1902.



BEAULIEU R16ES
Automatic 16mm Camera

Accepts several servo motor operated zoom lenses that take automatic TTL readings, or operates manually. Uses either 100-ft. film loads inside camera or 200-ft. capacity access. magazine. 2 to 64 fps. speeds, synch. and wild motor circuits. TTL mirror shutter finder. With 17-68mm E.E. zoom lens . . . **$1590;** with 12-120mm E.E. zoom lens . . . **$1969;** Power-pack grip . . . **$69.95;** Ni-Cad battery . . . **$59.95**

ARRIFLEX 16S
Movie Camera

Professional 16mm camera for double- or single-perforated film. Takes 100-ft. daylight or 400-ft. darkroom-load mag. Mirror reflex shutter and finder with diopter adjustment. Tri-lens turret. Elec. motor drive. 0-50 fps.

$2195.00 without motor, lenses or matte-box. Cameras sold with customer's choice of motor(s), lenses and matte-box. Prices on request. **Arriflex Blimp $1995.00**

BOLEX H-16 REX-5
16mm Movie Camera

Professional 16mm reflex camera equipped for interchangeable 400′ magazine (or 100′ spools in camera), with its own electric MM-type take-up motor. Camera has constant speed MST-type electric motor. Rechargeable 12 volt, 3½ lb. battery pack. All other features of previous Bolex H-16 Rex models incl. auto-controlled var. shutter, 1:1 frame shaft, auto. single frame counter, 3-lens turret, auto. loop former. Wide range of accessories. WRITE FOR PRICES.

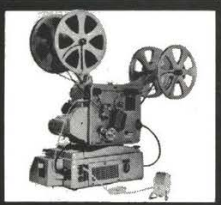
AUTO. VARIO SWITAR 86 "OE" ZOOM LENS (shown) FOR BOLEX H-16 REX **$625.00**

TAPE RECORDERS

UHER 1000 PILOTONE

Built-in sound synch. for motion picture cameras. Interruptable auto. photo elec. level control & overload filter. Stroboscopic speed control. Monitoring on and off tape (built-in speaker). Adjustable playback & record equalization. 5" reels.

SEND FOR PRICES



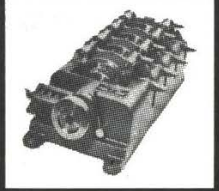
SIEMENS 2000
Double/Sixteen Sound Projector

Single/double system 16mm sound projector with edge track. Optical or magnetic or both. Records and plays back on both. Modular construction permits adaptations for special applications at minimum cost. Loudspeakers additional.

Price range from $1995.00 up

Sound synch. motor model available.

Price on request



PRECISION SYNCHRONIZERS

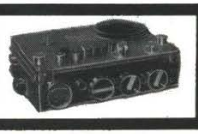
S 616-2, 2-sprocket . .	$127.50
S S 616-4, 4-sprocket .	192.50

PRECISION OPTICAL READERS

Model 600RL for 16mm and 35mm	$195.00
Model 800 for 16mm, 35mm and ¼" Optical & Mag.	259.50

ZOOM LENSES

Angenieux Zoom for Arri (12-120mm)	$ 896
Angenieux Zoom for Bolex .	$ 965
Angenieux Zoom for Auricon Cine Voice	$1050
Pan Cinor 85-2 for Auricon (17-85mm)	$460



NEW! NAGRA IV

Briefcase-size. Modular assy. 2-mike input circuit. 3 speeds (15-7½-3¾"). Limiter and fading device. Changeable internal pre-amps for special mikes. 7" reels.

SEND FOR PRICES

TRIPODS

MILLER Heavy Duty Pro. Tripod	$139.50
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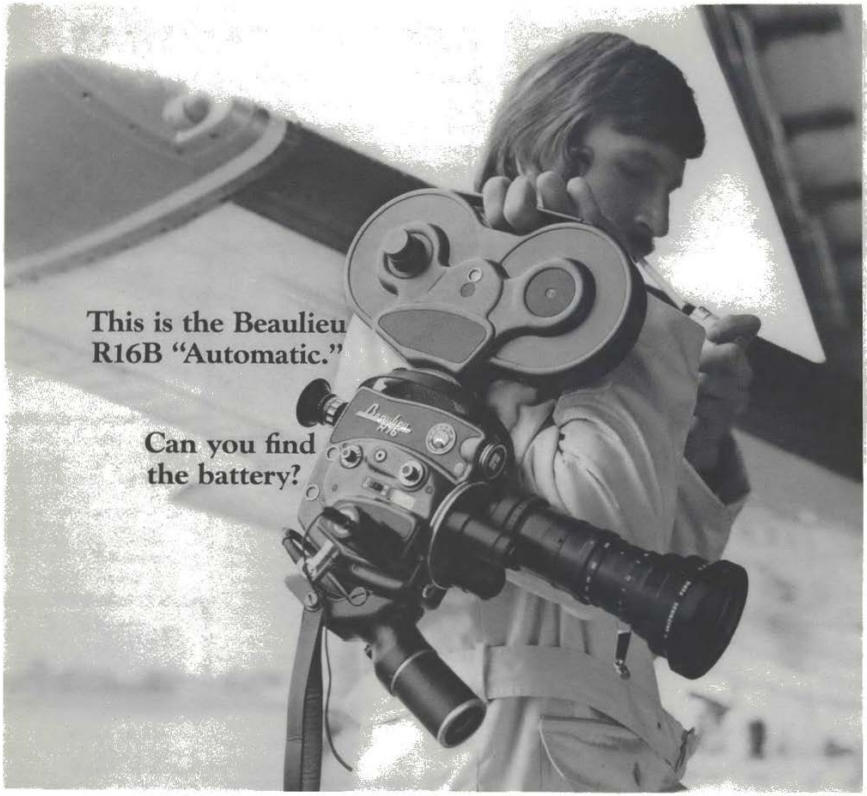
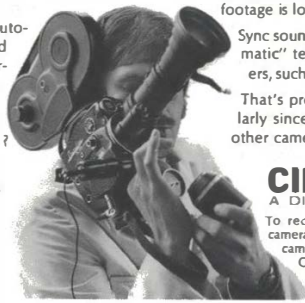


Our cameraman isn't wearing it. He doesn't have to. Because Beaulieu's rechargeable nickel cadmium battery is built right into the camera handgrip. Powerful? The 1000 mA model will shoot eight 200 ft. magazine loads on a single charge. But just as important, you can replace the battery with a fully charged spare in seconds. With the Beaulieu 16mm, there's no need for batteries strapped around your waist or swinging from your shoulder.

Take another look at the R16B "Automatic". That's a 200 ft. daylight-load magazine on top, a sync pulse generator plugged into the side, and an Angenieux 12-120mm zoom lens out front. Now how much would you say the entire outfit weighs? Including the battery.

If you guessed as little as 12 pounds, you guessed too much. It's 10½ pounds! And the price is just a little over $2,650!

You don't have to give up critically important features, either.



Like rock steady pictures. Like a mirrored shutter, for reflex viewing with no prism between the lens and the film plane.

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Sync sound is no problem. Your Beaulieu R16B "Automatic" teams up naturally with professional recorders, such as Nagra and Uher, for sync sound filming.

That's pretty good for a little over $2,650. Particularly since you couldn't get this combination in any other camera even if you spent twice as much.

CINEMA Beaulieu
A DIVISION OF HERVIC CORPORATION

To receive literature on Beaulieu 16mm and Super 8 cameras, or Heurtier projectors, please visit your finest camera store or write Cinema Beaulieu, General Office: 14225 Ventura Boulevard, Sherman Oaks, California 91403 or New York Office: 155 West 68th Street, New York City, New York 10023.

Joseph E. Levine Presents An Avco Embassy Film

HAROLD ROBBINS'

STILETTO

Starring ALEX CORD BRITT EKLAND

Co-Starring JOSEPH WISEMAN, BARBARA McNAIR and PATRICK O'NEAL

Screenplay by A. J. Russell

PROCESSING AND PRINTS BY

BERKEY PATHE

NEW YORK HOLLYWOOD ISRAEL

Produced by NORMAN ROSEMONT
Directed by BERNARD KOWALSKI
Director of Photography JACK PRIESTLY
An Avco Embassy Release
Color by BERKEY PATHE

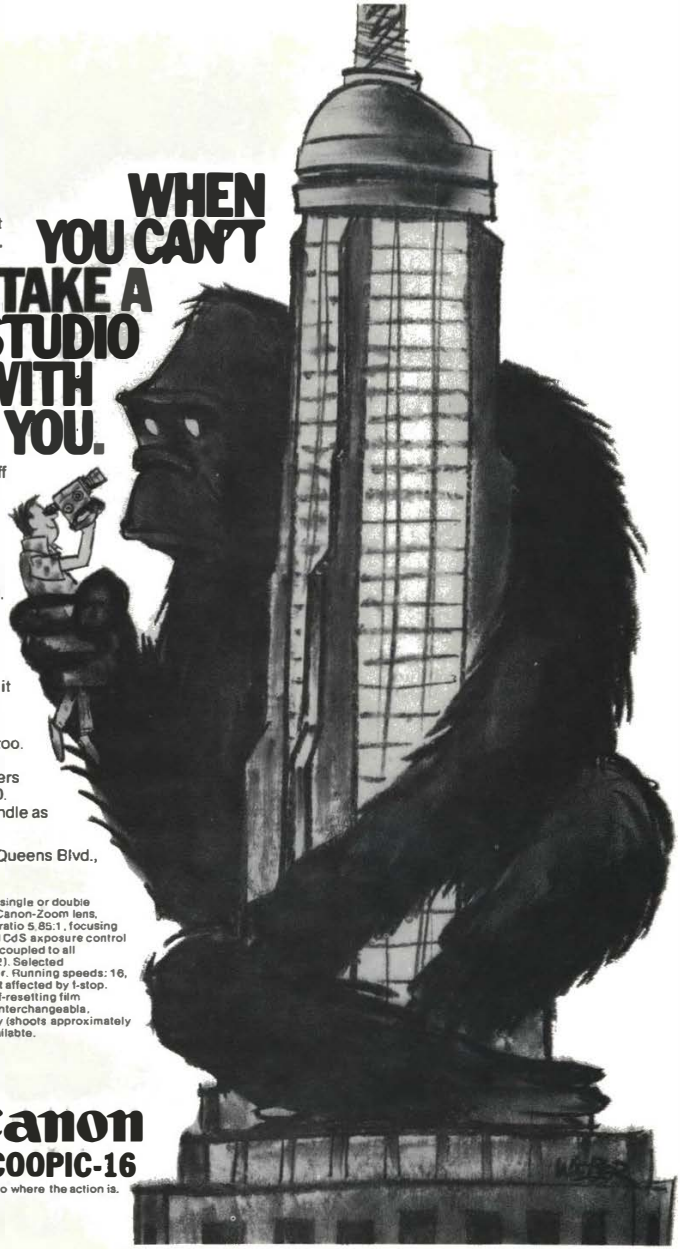
Filming on location in Athens with the ultra compact Arri 35 2C cameras and ultra portable ColorTran fill lights.

GLOBE-TROTTING **ARRIFLEX**® AND UNIQUE ELECTRONICS SOLVE LOCATION PROBLEMS FOR NBC'S "**I SPY**" TV SERIES

The normal shooting conditions for this fast-paced weekly color series, created and directed by Mr. Sheldon Leonard, could reduce many a cameraman to a nervous wreck. "Each episode is filmed in a different country," writes Foreign Location Director of Photography, Mr. Fouad Said, "and if the script calls for a sequence in a mobbed marketplace in Hong Kong or Mexico City, we've got to have the whole set-up there, in the scene. Since authenticity is requisite in this series, we certainly couldn't have masses of cameras and cables drawing attention. Our dilemma was: how in the world can we shoot double-system sound, without destroying the natural feel of the setting?"

For quality sync-sound, without the encumbrance of cables and connectors, Mr. Said's crew developed an arsenal of electronic gadgets humorously akin to the spy-gear used in the series itself. A sync-pulse is radio-transmitted from the camera to the ¼" tape recorder, several blocks away. Tiny wireless mikes are concealed in the actors' costumes. Special motors, operated by the cameraman from his position behind the camera, control zoom, focus and aperture. Cameraman and soundman work in perfect sync, each with full control over his own function and apparatus, but with no physical link between camera and recorder. For fast action and camera mobility, for high picture quality without disrupting the natural spontaneity and authenticity of the local scene, Mr. Said chose Arriflex 35 2C cameras. No less than six Arriflex cameras are included in his completely equipped 'only one of its kind' mobile truck that can be flown to any location in the world within 24 hours. Mr. Said explained, "I chose the Arriflex as our basic camera for its mobility and lightness. With four or five major changes of locale in each shooting day, it is necessary to use very portable equipment that can be rapidly set up on top of a truck, a building or a cliff, if need be—or that can be hand-held in any situation. Furthermore, because of communication difficulties involved in working with foreign technicians, it is mandatory to use a camera that requires a small crew, and is universally known. Power is another consideration, since we're dependent upon varying line voltages in different countries. We use a 110V inverter, the smallest in the world. Most cameras could not be operated with such a light power plant."

Mr. Said's choice of camera reflects the show's international flavor. For wherever in the world you find skilled, demanding filmmakers doing their best, invariably you'll find an Arriflex at work.



WHEN YOU CAN'T TAKE A STUDIO WITH YOU.

No place to rest a tripod. Not much chance to use a meter, either. Perfect situation for the Scoopic-16 reflex.

Canon designed the Scoopic-16 to fit your hand, balanced and braced for steady one-hand shooting. That leaves one hand free to slip your assistant an occasional banana—or to focus and zoom the built-in 13-76mm f/1.6 Canon lens.

Let's take another worry off your hands: you get perfect exposures automatically. Scoopic-16's built-in meter compensates instantly, without overshoot, for changes in scene brightness (you can set it manually, too).

We'll take something off your belt, too: the battery pack. Our internal battery is good for about 8 rolls per charge, and you can replace it instantly with a pocket-sized spare.

The price is pocket-sized, too. Complete with case, battery, recharger, lens hood and filters the Scoopic-16 is only $1250. That should be as easy to handle as the camera itself.

Canon U.S.A., Inc., 64-10 Queens Blvd., Woodside, N.Y. 11377

Canon Scoopic-16. Uses 16mm film, single or double perforated on standard 100' spools. Canon-Zoom lens, f/1.6 coated. Zoom range 13-76mm, ratio 5.85:1, focusing to 5 feet. Fully automated, motorized CdS exposure control system (with manual override) cross-coupled to all running speeds, all f-stops (f/1.6-f/22). Selected aperture shows on scale in viewfinder. Running speeds: 16, 24, 32, 48 fps. Viewing brightness not affected by f-stop. Corrective, adjustable eyepiece. Self-resetting film counter. Motor driven by one 12.5v interchangeable, rechargeable nickel cadmium battery (shoots approximately 8 rolls/charge). Underwater case available.

Canon

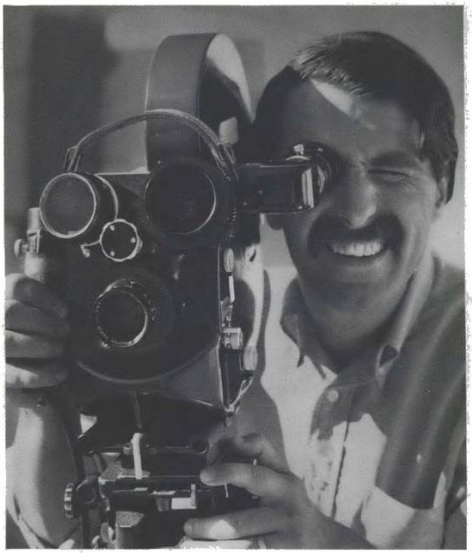
SCOOPIC-16

Go where the action is.

A 400 ft. magazine and three lenses are mounted on the CM3 in this photograph.

PRIZEWINNER

The Eclair CM3 has been used in a great many films that won Hollywood Academy Awards. What's more,



the CM3 has itself won an Academy Award.

"A Man And A Woman;" "In The Heat Of The Night;" "Who's Afraid of Virginia Woolf." What do these films have in common? They all won Academy Awards. And they were all shot entirely or in part with the Eclair CM3.

In 1949, the CM3 (then known as the Camerette) won an Academy Award for its design. It was the first reflex camera to win one. Only two other cameras in current use have been similarly honored. We must be doing something right.

For example: you can change the CM3's magazine in five seconds. No threading; no loop to form. That's all done when you load the magazine, before shooting starts. On the set, you don't lose the mood when you run out of film. It's just another take; immediately. With unrehearsed action, you can shoot right on and cover the lost five seconds with a cutaway later. 100 and 400 ft. magazines, standard equipment. 1,000 foot on special order.

Another example of doing something right: the CM3 is both a 35mm and a 16mm camera. Conversion takes about ten seconds and costs nothing (except that you need different magazines for the two film sizes). Just slide a 16mm aperture into the regular 35mm gate, and it's done. Or you can slide in a Techniscope matte — or one for any other 35mm aspect ratio you choose. Shooting Techniscope, your 400 foot load becomes the equivalent of 800 feet, since the film is advanced two sprocket holes instead of four. Changing the claw stroke to two perfs and the magazine to feed 45 feet per minute also takes seconds and costs nothing. Similar conversions on other cameras take several days and cost around $1,400.00 each way.

The viewfinder's groundglass adapts in seconds to match whatever format you're using, also without tools and at no cost. And the finder and eyepiece both rotate through 360 degrees, independently. Any angle — either eye. The continuous reflex viewing has no baffles, which makes it clearer than the competition's; and it's absolutely accurate. You can clearly see exactly what you're getting.

The rear-mounted magazine helps you balance the CM3 on your shoulder; and you can put the camera's flat base on a tripod or on a table top. The divergent three-lens turret accepts still-camera lenses or any others that you choose. What else? Matte box; variable shutter; 12V DC motor with sync-pulse generator. Lightweight aluminum blimp. And more. For information, contact Eclair at 7262 Melrose Avenue, Los Angeles, Calif. 90046.

eclair

INDUSTRY ACTIVITIES

317 Motion Pictures Eligible For Oscar Awards

A survey of films released during 1968 shows that 317 feature length motion pictures are eligible for Oscar awards, the largest number in six years. Last year 288 motion pictures were eligible for the Awards.

Eligibility is established by the rules of the Academy of Motion Picture Arts and Sciences, which will award Oscar, its golden statuette, to the year's best film, best performances by actors and best achievements by filmmakers at the 41st Annual Awards Program on Monday, April 14. The Awards Program, to be held at the Dorothy Chandler Pavilion of the Los Angeles County Music Center, will be broadcast in color by the ABC Television Network.

Any motion picture of feature length, in English or with English subtitles, regardless of its country of origin, is eligible if it started a week's exhibition for paid admissions in the Los Angeles area during 1968.

The 317 eligible films include productions from Great Britain, Belgium, Israel, Denmark, Taiwan, Sweden, Mexico, Hungary, Argentina, Canada, Germany, Russia, Japan, Italy, France, India, Czechoslovakia and Yugoslavia; Spain coproduced three films and Iceland co-produced one film, in addition to those from the United States.

Separate consideration is given to films competing for the Foreign Language Film Award. Pictures submitted for consideration in this category need not have been exhibited in the United States, but must first have been shown in the country of their origin between November 1, 1967, and October 31, 1968, and must be selected by a recognized organization in that country similar to the Academy of Motion Picture Arts and Sciences.

Foreign-made films with sound tracks dubbed in English are eligible for all but acting Awards; actors whose voices have been dubbed by others are ineligible for Oscars.

•

Alan Gordon Enterprises Turns On Lights for Schlatter-Friendly's "Turn On"

One of the most unique lighting jobs in the motion picture industry has been completed by Alan Gordon Enterprises Inc. at ColorVision Studios in Hollywood for the new George Schlatter-Ed Friendly teleseries, "Turn On."

Lighting engineers rigged and lit Stage 2 with 400 ColorTran 1000 watt quartz lights and fixtures which provide 400,000 watts of light or 800 foot candles over the entire 11,000 square-foot stage, according to Gordon v-p Grant Loucks. A special transformer was installed on the lot to handle the power load.

The unique set, which consists of a huge cyclorama, is completely "whited out" or shadowless as a result of the lighting arrangement. Also, the tremendous amount of foot candles provided allows the show's cinematographer to stop down lenses for increased depth of field.

Alan Gordon Enterprises also supplied all camera and grip equipment being used on the series, which is being filmed with the Vidifilm System, created by Alan Levi, show's associate producer.

•

Foothill Film Festival To Be Held on May 24 and 25, 1969

Jimmy Murakami, named last May as one of the first independent film-makers to receive a grant from the American Film Institute, will be among judges of Foothill College's eighth annual Independent Film-Makers Festival on May 24 and 25, 1969. Other judges will be announced shortly.

Festival Directors Denos Marvin and William V. Skyles say $1,200 in cash prizes will be awarded by Foothill, a Los Altos Hills, Calif. community college. Festival regulations and entry forms are available on request. Marvin and Skyles point out that in the past a few competent artists have been barred by the Festival's relatively few technical restrictions, but in 1969 effort will be made to accommodate the technically innovative and unanticipated if these entries are submitted on 16mm. "Innovative content" has always been accepted, Marvin observes. Advance notice of any technical departures is requested from competing film-makers.

Murakami, partner in Murakami Wolf Films, Hollywood, a corporation established in 1964, has created award-winning films including "The Top."

Continued on Page 321

ARRIFLEX® 16BL
studies students for University of Wisconsin

Just as the importance of a solid education has magnified immeasurably in recent-years, so have the difficulties in providing ever-increasing amounts of information to ever-increasing numbers of students. Educational television in the classroom has been one solution—but whether it provides a clear, lasting understanding for elementary-school subjects is a question that, for the sake of these young students' future, must be answered without room for doubt.

What better way to explore this question than to film the student's reactions to the educational telecasts themselves. The films could provide any number of experts an intimate, close-up look at the situation, without intruding and interfering in the actual learning process.

But this, in turn, demanded that the cameraman himself make no intrusion . . . the first challenge facing Jim Santulli, cinematographer for WHA-TV, educational station for the University of Wisconsin. As Jim puts it, "kids have an incredible interest in anything new—and present them with the excitement of a movie production in their own classroom and, well, you can guess where they'll focus their attention."

Armed with an Arriflex 16BL equipped for single-system sound recording, Jim added his skills as cameraman to those of psychologist, tutor and diplomat. "We started with a question-and-answer session about the camera. I felt that once the kids were familiar with it, they would accept its presence and pay it no attention." Having implanted this casual attitude, Jim was ready to attempt his next hurdle—to actually shoot the students without distracting them from the lesson.

"I simply began to move around the class during the program, and was able to film individual reactions as I saw them without disturbing the television lesson or the classroom teacher."

Jim credits the camera for much of his success. "The 16BL is completely inaudible just a foot or two away, so I was able to get in really close. Its easy maneuverability and one-man operation really paid off, since I had to be cinematographer, assistant, tripod and dolly all in one. But its convertibility to single-system sound recording is what made the day—I don't know what might have happened if I'd been dragging sync cables all over the place, or if we'd needed another man following me with a sound recorder around his neck. I honestly believe I could not have gotten the sound and picture quality I did with any other camera."

Jim concludes by describing the 16BL as the workhorse of WHA-TV's photo department. Little wonder for, all over the world, cameramen on industrials, commercials and features, as well as educational films, acknowledge Arriflex as being at the head of its class.

WOODSIDE, N.Y. 11377 ARRIFLEX CORPORATION OF AMERICA

Jim Santulli, Chief Cinematographer WHA-TV University Extension, The University of Wisconsin

CREATING A LOW-BUDGET MULTI-MEDIA "SEE-IN"

ABC affiliate blends film, slides, a rock band and a light show into an exciting "total experience" preview of the network's TV programming

By PAUL TAYLOR
KOMO-TV, Seattle, Washington

Each fall KOMO-TV, the Seattle ABC affiliate, invites sponsors, advertising agency executives, TV editors, newspaper columnists and other special guests to attend a champagne buffet dinner and view the ABC promotion film. This film features segments from each of the new season's shows, excerpts from a few specials and a review of the returning shows.

In the fall of 1967 Margaret Hagerty, KOMO Promotion Department Director and sponsor of the project, decided that a more contemporary approach to the visuals was necessary. She asked TV director Richard Morse at the station to create the show for her. To make the viewing less commercial and more entertaining for the guests, they decided to produce a multi-media, audience involvement type of show, utilizing psychedelic lighting effects, live performers and a rock band to accompany the ABC promotional film.

I was asked to re-edit the film, which was already well-edited but did not fit our needs. Segments needed to be repositioned and shortened or lengthened to coordinate with the light show, live actors and the band. We also wanted to add our own personalized open and close. Since Morse wanted to use multiple projectors in some way, I decided to edit the film into a triple-screen synchronized presentation. Having for some time been interested in multiple-screen effects, I looked forward to this project.

Three synchronized films, a light show, live performers, a rock band, forty dinner tables and one very large room were the components that had to be assembled to produce the presentation. The first thing we needed was a theater with a giant Cinerama-type screen and at least ten projection ports.

On the giant screen encircling the Charles Eames-designed theatre of Seattle's Pacific Science Center, multiple projections from film and slides change and pulse in colorful design to the rhythms of a live rock band.

A random selection from the hundreds of 35mm Kodachrome slides photographed by the author for use in the mixed-media presentations. Commercial slide projectors proved to be too slow for quick changes of slides required, so a special unit was built that was capable of changing several slides per second. Change rate was continuously variable and was precisely adjusted to the beat of the rock music used in the show.

In addition to these requirements, it had to be a theater without seats!

This could have been a real problem, except that Morse already had an idea. In 1962 Seattle built a World's Fair near KOMO. Across the street the federal government erected its contribution to the fair, the ten-million-dollar Pacific Science Center, which has become a permanent addition to Seattle. Charles Eames was commissioned to design a theater and produce a film to be shown there which visitors to the Fair would view before touring the other six buildings in the science complex. He created a six-screen film (two rows of three, one directly above the other) which ran in a 100' by 45' oval theater with a 30' high screen encircling the theater. Eames put in seven interlocked 35mm projectors (the seventh screen was used for single-screen segments of the show and carried the sound track) in a seventeen-port, 15' by 60' projection booth, elevated to the center of the screen about 18' off the ground. So that 500 people could be moved rapidly in and out, the theater had no seats; the audience sat on the carpet which covered the entire floor. After submitting our plan to the Science Center people, we obtained permission to use the theater and one major problem was solved.

To make things much easier Morse contracted with Don Paulsen, of Lux Cit Lighting Effects Company, to provide all the visuals which would accompany the film. The movie would be the main feature, and the light show people would fill the rest of the theater with constantly changing lighting effects that related to the films. He also arranged for a rock band to provide the music and found people who, dressed in the appropriate costumes, would appear live during certain segments of the film.

Since the performances of the band, light show and actors were based on the film, it had to be edited immediately. The film I had to work with consisted of a ten-minute feature on the ABC Olympic coverage, a short on the upcoming four-hour Africa special and the traditional 45-minute promotional film that had before run as is for the guests. This film came divided into fifteen three-minute segments, each filled with exciting scenes from a new ABC show. This would supply film mainly for the center screen of the three I wanted to use. To provide visual material for the additional left and right screens we had to collect all of the one-minute and twenty-second promos we could find.

To keep the show from looking like the nightly television promos, we eliminated all titles, music and narration and used only scenes which in no way indicated they were pulled from a promo. Many of the scenes I would have liked to use were supered with title, date or time. Sound was not consistent from promo to promo. In some places the track had good lip-sync sections and sound effects, while in other places it covered up dialogue with music and narration. After re-editing the picture, the optical track would be unavoidably jumbled. For this reason, we had to create our own sound track. Since we were going to make a 20-minute film, I needed to

Ten slide projectors, three 16mm motion picture projectors, two operators and one spotlight with color wheel were jammed atop the 18-foot scaffolding to provide the six-screen visual effects for 1968

take the wild promo-style cutting and rearrange it to produce a logical sequence for each show. The band would provide music and narration. We reshot the titles on 35mm slides, and the light show company projected them along with their abstract effects. We ended up with the same amount of information being given to the viewer, but in a much more interesting form.

I grouped all the films of the same subject together, then spliced all the groups into one long roll; this left over an hour of film to edit down to twenty minutes. Using a viewer and sound reader we ran the film many times to get a feeling for the pace and mood of each promo. We gradually established the order in which they should run—the lightest mood first, slowly building to the most exciting last. We built the excitement up to a high level through the first fourteen segments and saved the three serious sections for last. These were the general sports coverage, winter and summer Olympics and the four-hour Africa special. The last and longest segment, Africa, was from a ten-minute reel which contained beautiful and moving scenes from the film.

I decided that the center screen must be a complete film and must carry the sound effects track, because at that point I was not positive I could run three projectors in sync for twenty minutes. If the side projectors should not run in sync or fail completely during the show, the center screen could still tell the story.

I made up a new three-column log sheet and filled it out with the proposed scene order. This required visualizing the effect of from one to three screens in various combinations. Often the film could not be edited according to the log. The film planned for the side screens sometimes appeared to be several generations away from the original. The increased grain and contrast was quite pronounced when projected next to a high-quality print.

Another problem was that once I found scenes that appeared to be of the same generation, the color balance was sometimes different. Running a print with a very pale magenta cast next to a cyan print mede them both look bad. Some color correction could be made later in the lab, but I tried to use only the best available film.

For editing I used a four-gang, motor-driven synchronizer with a magnetic sound head on the fourth gang. I edited film for the center screen on the second gang and put the edited side-screen film on cores. After the final edit on the center screen, I began the films in the first and third gangs on the synchronizer with black leader. At the proper spots I dropped in the film for the side-screens. Using black leader between segments gave me three equal length rolls of film so that all three projectors could be started or stopped at the same time.

Since I wanted to eliminate the hundreds of splices which could break in projection and edd fades to smooth out the multiple screen effects, I hed each roll printed. Even though the film was straight-cut, the splices did not show because I put them in either the bottom of the outgoing scene or the top of the incoming scene, whichever was the darkest.

The next job was to make the sound track. While the live music would cover for most of the sound, certain loud effects, such as explosions and gunshots, would be needed. We cut lip movement except in places were we wanted to hear a line. Usually one important sentence was used from each program promo. I hed to pull a sentence in fifteen different places and transfer it to mag film. I used a Siemans interlock projector with a sync motor which would also be used for playback at the theater. I blooped the optical track for two seconds before and after each sentence.

Then I loaded picture and mag film onto the projector and switched it to "optical—mag transfer". I rolled the projector and pushed the record button with the bias switch off. When I saw that one of the two-second strips of sound track blooping tape was over the optical reader, I turned the bias on. The transfer process began when the tape ended and the unblooped section began. It continued until that particular sentence ended and the next strip of blooping tape cut the sound off. While the second strip of tape was over the heed, I turned the bias off. This method of selective transferring gave me the lip-sync sections. The additional sound effects required were taken from the sound library, transferred to mag film and edited into the track. No mixing was required because the rest of the sound would be live.

After I hed a print of each film roll and the finished mag track, I released the spliced original of the center screen film to Mike Wing, a KOMO employee who would coordinate the band rehearsals. They set up in a basement studio, and Mike projected the film onto a large white wall. He ran each segment back and forth rehearsing one to two minutes at a time. When they felt comfortable with every section, they ran through the entire film at several rehearsal sessions.

I set up three units in the basement studio where the band was rehearsing. Although the projectors were not mechanically interlocked, I felt that, due to their high engineering standards, they would maintain fairly good sync during the 20-minute period the film would run.

Finding enough power to run the three projectors was a problem. I finally plugged into the overhead lighting circuits and used a breaker to start all three units at once. I rolled the projectors and waited for the first multiple-screen effect to appear. For this effect all three screens were supposed to come on with the identical lip-sync piece of film. First the center picture and sound came on, then the right, then the left—way out of sync. I decided that the projectors must take slightly different periods of time to get up to speed. The center, new projector would be the time standard against which the other two must run. I tried starting them before and then after the center unit, but I could not get them to stay in sync. Finally I determined that they were not running at normal speed. I found out later that both needed work done on them. I now had a triple-screen film and no equipment with which to project it—and the presentation was scheduled for the next evening.

The next morning, after testing many projectors, I found two very well-used, shabby-looking units that would work.

One stayed in perfect sync, and the other was very close; both were "wild" projectors. These units were Bell and Howell projectors Models #302 and #285. The model #302 was borrowed from our news department. It was used seven days a week to screen news film and appeared to have had a lot of use. This was the unit that maintained a perfect sync.

With the film nearly completed the projectors chosen and the band ready, we needed a complete rehearsal in the theater to coordinate with the light show people and the live actors.

At noon on the performance day we moved the projectors and equipment into the Eames Theater booth. Even with seven 35mm movie projectors taking up space, there was plenty of room left for our three movie units and the four overheads and four slide projectors used by the light show people to provide additional effects. They also had three overheads on the floor hidden behind screens. Altogether, the effects filled about 220° of the 360° screen. Because the screen curved around the audience, the 220° of visual effects provided a maximum involvement stretching to the right and left farther than the eye could see at one time.

Fortunately the booth had three high platforms for holding our projectors at the proper level. I placed the Siemans as near the center as possible and spaced out the other two projectors to put them directly behind the center point of their projection area. In this way they could project straight ahead so that there was no chance of keystoning.

I again needed a circuit from which I could control all three projectors at once. Installed in the booth for temporary hookups such as ours was a special unused 30-amp breaker. We had a heavy cable wired into the breaker and terminated it in a standard junction box near the center projector. We could then control the projectors from the breaker handle.

I positioned the center film in the desired area on the screen, leveled and focused it. Now the outside two projectors had to be brought into alignment with the center screen. Their height controls were adjusted until the bottoms of all the screens lined up. Then I moved the outside projections up against the one on the center screen so as to leave only a narrow black vertical division line between them. The slightest tilting of the projectors produced a wedge-shaped space. Since the projectors were not designed for such critical leveling, I had to use wedges to bring them into exact vertical alignment. It took some experimentation to set up a division line that separated the screens but at the same time kept them related.

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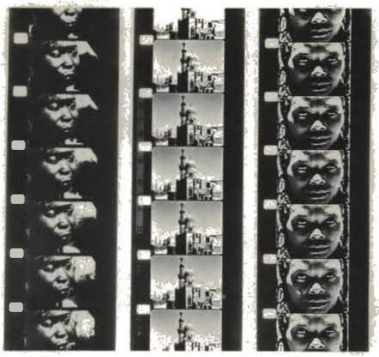
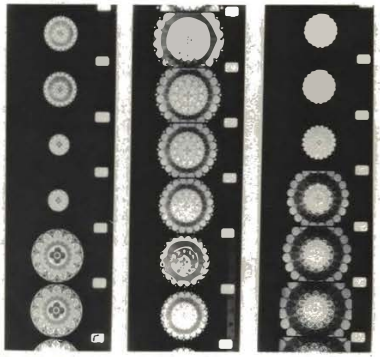


Sections of film used on the triple screen in the 1967 show for the "AFRICA" segment. Views of various African cities appeared on the center screen, while closeups of the people appeared on the two outside screens.



ABC's stylized, kaleidoscopic "flower" logo was used for visual transition bridge between various program segments of the show. It appeared on from one to three of the screens in a variety of colorful combinations throughout the presentation.

(RIGHT) Technician operates control panel connected to slide banks. Three 16mm film projectors were remotely controlled by another operator.

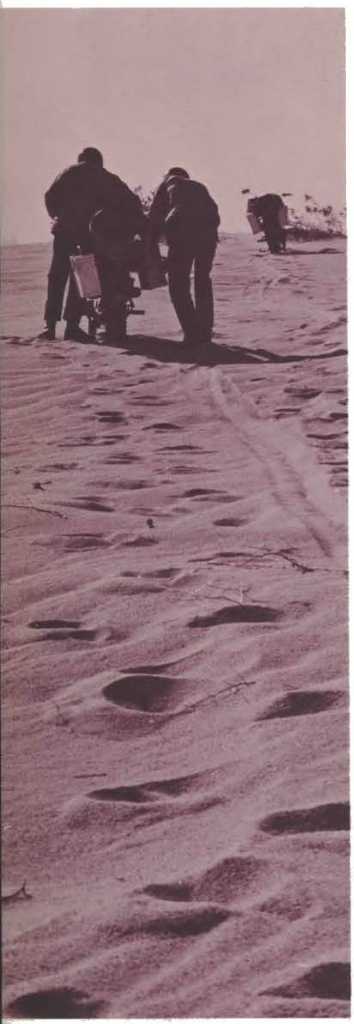
(BELOW) Log entry for the 1967 show indicating how opening title formed in successive stages on three adjacent motion picture screens.

left	center	right
	ITS	
A VERY		
A VERY	SPECIAL	
A VERY	SPECIAL	SEASON

ALONG "THE DEVIL'S HIGHWAY" WITH MOTORBIKE AND CAMERA

Search for a lost desert trail proves to be the "acid test" for cameramen and equipment

By PAUL TAYLOR



When I first approached Yamaha International, the American importers of the tough little Japanese motorcycles, with an idea for a 20-minute movie showing a trip down the Old Spanish Trail, they were immediately excited. Looking back on the project with the still poignant memory of sprained ankles, third-degree leg burns and countless black and blue marks covering most of my body, however, I realize that we were lucky to have succeeded in bringing back 5,000 feet of color film and most important of all, ourselves.

As a producer of documentary films, I had long wanted to retrace the overland route of the first Spanish colonists to reach California from Mexico and Arizona in 1775. It seemed like an ideal subject for a film on history as seen from the saddle of a motorcycle. I had spent two years researching the journals, diaries and papers of Juan Batista de Anza, a young Spanish soldier who had left Tubac, Arizona in 1774 to seek a land route to the California missions.

After several months of hardships, Anza found a trail that could be used for commerce and immigration through deserts previously thought impassable for men and horses. Years later the revolt of the Yuma Indians closed Anza's trail and it fell into disuse. With the discovery of gold in the Mother Lode region of California, the route became important again.

Thousands of anxious gold seekers crossed the Southwest deserts trying to reach the site of the rich strikes east of San Francisco. For many reasons the ill-prepared clerks, salesmen, and farmers who followed the trail blazed by Anza 75 years before, fell like flies in the scorching heat and vast distances without water.

The route was nicknamed "The Devil's Highway" or sometimes more appropriately, "The Highway of Death" by those who survived the grueling march across southern Arizona and California. It is now estimated by historians that some 400 graves dot the empty landscape between Tubac and Yuma, Arizona.

Since the 1870's however, the trail has been forgotten and the shifting sands of time and the desert have covered up most of the signs of human passage. Now, after nearly a century had elapsed, I proposed to re-discover the trail and film it as it looks today. The idea of exploring this region, known to our American pioneers as the "suburbs of Hell", challenged my spirit of adventure.

My research had convinced me that only a four-wheel-drive vehicle or motorcycle could get through the labyrinth of sand dunes and lava flows that stretched for hundreds of miles in all directions. The cost of a $4,000 jeep was beyond my budget limits, so I settled on a motorcycle as a means of transportation.

The one motorcycle with a tough reputation for durability and capacity for abuse seemed to be Yamaha. So it was a big boost for my filming project to have Yamaha International agree to pay the costs of the film and provide two motorcycles. One for me, and the other for my associate and friend, Don Bennett. On the surface, I could foresee no special problems, so two weeks were allotted for the trip.

Selecting equipment for the trip was a bit like packing for a space journey. There was no room for any excess baggage. I went over my gear many times excluding items each time to reduce weight. Here's what we started out with:

For hand-held shots, and mounting on the bikes for traveling scenes, I selected my Bell and Howell 70 series DA. It is light, tough and nothing beats it for shooting off the tripod. My Cine Special went along, too, for special effects and closeups. The Cine has a Par Reflex housing which is adequate, though heavy.

The Cine requires a tripod mounting, and I would hate to do any movie-making without it. As a backup camera in case of trouble we brought an old Keystone 16mm A-9 with a single lens mount. For all three cameras I used a wide angle 17mm, a primary 25mm, and

(LEFT) Blocked by "dragon teeth" in stream bed, cameramen filmed sequence of passage through the maze. (CENTER) Pack-laden small motorcycles often sank up to the sprocket chains in shifting desert sands. (RIGHT) Frequent stops to shoot motion picture footage slowed progress of the trip considerably. Here Don Bennett shoots a sequence of Paul Taylor's dilemma at being "stuck to the hubs" in sand. It was often necessary for both men to roll one motorcycle at a time up some of the high dunes.

a 50mm short telephoto. All of these lenses were Kodak Anastigmats, and were color-corrected. I also carried filters, (neutral density, and Type A #85 daylight) and had one spare of each type.

Except for three rolls of High-Speed Ektachrome, all the raw film stock was Ektachrome Commercial and was packed in 100-foot rolls. I left the film in the individual cardboard boxes they were packaged in, counting on this as extra insulation against the desert temperatures. But as an added precaution, each box was packed and sealed carefully in a plastic bag.

I had a pair of wooden boxes mounted on each bike over the back wheel. These were waterproof, dustproof, and were covered with a plastic-like surface. The film was stored in a box by itself on the side away from the exhaust pipe. In this box I placed a large dial, Weston thermometer so I could check at a glance the temperature of the film.

To protect the cameras against vibration, they were packed in a box that had been lined with foam rubber and styrofoam. The styrofoam seemed to do the best job in our case.

I reluctantly left my fluid head and Pro Junior tripod home, and substituted in their place a sturdy Tiltall tripod which folded to a length of less than three feet, and weighed a mere seven pounds. This proved to be steady enough even for the Cine Special. We were handicapped without a fluid head, but managed to avoid most panning except when the camera was hand-held.

My meters were a Weston Master III, and an ancient Spectra meter that was old when Napoleon was a cadet. My associate and cameraman, Don Bennett took charge of these and the cameras, leaving me free to follow the script and direct the action.

We loaded 2500 feet of Ektachrome in the film box at the start of the trip. Along with this, were packed 50 rolls of 35mm Kodachrome II for my still cameras. These were a Nikon SLR, a Yashica 2¼x2¼ (this was a real Japanese expedition) and a Pentax 35mm, SLR.

A set of metric tools, jeweler's screwdrivers, tweezers, and odds and ends like epoxy glue, masking tape, spare wire, string and extra nuts and bolts for the bikes, were added to the load—just in case.

When we totaled up our weight we found that, including a rider, the little bikes were going to be expected to carry 700 pounds. That was roughly one horsepower per 100 pounds. The motorcycle experts shook their heads, but we were down to the barest of essentials now. If any more goodies were left, it would impair our movie-making capacity.

Except for a flat tire in Glendale barely 10 miles from my offices, we reached the desert without trouble. South-east of Hemet is Batista Canyon named after the Spanish explorer. We worked out a procedure to speed up our movie making while here. I would grab the movie camera, Don would unstrap the tripod. By the time he was positioned with the tripod, I would have the camera wound and the lenses set.

To get both of us into the film, we would set the camera up near the center of the trail with a bike on each side of it. I would give the camera about three turns on the winding spring. Thus, it would run down before cranking much more than four feet of film. We could get a nice action shot in that length of time, and wouldn't be forced to race back and shut the camera off.

At dusk each night we would try to select a campsite. Before darkness closed in completely we would check all the movie gear. Loose screws were tightened, and dust cleaned off the delicate equipment that had collected in spite of our efforts. We packed the cameras in plastic bags after each shooting session, and this prevented most of the sand and grit from reaching the vital parts.

As we groped our way from landmark to landmark in the open desert, we really began to ache. Neither Don nor I had been used to riding motorcycles very much, and the added task of filming everything important that we did became a chore. It was difficult to remember to shoot closeups and fill-in scenes. We would become involved in

Filming a friendly Mexican cowboy during cattle drive down a lonely highway near Caborca, Mexico.

what we were doing on the bikes and then remember with a start that we had forgotten to record it on film, and would have to go back and stage some of the action we had missed.

When the trail got a bit hairy, like riding down a 40-degree slope on loose rock, one of us would go ahead and set up the camera. Then the real thing could be captured as the bike and rider went over the top and headed for the bottom in a cloud of flying rocks and dust.

Once in a while this would backfire and the one who was serving as cameraman would accidentally get into the action as well. While shooting one such scene, the bike went out of control and hit the camera and tripod, sending them flying through the air.

The cameraman was knocked to the ground by the motorcycle, but except for a bruise and battered pride, everything was okay—including the camera which lay half buried in the sand.

When a light windstorm blew up, we wrapped the Bell and Howell in a big plastic bag and went on shooting. We cut a hole in the bag over the shooting lens, and this gave us a soft vignette that further enhanced the effect of the storm on the film. This turned out to be one of the best scenes in the movie, and all because of a former litter bag!

On the sand dunes we encountered our first real difficulties with the overloaded bikes. The wheels sank into the soft surface and the motors, straining at a fever pitch, couldn't budge them. In order to move at all we had to dismount and push alongside the bikes as they ran in first gear. I couldn't tell how many miles were traveled in this way, but sometimes a whole day would be consumed in this occupation.

Anza had made copious notes, and from his several journals I had compiled my script. What had been written in the quiet of my study was transformed into exciting drama during our trip. Many times we put the script away and filmed what was actually happening to us, or what we came across in the wilderness.

While riding down Coyote Canyon for instance, we came upon a small stream that sprang up out of the desert floor at our feet. Rounding a bend in the hot dusty trail we were confronted with this unpredictable desert phenomenom. No script writer could have done a better job of inventing what we had stumbled onto by accident.

The water of our stream was tainted with alkali, but we drank it anyway to quench our insatiable thirst. Setting up the cameras, we used our surprise oasis for a number of scenes in the film. Next we were faced with the problem of riding down the stream that now filled our former trail.

Overhead the willows made a tunnel which shut off much of the sunlight. As we rode over the slippery rocks and splashing water toward the south, it seemed as if we had entered a jungle—not a desert!

Because I was anxious to record the experience, we loaded the Bell and Howell with High Speed Ektachrome to compensate for the reduced light, took a few light readings and decided on a compromise exposure, then mounted the Bell and Howell to the handle bars of the last bike.

I had bought a special C-clamp for this purpose with a standard thread mount at one end. This was clamped securely to the bars, then tied with twine to give it more rigidity. The effect was surprising. The wide angle lens captured the flavor of the watery trail, and the light flashing by the camera as the bikes roared down the stream creating an exaggerated feeling of speed and drama.

The camera had to be wrapped in plastic again for this operation since the wheels threw up water that would have soaked everything. As it was, our bed rolls, and much of our food were soaked. Our raw stock was protected by the waterproof boxes they were stored in, so there was no problem there. Almost everything was protected from damage—except the two operators!

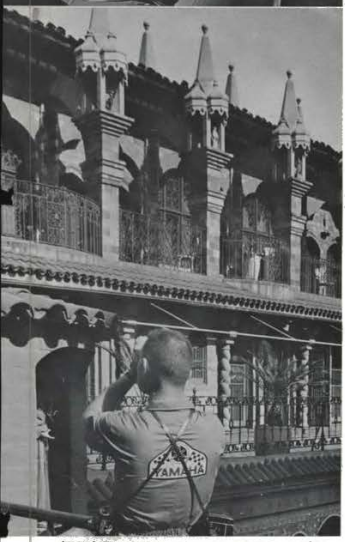
Our biggest enemy was heat. The blistering rays of the sun beat down upon us and the gear. The storage boxes had been painted white to reflect much of the heat. We also had taken the precaution of bringing along some tinfoil-wrapped fiberglass insulation, similar to that used in house construction. When the temperature climbed above the mark we could effectively control in the film box, we would wrap this material around it and that prevented further heating.

To overcome the problem of photographing us against a drab background, I ordered brightly colored jump suits that made a good contrast to the desert landscape. These were topped with bright red helmets that matched the color of the bikes. For warmth, we wore bright orange jackets.

As we pressed farther into the desert, our problems increased considerably. Constant stops to film, adjustments to the bikes, and long searches for the trail when it became indistinct, ate up our daylight hours. The sand was the worst enemy of all. Not only did it impede our progress, but we were forced to guard constantly against the tiny bits of grit getting into equipment.

If I were to make such a film expedition again, I would provide myself with a large changing bag so that all

(LEFT) A simple camera clamp mounted on the handlebars (and costing about five dollars) solved the problem of filming point-of-view running shots while riding. (CENTER) Camera is set at locked-switch position to shoot scene of cyclist riding past a drone plane that had crashed in the desert. (RIGHT) Fascinated children in the tiny adobe village of Arizpe, Mexico served as an eager "camera crew" during filming of the site where the young Spanish soldier-explorer, Juan Batista de Anza lies buried.



(TOP) The author adjusts Bell & Howell 70DA camera on handlebar mount. (BOTTOM) Cameraman Bennett films ornate spires of famed Riverside Inn at Riverside, California.

loading of film, etc. could be done in a clean place away from winds that might blow dirt into the film gate or magazine.

At one point our progress was slowed to little more than ten miles a day! To make up for lost time, we started riding at night. The first night my headlight burnt out, so I was reduced to riding behind Bennett in the darkness, trying to follow his path over the desert.

This meant the cactus clumps that grow profusely in this part of the world were now doubly dangerous. Often during these moonlight rides I would hit a chunk of cactus that would imbed itself in my legs. More time was always lost while the fierce barbs were plucked from our flesh by the light of the headlight. Our struggles with the desert had put us far behind schedule and we had been out of touch with any human habitation for four days when we ran out of food.

To add to the difficulties we faced, our water supply was very low. Anza had described a series of "tanks" he had discovered in a dry wash where rain water was trapped. We spent part of a day looking for the place and finally found it. The solid granite rocks were dish-shaped and contained several gallons of evil smelling, brackish water. Since I could see no prospect of getting to better water before we ran out of our so-called "fresh" water, I closed my eyes and drank out of the best tank.

We hadn't planned on this. But while we were at it, we shot some footage of the experience. On the way back down the rocks to our bikes, the camera strap on the Bell and Howell snapped and the instrument was dashed against the rocks. After that I could detect a sickly rattle, so we quit using it in case it was malfunctioning (it was).

The vibration had proved to be hard on the equipment in spite of our attempts to cushion it with foam rubber packing. The Cine Special was also given a severe jolt and I quit using it about the same time. This left us with the Keystone. As much as I hated to think of making this camera the main work horse, there was no help for it. We were simply grateful by this time that we had a camera to use.

The heat reached 110 degrees one day, according to the small thermometer we carried, but frequent checks revealed that our film never went above 87 degrees, (which was bad enough). We made Ajo, Arizona with less than a teacup full of gas in each tank. It had been a close call for us, but there was no time to ruminate on this part of our adventure.

After shipping back the battered cameras via Greyhound, we picked up a fresh stock of film my wife had sent the same way, and we were off toward the south again. The Mexican authorities were so surprised at our bikes and mounds of equipment, they didn't bother to inspect anything at the border.

We crossed at Sonoita, Sonora and tried to find traces of the mission that once stood on the banks of the river. Anza knew the place well, and except for a bit of commercialization, little has changed since his day. The village is still small, and sleepy. The natives were afraid of our cameras, or didn't want to be photographed, so we resorted to some indirect approaches in order to overcome this.

When we wanted to shoot Mexicans at their daily tasks, we would set everything up and point the equipment in the opposite direction until we had the lens set, and the focus adjusted. Then we would wind it, and put the camera on run, turn it toward the action we were trying to record, and walk away.

As soon as we had strolled off a few feet, people forgot the camera and went back to their activity. Now and then, we would put the camera on the handlebars and cover it with a coat until it was ready, then while still seated on the bikes, use the handle bars to pan shots and film scenes without attracting attention.

Our route led us to Cananea, Sonora, a copper mining town which would be the jumping off spot for a swing to Arizpe, a very small village 80 kilometers south, where Anza was buried. It was now some two and half weeks since we had left San Gabriel and the strain was beginning to tell on us. But at this

Continued on Page 306

Parched with thirst, Taylor reluctantly gulps brackish water from a natural "tank" in the desert rocks.

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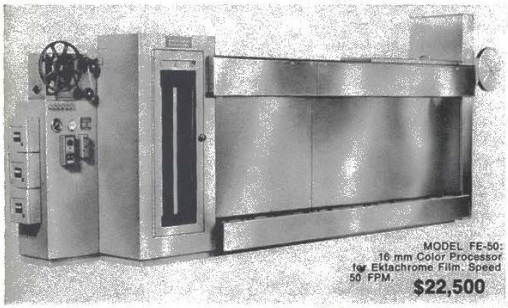

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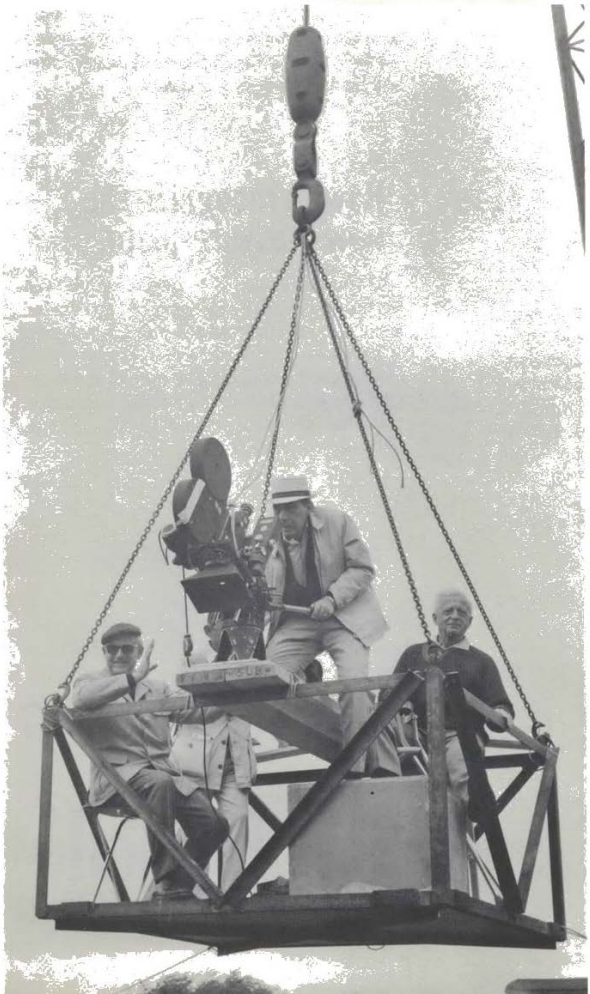
RECREATING FOUR DECADES OF MODERN HISTORY FOR "STAR!"

Nostalgia is recaptured with strict authenticity in widespread locations for film biography of "star" Gertrude Lawrence

By KEVIN LAND



Robert Wise's production of "STAR!" for 20th Century-Fox is, as everyone must surely know, a film biography of the legendary Gertrude Lawrence, whose very name personifies the title.

But more than that, it is the chronicle of a career that spans the years from 1905 to 1940--almost four decades—during which Julie Andrews, in the role of the glittering Gertrude, ages hardly a whit. For the technicians involved in the 35-week shooting schedule and lengthy post-production period, it was something else again: the challenge of recreating an authentic nostalgia for several distinct phases of the not-so-distant past.

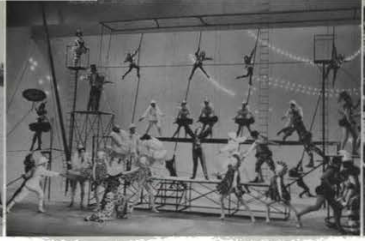
Superbly photographed in Todd-AO by Academy Award-winning ("SHIP OF FOOLS") Director of Photography Ernest Laszlo, ASC, the complex schedule and logistics of the ambitious roadshow super-musical add up to something of a Production Manager's nightmare.

Camera work began on "STAR!" on April 12, 1967, with a screenplay on which English screenwriter-playwright-director William Fairchild hed worked for a year after more than a year gathering intimate details about Miss Lawrence and her career.

The first 23 shooting days were done in Hollywood and involved Miss Andrews, Daniel Massey, Beryl Reid, Bruce Forsyth, Alan Oppenheimer (Charlot), Garrett Lewis (Buchanan), Lynley Laurence (Billie Carleton), John Collin (Gertie's husband) and J. Pat O'Malley (doorman.)

The company flew to New York the weekend of May 11-12 and started a 20-day schedule at 14 different location

Riding cradle of giant crane in location for "STAR!", Producer-director Robert Wise (left) and Director of Photography Ernest Laszlo, ASC, (right) soar aloft with the Todd-AO camera.



(LEFT) At Whitehall Parade Ground, London, Cinematographer Laszlo (on crutches following accident) observes trucking shot of Horse Guards. (CENTER) "The Saga of Jenny" from "Lady In The Dark", one of many elaborate production numbers filmed on 20th Century-Fox sound stages. (RIGHT) Wise and Laszlo get down for a good look through the viewfinder during filming of location sequences in London's Clapham district.

sites on May 16. Despite rain (and even some snow flurries one late May night), director Wise completed all work in 18 days. Scenes were shot at the Lyceum, Cort, Music Box and Belasco Theatres, at the Algonquin Hotel, Cartier's, Washington Square, Central Park, the Statue of Liberty, Tibbetts Brook Park, the National Guard Armory, a Long Island estate, the Lotus Club and an 87th Street apartment building.

Use of Broadway theatres was necessary because all playhouses in Los Angeles of the Twenties to Forties have been torn down. For instance, the Lyceum in New York was built in 1902 and the ornate original ceiling was lighted for the first time in its existence. The only interior changes were installations of footlights—now obsolete.

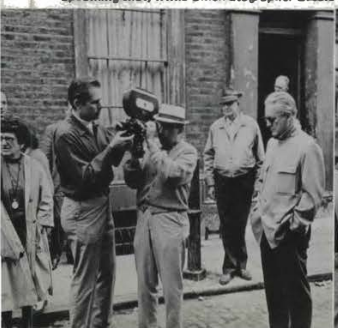
A crew of forty key personnel technicians accompanied Wise to New York and continued on to Cape Cod, Southern France and London. These Hollywood craftsmen were augmented by more than 60 workers in New York, France and London.

The staging of Julie's singing "My Ship", an attempt by her to start rehearsing "Jenny" and the opening of "Someone to Watch Over Me" were the only musical details done in New York.

Wise took his crew to Cape Cod on June 6 to make the first movie scenes ever done in and around the famous Cape Playhouse in Dennis, Mass. Miss

On the stage of Broadway's Belasco Theatre, Julie Andrews picks out the melody of "Someone To Watch Over Me". Reverse angles of the number itself were filmed in the studio. Illuminating theatre interior was a sizeable lighting problem.

(LEFT) In Greenwich Village, cameraman with hand-held Arriflex prepares to shoot one of the "old newsreels" created for the film. (CENTER) Setting up to make a dolly shot in London's Victoria Station. (RIGHT) On location in New York's Central Park, Producer-director Wise describes an upcoming shot, while Cinematographer Laszlo tries it out on his viewfinder.



Laszlo watches with a professional eye as actor playing role of 1920 newsreel cameraman hand-cranks an Akeley camera on location in Greenwich Village. Actual "silent newsreel" shots were filmed with modern equipment and later "degraded" by 20th Century-Fox Special Photographics Effects experts to match actual stock newsreel footage.

Andrews, Crenna, working with seven bit players and 300 extras, recreated two events—the first professional association of Gertie and Richard Aldrich as she rehearsed a play, and their wedding at a nearby cottage on July 4, 1940 (Gertie's 42nd birthday.)

The next move was to Nice, France, the company arriving on Saturday, June 10. Eight days of filming were done with Miss Andrews, Massey, Elizabeth St. Clair and Jenny Agutter, 14-year-old English actress who played Miss Lawrence's only child. Magnificent views were obtained, amid rainy weather and low haze on the Mediterranean, from a large estate, Villa La Serena at Cap Ferrat on the way to Monaco. In spite of choppy seas which handicapped the anchoring of a raft, Wise completed a sequence at Medy-Roc, an estate at Cap d'Antibes not far from Cannes, showing Julie and Massey swimming in 1930 bathing attire in what proved to be frigid waters.

Flying to London on June 20, the troupe began location work there on Saturday, June 24. Fourteen days of exteriors in unsettled weather were done on scenes which extended from 1905 to 1920. There were days and nights at Marylebone Railway Station, Regents Park, the Theatre Royal in Stratford, the Royal Hospital at Chelsea, Westminster School, Marble Hill Park in Twickenham, Wimbledon Commons, in Lynance and Clabon Mews and on Leslie, Stanley Grove, Redcliffe Square, Great Ormond, Childers, Albury, Louvain and Adeline Grove Streets. Two scenes were also completed on a stage in Isleworth Studios.

It was at this small studio that another old favorite tune, "Down at the Old Bush and Bull", was added. It boomed from the throats of a half hundred men playing 1905 pub characters when a child Gertie danced into their midst.

Scenes in London did not involve Julie Andrews, who had flown from the French Riviera to Hollywood to get back on the musical number rehearsal grind.

On Sunday, July 9, Wise and his co-workers wound up all location work and flew home from London. Studio filming resumed on Wednesday, July 12. Cameras kept rolling, every working day until October 4 when the last of the story sequences were wrapped. All of Julie's co-stars and fellow cast members had finished their roles and gone to vacations or other assignments.

One of the most formidable technical challenges in the production of "STAR!" resulted from the employment of an imaginative device that serves as a springboard for multiple flashback excursions into the past.

The film begins with a sequence in which Julie Andrews is shown in a studio projection room at the private screening of a documentary based on assembled newsreel clips of her (Gertrude Lawrence's) life. The earliest of these clips, from the silent era, rush across the screen at 16 frames per second. The scenes are grainy, scratched, flatly lighted and shaky. The establishing shots are authentic old newsreel footage, but the closer shots (which show Julie as Gertie) had to photographed especially for the production—and in such a way that the technical quality (or lack of same) would precisely match that of the actual newsreel footage.

It might be assumed that the prob-

Continued on Page 332

Frame blow-ups from "old newsreel" scenes created for the film. Deliberately poor technical quality was achieved through flat lighting, superimposure of grain and scratches, plus altered gamma during development. Scenes intercut with actual newsreels of the various periods.

We've choreographed a step out of the duplicating song and dance.

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THE PROPER CARE AND HANDLING OF COLOR FILM

Your precious color original deserves the best protection you can give it

By RALPH WESTFALL
Motion Picture Engineer
Eastman Kodak, Hollywood

The care and attention that you give to the exposed original color film that you store today, will be like money in the bank tomorrow.

The color film market is booming and the reasons are easy enough to understand. Every definitive test that has ever been made has shown that audiences are almost always partial to color. If you are making an entertainment film, this means that you are likely to draw a larger audience if your motion picture is produced in color. The same goes for television. In both cases, color obviously also enhances the residual value of the film.

The question is, what happens to color film after the producer shoots it? In my own experience, unless color film is properly processed and stored, it can begin to fade seriously within 12-18 months—and sooner, if conditions are really bad.

However, if you take proper precautions there should never be a problem. Even a faded original color negative or color duplicate negative can usually be "saved" if you are willing to go through the expense of retiming before you re-issue prints.

The only real problem occurs when the three different color layers begin to fade unevenly—and, this will happen only if film is stored under the wrong conditions. In this case, it is at the best a very expensive process to re-time the film, and, even then, the chances of recapturing the original colors are very slim.

All of these problems can be avoided if you take proper care of your processed color film in the first place. There are, to start, several *must* areas where the laboratory that handles your film in processing must be totally efficient.

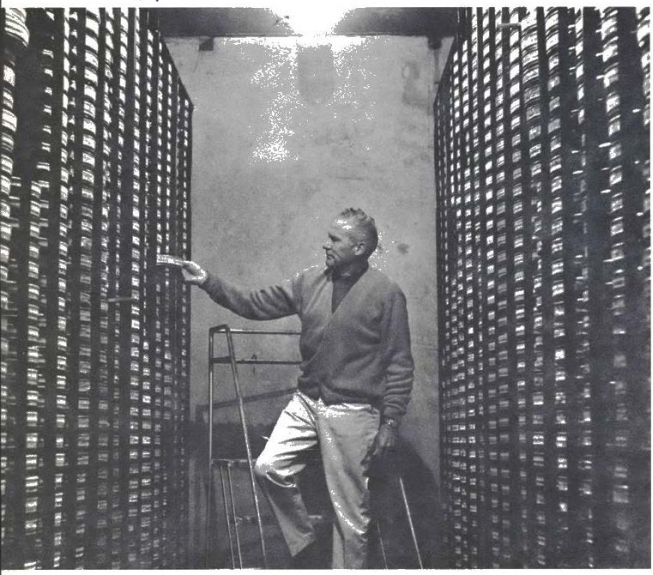
Film must be properly washed after the final hypo. If the residual hypo content is too high, the changes will automatically be accelerated. However, this is an easily controlled situation. It just requires proper final washing in the lab and a very basic kind of chemical analysis to determine if the hypo content is at a safe level.

Secondly, similar diligence is necessary when the processed film is stabilized. A concentration of too little stabilizing agent can also trigger fast dye image fading.

Finally, color film should never be run through a tank holding black and white developer. The developing agent hydroquinine, usually present in black and white developers, will cause dyes to change immediately. This has happened where the black and white developer was used to rewash color film to remove sticky dirt.

When handled under the poor conditions described above, I have seen color negative fade seriously within a few weeks.

Once you are assured that proper care is being given to your original color film at the laboratory, the next decision



A professional film storage vault in Hollywood. Cold storage is recommended for the preservation of all processed color original film. The ideal condition would be a totally dry atmosphere with the temperature maintained at 20° F. or lower. However, for all practical purposes, properly packaged color negatives can usually be safely stored at temperatures under 55° F. and in relative humidities of between 40-50 percent.

involves storage. For ultimate protection, I personally believe that three silver separations–green, blue and red–should be made from all color negatives. These are usually made on Eastman Panchromatic Separation Film, Type 5235. Even stored under ideal conditions, the color dyes in film will fade somewhat. This is a natural process. The separations having a stable silver image are protection against any damage done to your color original.

If you decide to store both your color original and silver separations, it only makes good sense to keep them in separate places. That way, if either is lost in a natural disaster like a fire, flood, or by theft, etc., you will always have the other. The three silver separations themselves, of course, should always be stored together. Whatever shrinkage takes place in size will happen equally to all three. This will make any necessary reprinting less of a job.

In either case, film should be kept in a closed container, usually either rigid plastic or metal. A paper or cardboard container will age. Furthermore, such containers provide little or no physical protection against rough handling, etc. Usually, we recommend that the metal or plastic containers holding safety film be sealed with tape. This will slow down the loss of solvent from the base and reduce normal shrinkage caused by aging.

A word of caution: Nitrate film, should never be stored in sealed containers. It needs to "breathe" so as to dissipate gases which are formed if the nitrate film decomposes.

For purposes of slowing down aging shrinkage, separations should be stored in a room where temperature and humidity are controlled. The ideal situation would be to run the film through a de-humidifying machine, driving all of the moisture off. Then you would store the film in a taped can where the temperature is maintained at 0°F. or even lower.

However, practically speaking, you are probably safe if your separations are stored properly in a room where the temperature is below 75 F. and the relative humidity is no higher than 40-50 percent. Ideally, the more you can lower the temperature and moisture content of the film, the better it is for the life of the film.

One additional precaution that could be taken when color negative or color internegative have been stored or used in an atmosphere that was relatively humid is to rewind the film very slowly several times in a dry atmosphere or run it through a dry cabinet with air at a low enough moisture content to extract moisture from the film and thereby slow its tendency to "fade".

As another precaution, if the color negative, color internegative or silver separations have been in cold storage, the film must be allowed to warm up to room temperature before the can is unsealed. I will cover this subject more definitely when we speak about cold storage.

Cold storage is recommended for the keeping of all processed color original film. Ideal conditions, again, would be to keep the film in a totally dry atmosphere, with temperature kept at 0 F. or lower. However, practically speaking, properly packaged color negatives can usually be safely stored at temperatures under 55 F. and in relative humidities of between 40-50 percent. If one goes to the extent of drying moisture out of the film before taping the cans for storage, it is imperative to get moisture back into the film before handling it on any mechanical equipment. Otherwise it will become very brittle and would easily crack or break.

When relative humidity is not held down to the proper level, it is possible for the metal containers to rust. If the containers are properly sealed, this will not affect the film itself. However, it could cause a handling problem since it would be possible for rust to be transferred to the film from the hands of the person handling the rusty cans.

Another condition that can occur if film has been stored under cold conditions is that condensed moisture could form on the film if the container is opened too quickly in normal room atmosphere. My advice is to handle processed film taken from a cold room in much the same way as you would handle unexposed negative kept in air-conditioned storage. Remove the film container from its cold atmosphere to a warmer area 24 hours before the container will be opened.

In pointing out these handling problems involved with maintaining proper storage of color original film, I want to keep the main objectives in focus. Color films contain various dyes which are slowly undergoing changes. We can only slow and control that process by reducing the moisture content of the film and keeping the film at sufficiently low temperature. The lower temperature and the lower the moisture content of the film, the more we slow the chemical deterioration. Controlling one environment, say temperature, without the other, humidity, will not solve the problem completely.

If you are convinced of the necessity of protecting your color film materials, you at least have the advantage, today, of having adequate facilities available for controlled storage. Some of the theatrical film studios, including Columbia, Disney and Paramount, maintain their own air-conditioned vaults. Furthermore, some of the film laboratories provide this type of storage at only slightly higher fees. Finally, because of the increasing volume of color film being exposed today, some film industry equipment houses are now building vaults for the proper storage of color film. One Hollywood firm, for example, is building more than 40 storage vaults which will be both temperature and moisture controlled.

Film should be stored horizontally in rigid plastic or metal containers, preferably taped in order to minimize normal shrinkage caused by aging.

In some cases proper storage only takes common sense. For example, we know of a school district that has an audio-visual department exposing a great deal of color footage for eventual use in educational films. In this case, we recommended that the film be stored in an ordinary refrigerator. This procedure could be utilized by other producers storing exposed color negative in outlying areas, where laboratory facilities are not readily available.

However, in the example that I have given, someone forgot that the electricity that operated the refrigerator would automatically be turned off during the summer months. During that period, the atmosphere turned completely from that of a refrigerator to that of an incubator.

By Fall, the exposed film was already badly faded.

The most acceptable alternative was to shoot again.

This is a problem that an alert producer should never have to solve. Instead of being a headache, your stored color film should be like money in the bank. ■

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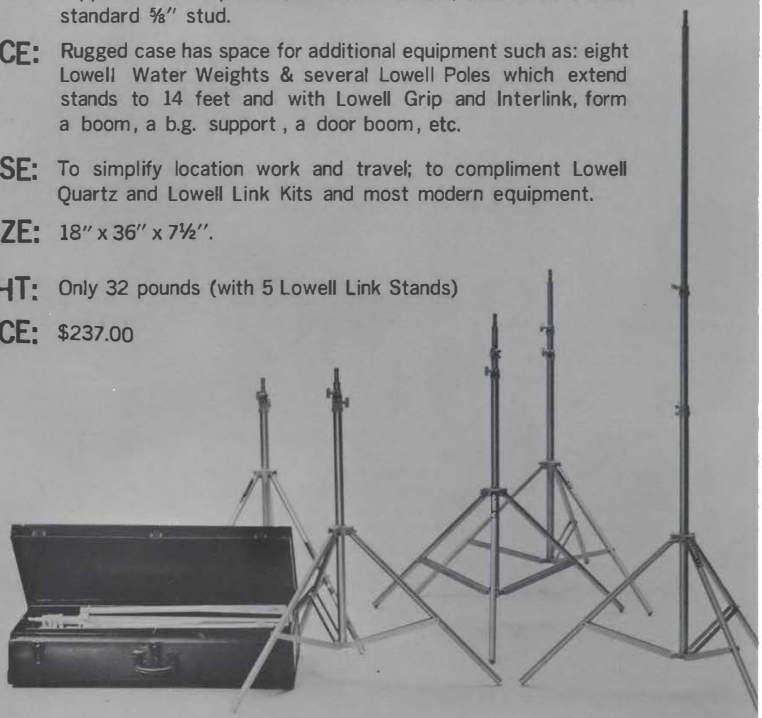

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THE USE OF COLOR FILTERS IN COLOR CINEMATOGRAPHY

Filters for both lamps and lenses, when used correctly, are valuable aids in color work

By WINSTON HOCH, ASC

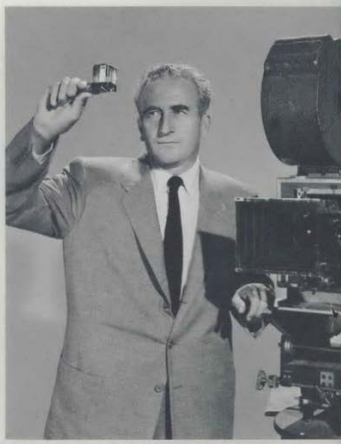
Color filters, as used for color cinematography, might be put into two classes: those that are considered essential, and those that are considered desirable.

Typical essential overall camera filters would include The Wratten 85 or 85B, to correct daylight scenes to the 3200° K film; or other recommended filters, such as the CC series used for scene-by-scene color corrections when these scene-by-scene corrections are not available or are impractical in the laboratory.

Essential lighting unit filters would include the familiar MT 2 used on lighting units such as carbon arcs with carbons that are balanced to daylight, or the proper MacBeth blue glass filters, or selected dichroic filters that raise the color temperature of the incandescent lighting units to the desired sunlight or daylight color temperature.

Desirable color filters can obviously be any filters or combinations that will enhance the picture and help create the effect that is desired. The choices are multitudinous. Red, pink, green, magenta, purple, or you name it. While this statement is brief, do not be misled as to its significance. It is an extremely important area.

Overall filters for correcting the color temperature of the film to the color temperature of the illumination used for the scene are considered most desirable, even essential, although there are, on occasion, some exceptions. Most of us with appreciable experience have been caught now and again (but rarely) in a spot when, for one reason or another, the proper filters were not used. If the shot was made with daylight balanced film, no filter in the camera, and incandescent light for illumination (or vice versa), the challenge of correcting the color balance falls to the laboratory. Generally the lab can salvage the shot, but it is at the price of an unbalanced color response.



Winton Hoch, ASC, shown here examining prism of old three-strip Technicolor camera, is a graduate physicist from the California Institute of Technology—besides being the winner of three "Oscars" and an "Emmy" for color cinematography.

Filming a location rain sequence for "THE GREEN BERETS" (photographed by the author), with the aid of booster arc lights. White carbons match the color temperature of daylight, but when used indoors, MT-2 filters (or yellow carbons) must be used to match the lower color temperature of incandescent lamps.

If the shot is a mixture of daylight and incandescent, the artistic design and desired result will determine the camera filter to be used, with, perhaps, some color balance adjustment in the laboratory. This technique can be very effective.

Before becoming involved in specific techniques, I believe a review of the pertinent factors is most desirable.

We must all work with film (or a color receptor) of inherent color response and sensitivity.

Each scene has present its color areas with their own definite spectral energies.

Continued on Page 330

NEWSLETTER FROM THE SAN QUENTIN PRISON INMATE FILM WORKSHOP

(EDITOR'S NOTE: The story on San Quentin Prison's Inmate Film Workshop, which appeared in the October 1968 issue of AMERICAN CINEMATOGRAPHER sparked a tremendous surge of reader interest and response. Because of this, we are publishing the recently received News Letter from the Workshop, which follows. We have also had a great many queries from readers who expressed an interest in donating much-needed equipment, film and funds to this unique workshop. To those who may be so inclined, we wish to state that all inquiries and/or donations should be addressed to: Mr. Dick Queirolo [Sponsor], Inmate Film Workshop, San Quentin Prison, San Quentin, California 94964.)

$500 DONATION TO FILM WORKSHOP—DR. DART MOVES TO KANSAS—FILM WORKSHOP TO MAKE TRIP

San Quentin's Inmate Film Workshop received approval for the CCOA film from San Quentin and Sacramento. Also received approval from the various institutions we will visit. The IFW will start on the filming trip January 25, 1969. Completion date is estimated for July 1, 1969.

Dick Queirolo met with the Peace Officer's Association film committee on a training film. P.O.A. approved the shooting script and the IFW will start filming July 2, 1969 with the approval of R. K. Procunier and Warden L. S. Nelson. Inmate Ed Costello wrote the script.

•

The IFW was given approval to film Walter Winchell's film crew here at San Quentin but due to the other film projects that had to be done, the IFW were only able to meet and talk with Mr. Winchell and the film crew.

The "Golden Reel" award was completed and shown at the Sports Dinner. The award was presented to Chuck Jolly for "Outstanding sportsmanship during 1968". This film was shot and put together without the winner's knowledge, until the film was shown on the screen at the Dinner.

Bill Lawhon, director of photography and chairman of the IFW received the Q-Rolo film award for his "Outstanding contributions to cinematography." Lawhon also received the Film Critic award. On the plaque reads "THE BIG BURNOUT", 1968, Inmate Film Workshop—San Quentin. This award was put together and made out of a light meter that was destroyed in a fire.

•

Seven hundred feet of Tri-X was expended during the filming of the New Year's Show. The film is now being processed for a documentary of the Show of Stars.

"The City of Steel," the 30-minute Warden's tour film is nearing completion. Original title was "Behind the Walls".

•

The IFW has installed a new editing bench and film storage rack in the cutting room. Plans are in the making to build a dark room to roll off raw stock for 100 and 400 foot reels.

We also received on a permanent loan basis, a 16mm Grag 4X6" screen viewer, an M-H professional portable 16mm hot splicer and a Wollensak 6200 model tape recorder from our boss, Mr. Richard W. Queirolo.

The Inmate Film Workshop received letters from the Department of Corrections—Connecticut, ETV of North Carolina and the Community Film Workshop Council in New York, (branch of the American Film Institute) concerning the San Quentin's film group and asked for any help we might give them in setting up a similar operation. They learned about the film group in the article of The AMERICAN CINEMATOGRAPHER.

•

A new full time member of the Workshop was acquired. Edward H. Costello will be working as the IFW's writer and will take care of the various administrative functions pertinent to the group's activities. On his release he plans to attend S.F. State College and Major in T.V. Administration.

•

We received a visitor from Katonah, New York in the person of Mr. John Clayton, a film maker. He heard about the IFW and asked Mr. Queirolo to speak and show some of our films at a film seminar in New York in August, 1969. Mr. Clayton asked if he could be of any help to our group in the future.

•

Dr. Peter Dart, member of the IFW board of directors and professor of Radio-TV Department at S.F. State College has left SF State to teach at the University of Kansas. The IFW has asked him to continue his activities as advisor on our board of directors.

•

Mr. Hal Mohr; President of the American Society of Cinematographers, has informed Mr. Queirolo that the ASC has donated 500 dollars to the Workshop so that we may purchase much needed equipment.

Mr. Henry Freulich, ASC, another member of our board of directors, has offered to send the IFW some new Sylvania lamps to use in our workshop.

Bill Lawhon, our chairman has received a scholarship in photography, from the Famous Photographer School in Westport Connecticut. This is a three year course and in still photography. Lawhon plans to use this in his motion picture work. ■

1. Joe Potts at controls of Pako Model 28EK Processor. 2. WAGA-TV office and studio building, Atlanta. 3. Bill Buckler (left) chief photographer, and Jim Shirley, Treck PhotoGraphic of Atlanta.

Pako helps cut film processing costs in half

The population of Atlanta has grown dramatically in the past 10 years—and WAGA-TV has grown right along with it. Virtually all their shows, news and promos are telecast in color, making WAGA-TV the leading color station in the Greater Atlanta market.

When WAGA-TV decided to go into automated film processing, it was only natural that they wanted the finest equipment available.

"We looked at a lot of brands and models of processors and talked to a lot of people," said Bill Buckler, chief news photographer, "and we chose the Pako 28EK Cine Processor. It's got quite a reputation in our business—and now we know why.

"We used to pay 6¢ a foot for outside processing," Bill continued, "and we provided our own pick-up and delivery. But in the first 12 weeks with our 28EK, we processed nearly 177,000 feet of film at about half the outside cost—including overhead." Bill mentioned that the 28EK would pay for itself in a very short time, even though it is in operation only 2 to 3 hours a day.

Joe Potts, the operator, was trained at the Pako Training Center in all the necessary operating procedures. "It works like a charm," Joe said. "Even when we force-process, it performs beautifully."

"Everything our Pako Distributor, Treck PhotoGraphic of Atlanta, said it would do, it does," Bill added. "—and it does it very well. It's fast, dependable and the quality is excellent . . . all the time.

"When we consider the time, cost and quality," said Bill, "we know we made the right choice by automating with Pako."

If your film department is thinking of installing automatic processing equipment, contact your Pako Distributor or write to Pako Corporation, 6300 Olson Memorial Highway, Minneapolis, Minnesota 55440.

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"THE DEVIL'S HIGHWAY"

Continued from Page 291

late juncture, neither of us wanted to give up.

Our muscles were getting tougher, (the same could be said for our bottoms) and the exertions that had left us gasping for air in the beginning hardly slowed us up now. The road from Cananea to Arizpe was so poor, it wasn't even shown on a map we carried.

The route led over some of the roughest country I have ever seen. Bare boulders, dozens of feet high were included by the "engineers" who had conceived it. Actually it was little more than a track most of the time.

During this part of the trip the Keystone camera dropped off the load (I hadn't put it back in the case, thinking I would use it in a few minutes) and we had to retrace our steps looking for it. The camera was in good shape and none the worse for its falling on the ground. But I didn't make that mistake again.

After the more sophisticated cameras quit running, Taylor continued to shoot with trusty amateur-type Keystone camera.

We rode until 10 o'clock that night and were still a long ten kilometers from our goal. The next morning saw us in Arizpe, and at the graveside of Juan Batista de Anza, the man who had inspired our journey. He has been buried under the floor of this ancient church since 1788.

His bones were exhumed in 1963, identified by a team of scientists from the U. S. and re-interred in a glass topped cell in the floor of the church. The interior was dark, too dark, even for High Speed Ektachrome, unless I dropped the shutter speed to eight frames-per-second. At this I barely got a picture, but since nothing moved in the shot it was impossible to detect on the screen.

A bent reel threatened to disrupt our production until the priest kindly allowed us the use of a confession booth for an impromptu lab. The reel was discarded, but we didn't have a spare, (take note!) so we had to re-spool a fresh roll on the bent reel in the booth using pencils to hold the two reels.

After less than three hours of shooting in Arizpe, we had to head north again, leaving our "crew" of some 50 youngsters laughing and waving in our wake. So far we were elated with the progress our movie footage was making. But fate was about to put us through the wringer once more.

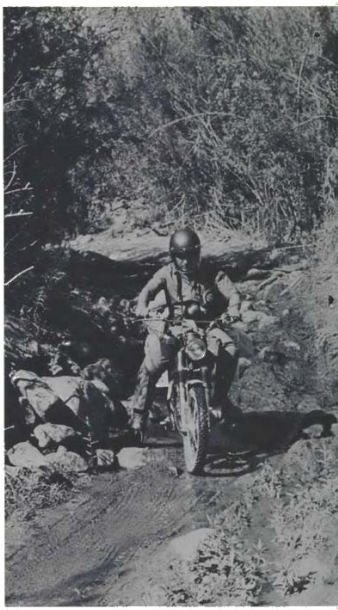
It seems to be an established rule of Mexican road builders to always put a road in the bottom of a riverbed in preference to solid footing on high ground. The "good" road out of Arizpe was supposed to be a super highway compared to the one we had used to enter it.

The road kept crossing the river which got deeper as we went along. The water was 22 degrees and running fast. To make things even more uncomfortable, a cold wind blew up. Fording the river became more frequent and the water was so deep the little motorcycle engines vanished with a splash everytime we tried to cross the stream.

For some ten miles after leaving Arizpe we crossed and re-crossed this river 44 times. When the road finally left the river and started climbing to higher country, we were soaked to the waist, our boots filled with icy water, and shivering like leaves.

I have always regretted not being able to film at night, because the graphic portrayal of our experiences that evening would have been very interesting. As it is, those hours are forever indelibly etched in my memory.

The water that soaked our bedrolls and gear, would have ruined the exposed and raw film we carried, had not the waterproof cases we bolted to the bikes prevented it. To me, it pointed out the need for careful planning *before* starting on a location type of film. There was no way in the world for us to know beforehand that we would be fording rivers on a desert trip, but the precautions we took proved their value by saving more than 1000 feet of exposed film from damage.



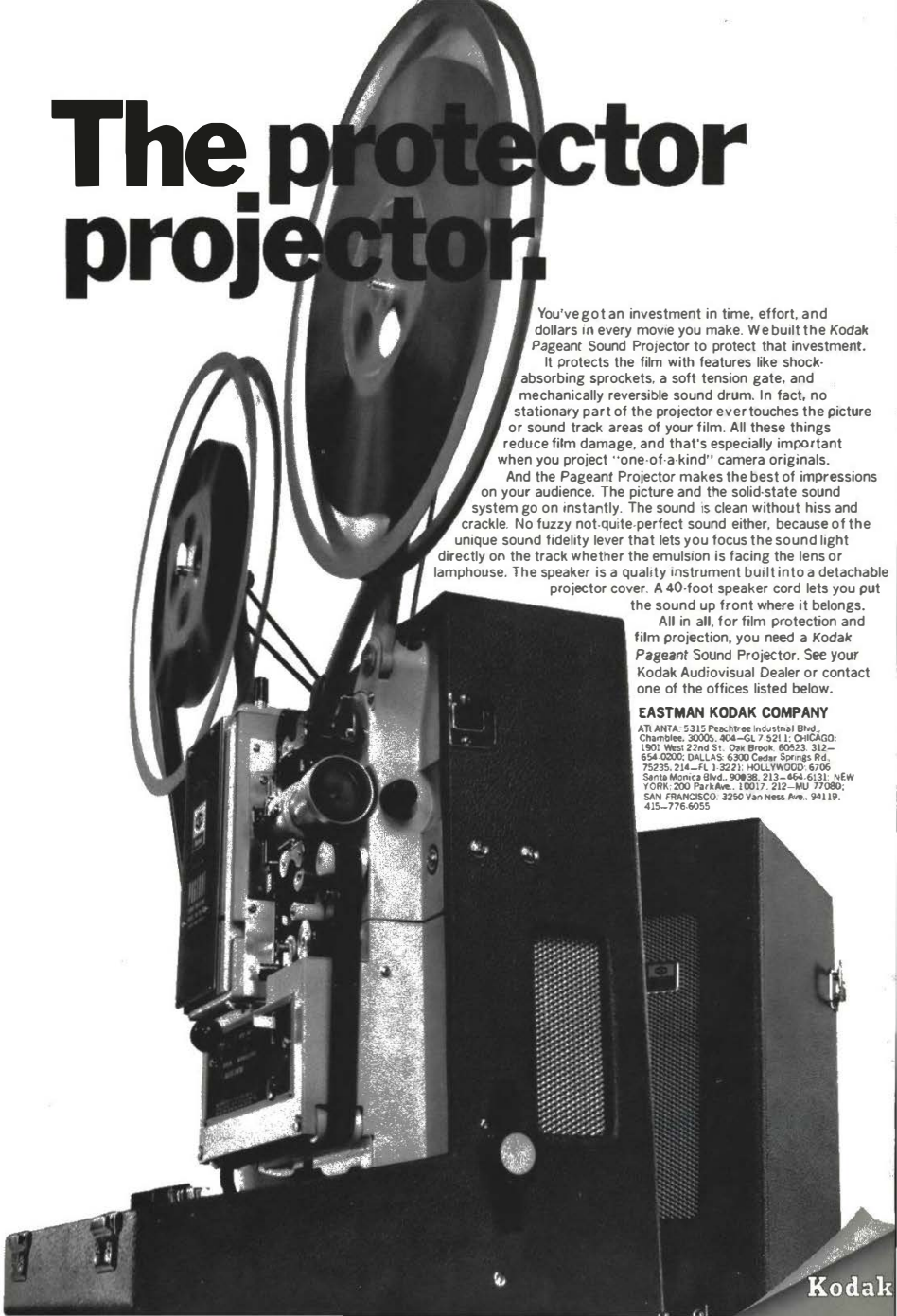
The only "road" in the raw desert country was often a rocky creek bed, hard on both men and equipment.

Our spirits were at a low ebb, but we decided to push on since there was little point in feeling sorry for ourselves. My headlight had never been repaired so I continued to follow Don's beam in the darkness as we bumped and crashed over the rocky trails.

We were surprised when the headlights of a pickup appeared behind us. We pulled to one side for it to pass when an American voice hailed us: "Where are you guys going?" it inquired. "We're trying to reach Cananea," Bennett told him. "Well," the voice predicted, "you won't get there tonight, it is still 60 kilometers ahead, and the road is hard to drive at night. Why don't you stay at my

Continued on Page 326

The protector projector.



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When the Super-8 format was first introduced, it was assumed that its 52% larger frame area would be, mainly, a boon to amateur film-makers. It soon became evident, however, that the larger, sharper picture made possible by the new format opened up a number of professional areas of application—but (it was initially thought) as a *release*, rather than an *original photography* medium. It was reasoned—and accurately—that Super-8 would provide a means of furnishing low-cost release prints for films produced in 16mm and 35mm.

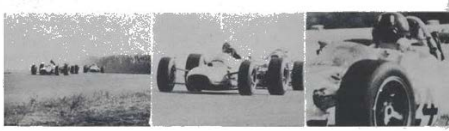
This it assuredly has done. What was not at first appreciated, however, was the fact that there exists a vast potential for Super-8 as an *original* photography medium in certain spheres of educational, scientific and documentary production. In these areas, where low-budget is the rule rather than the exception, it is the low cost of Super-8 raw stock and processing (as compared with 16mm) that has, in many cases, made film production possible at all.

Aware of this trend, which has rapidly developed into a boom, several of the more forward-looking equipment manufacturers have designed extremely sophisticated Super-8 cameras of great versatility, precision engineering and definitely professional capability.

One of the latest and most advanced in this category is the new Canon Model 88C Super-8 Auto Zoom camera, available from the Bell & Howell Company. It features the most powerful zoom lens ever developed for this format—a 12-to-1, F/1.8 zoom with a range extending from 7.5mm to 90mm. Considered something of a milestone in optical design and technology, it is the only lens manufactured with such a wide zoom ratio.

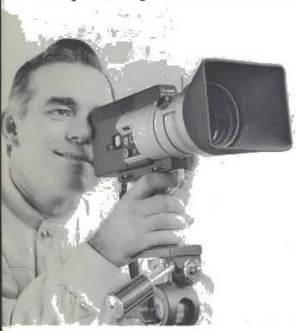
The Canon Super-8 Auto Zoom Camera is a handsome, rugged instrument incorporating just about every filming option a professional film-maker could ask for. In fact, it would appear that its designers have thought of everything. It is a rather heavy camera compared to others of the format (due mainly to its huge 13-component, 19-element zoom lens), but the manufac-

Zooming from 7.5mm to 90mm (or any combination in between) can be done either automatically or manually. Zoom range can be precisely limited by setting levers at any two selected focal lengths.

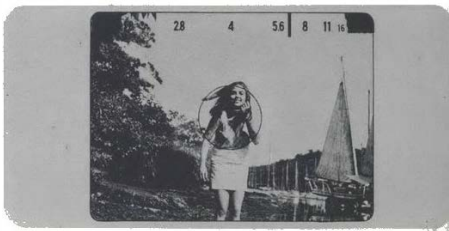


Power zooming can be done at High Speed (3-6 seconds for the entire range) or Low Speed (10-12 seconds), by simple pre-set.

An exclusively designed over-size rectangular lens hood made of flexible rubber effectively prevents glare, especially when shooting against the light.



An F-stop scale at the top of the viewfinder frame indicates exposure selected by the automatic exposure control. Red zones at either end of scale indicate danger of over- or under-exposure of the scene. Circle at center of viewfinder frame is the microprism screen of the build-in rangefinder. Focus is adjusted by turning focusing ring until the subject is seen most clearly in the microprism screen.



turer has provided a chest pod for increased stability in hand-held operation.

The technical description of the new camera, and its salient features, include the following:

Type: 8mm movie camera using Super-8 film cartridge.

Frame Size: 4 x 5.4mm.

Lens: F/1.8 with zooming range of 7.5—90mm. 13-component, 19-element construction. Zoom ratio, 1:12, Zooming by rotation of lens barrel. Zoom range can be fixed at any range by shifting the zoom range setting levers. Lens coated in single- and multi-layers. Inner diameter, 82mm. Outer diameter, 85mm.

Viewfinder: Single-lens reflex type combined with microprism screen rangefinder. Contains f/stop scale and over/-under exposure marks. Eyepiece adjustable to eyesight of photographer. Two types of accessory eyecups are supplied with the camera.

EE Mechanism: Automatic aperture setting coupled to film speed and filming speed. Aim camera at subject for correct exposure.

Exposure Meter: Through-the-lens system CdS cell measures light passing through zoom lens. Powered by two 1.3v M20 (#625) mercury batteries.

Light Measuring Range: The entire range between ASA 250 f/1.8 at 18 fps and ASA 16 f/16 at "SLOW MOTION" (approx. 45 fps).

Film Speed: Automatically set with insertion of film cartridge. With tungsten type film, ASA 25—250 (Din 15—25). With daylight type film, ASA 16—160 (DIN 13—23).

(LEFT) Because of its huge 13-component, 19-element zoom lens, the Canon Auto Zoom 1218 is heavier than most Super-8 cameras. However, the manufacturer has provided a chest-pod for increased stability in hand-held operation, especially effective for telephoto work or when zooming. (RIGHT) The complete Canon Auto Zoom kit includes a sturdy leather carrying case, chest pod, rubber lens hood, pistol-grip release trigger, lens cap and other accessories.

CCA Filter: Built in. Corrects colors of tungsten type film when used in daylight. Automatically cancelled on insertion of daylight type film cartridge or manually from outside by shifting the CCA filter switch.

Filming Speed: 18 fps, slow motion and single frame.

Shutter Release: Released by turning the shutter lock dial to "R" and pulling the trigger or pressing the shutter release button. Single frame possible with the cable release.

Manual Control of Aperture: Manual operation is possible by releasing the EE mechanism. Aperture is electrically coupled with the aperture control ring. Fade-ins from f/22 and fade-outs to f/22 are possible with aperture control ring and an ND filter.

Power System: Film drive and power zooming operated by two micro-motors. Power zoom can be regulated in two speeds. Entire zooming is done in 3—5 and 10—12 seconds at "H" and "L" respectively.

Power Source; Five 1.5 v penlight (size AA) batteries. Sufficient power for 15 cartridges of film under normal temperature.

Battery Tester: Built in. Indicates power levels of mercury and penlight batteries.

Manual Zooming: Performed by manual zoom lever. Revolving angle of 150°.

Footage Counter: Counts up to 50 feet. Automatically resets when the cartridge is taken out.

Film Transport Indicator: For checking film advancement.

Continued on Page 322

FEATURES OF BELL & HOWELL'S CANON AUTO ZOOM 1218 SUPER-8 CAMERA

- REMOTE CONTROL SOCKET
- CABLE RELEASE SOCKETS FOR SINGLE FRAME AND CONTINUOUS RUN
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- THROUGH-THE-LENS MICROPRISM FOCUSING
- NORMAL (18fps) AND SLOW MOTION (53fps)
- THROUGH-THE-LENS REFLEX VIEWING
- MANUAL LENS SETTING CONTROL
- SUPER 8 CARTRIDGE LOADING
- AUTOMATIC AND MANUAL FILTER CONTROL
- ELECTRIC FILM DRIVE
- TWO BATTERY TESTERS (FOR EE AND POWER DRIVE/ZOOM)
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NOTE: Any of the above can be modified for additive printing by adding an additive light source. Modification instructions can be supplied by us.

27 each . . . Bell & Howell Model "D" 35mm Continuous Contact Printers, some with roller gates and torque motors — notch counters 3 & 5 way apertures — running speed from 60 to 120 f.p.m. **Selling Price from $3,450.00 to $3,700.00 ea.**

1 each . . . Bell & Howell 35mm Continuous Contact Printer with Unicorn Wig Wag, setup to run track at 390 f.p.m. Special torque take-ups, air vacuum squeegees. **Selling Price $4,000.00**

1 each . . . Bell & Howell 35mm Continuous Contact Printer with Unicorn tape controls, 5-way aperture, air vacuum squeegees, special torque takeups with Unicorn Wig Wag to run over 300 f.p.m. black & white. **Selling Price $5,500.00**

1 each . . . Bell & Howell 35mm Continuous Contact Printer for picture and track with notch counter, roller gate, torque motor takeups 6100 Design — like new. **Selling Price $7,500.00**

1 each . . . Bell & Howell 35mm Step Contact Printer with Bell & Howell camera movement. **Selling Price $3,700.00**

3 each . . . Bell & Howell 16mm Model "J" Continuous Contact Printer — roller gate — notch counter. **Selling Price $3,650.00 ea.**

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1 each . . . Bell & Howell 16mm Model "J" Continuous Contact Printer — roller gate — notch counter. **Selling Price $3,650.00**

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1 each . . . Bell & Howell 35/32 Continuous Contact Printer — roller gate — notch counter. **Selling Price $4,000.00**

2 each . . . DePue Reduction Printers 35 to 35/32 reduction or 35/32 to 35 blowup. **Selling Price $4,000.00 ea.**

*1 each . . . Cinex Tester — adapted for color using subtractive filters. **Selling Price $2,500.00**

*2 each . . . Cinex Testers — black & white — 16 or 35. **Selling Price $1,500.00 ea.**

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SIGHT AND SOUND IN THE SEVENTIES

The keynote address delivered at the recent 23rd Annual Calvin Workshop in Kansas City describes a golden future for film-makers

By TOM HOPE
Eastman Kodak Company

This is an exciting world we live in! We are going farther, faster, deeper, and sooner. Current vocabulary reflects the violence of these changes. We talk about the population explosion, the information explosion. New technology becomes obsolete within a human lifetime. Industry and Education search for and demand innovations in training and communication methods and techniques which will help contain the explosions.

I suppose it is some sort of *im*plosion that has brought this audience together in Kansas City. The *ex*plosions have made this audience a part of one of the fastest growing industries, not only in this country but worldwide. Education, training, research, communication--all rely heavily upon the motion picture as the medium through which solutions will be found. Take a look at some of the major areas of concern:

War
Space
Race Problems
Science and related technological advance
Training of people to master technical skills and also to better supervise people themselves
Education which is undergoing a thorough change
Inflation and related monetary problems
Pollution of water and air
Population control
Food
and Communication itself.

Anyone can make a movie—a reel of pictures that move. But to make a film that searches, analyzes, informs, trains, persuades, inspires—that's something else again! There is an old formula which says that genius is ten percent inspiration and ninety percent perspiration. Most people perspire easily. I think it is that ten percent inspiration that brings the Calvin Workshop together today as the largest gathering of film-makers anywhere.

It took a lot of training to get me here by air. The airline reservation clerk I spoke to on the phone was trained. The employee at the ticket counter was trained to handle the day-to-day routine as well as the irritations of delayed flights.

Mechanics who service and maintain the big jets are trained and regularly retrained as new models join the airline fleet. The plane's flight crew, traffic control and navigation are products of intensive training. There probably is a new training program now on handling the Cuban traffic.

The addition of jumbo jets to the air fleets introduces new problems for analysis and solution. Consider the simple one of loading 350 to 500 persons. If it took only ten seconds to get a passenger through the door and into a seat, it would take an hour to load the smaller jumbo jet with 350 passengers. Planes are being designed with several doors, but airport facilities must be completely changed.

Ten years ago we were just beginning to hear about a new Federal Government agency called NASA. Today, I doubt that there is a school child in the U.S. who couldn't tell you right off the tip of his tongue that N·A·S·A stands for the National Aeronautics and Space Administration.

NASA is one of the biggest users and producers of motion picture films in the country. Letter-perfect training is essential to the success of space flight. Didn't I read in a recent issue of LIFE that the crew of Apollo 8 trained for two years?

One executive of a major corporation made a challenging prediction about education and training. Dr. Edgar Katzenbach, then educational vice-president of Raytheon, pointed out that public and private education cost fifty billion dollars in 1967. He estimated that the total investment for training in business and government in 1967 came to twenty-seven billion dollars.

Dr. Katzenbach then went on to predict that by 1975—eight years later—the cost of training for government and private industry will be on a parity with the investment for educating our children. The figure generally accepted for the education cost in 1975 is sixty-five billion dollars. That means that spending for education will go up thirty percent while that for industrial and governmental training will more than double. The motion picture film--and a whole raft of audiovisual systems—will play a major role in this growth.

Ten years ago about 7700 motion pictures were produced in your field alone—for business, schools, government, churches, community agencies and medicine. The estimated output for last year is over 13,000 titles. That means that film production went up an average of 5 percent each year over the past decade. This increase does not take into account the films made chiefly for television and theatrical showings.

Where will we be ten years from now? Regular non-theatrical films should pass the 20,000 mark easily. In addition to these--which I call "long films"—there will be a continued acceleration in the production of what are termed "short films."

I use the term, *short film*, to denote a film either 16mm or 8mm of 3 or 4 minutes running time. This is a substitution for the terms *single-concept film* and *cartridge film*. Neither of these phrases makes a good generic term. *Single-concept* refers to content and not length. *Cartridge film* refers to the form of the film container and excludes short films on reels. So I prefer the simple designation, *short film*.

While we're dealing with semantics, here's another word jam. The introduction of Super-8 film created some confusion in the way we refer to the kind of 8mm film which amateurs had been using for 30 years. "Standard 8mm film", "Regular 8mm", or even "old 8mm" are some of the terms which crept into usage. The vocabulary will be self-cleansing, however, because the

whole industry is switching over to Super-8. Within a few years all 8mm film sold for professional use will be Super-8. The 8mm film with the smaller .192" x .145" frame will no longer be "standard" or "regular". It will still be shot in millions of amateur cameras, so it will not be accurate to call it the "old 8mm film." To solve this naming problem, some people at Kodak came up with the term, *Cine-8*, to differentiate it from Super-8 film. This seems like a reasonable solution.

In 1966, 8mm short film production showed 800 titles. In 1967, production jumped to 1600. Although the tally for 1968 is not yet completed, I suspect it will go over the 2000 mark. The production of short films can easily average a gain of 30 percent for the next five years. Then, if it slows to a mere 10 percent increase annually, by 1978 the annual output will be running at 10,000 titles. This is just about half the number of long film—those over 4 minutes running time.

Because we are all here in Kansas City to study film-making, I have confined my remarks primarily to that medium. However, most of us, at times, are called upon to use other media. And there are plenty of them! I recall seeing Pete Peterson of American Oil—now retired—list and demonstrate over 60 different visual and auditory media.

Four of these will play an increasing role in visual communication. The first —motion pictures—I have already mentioned.

The next, electronic display, is one of the important newer media.

Video tape recording, coupled with the television receiver, will continue to make an impact on our industry. It has gone through its introduction period and is now settling down to some practical applications.

EVR—electronic video recording—is a potential new addition to the field of electronic display which has created considerable interest. EVR is the development of the CBS Laboratories which I assume you have heard about.

In the coming years, systems combining photography and electronics will amplify our capabilities as creators of effective communication.

The 2x2 slide is the third medium which is growing in importance. Like both 8mm film and television, the 2x2 slide comes to professional audiovisual use from the amateur, home market. Twenty years ago, before I joined Kodak, the 2x2 slide was seldom seen in the school. Business and Industry were strong for the 3¼x4¼ lantern slide. The 2x2 slide was just getting a toe-hold.

The introduction of the round slide tray, coupled with remote and automatic control, changed the picture in more ways than one. Now the 2x2 slide is one of the fastest growing media. Its use will be broadened by supplementary features and accessories. Already we have random-access to fill some real needs. Simulated-motion is another feature recently developed. Others will come along, I am sure.

The fourth system, the overhead projector, has been a "hot" item in recent years. In 1966 sales zoomed with the surge of federal aid to Education. When a product has a boom year, there often is a drop the following year. Overhead projector sales were no exception. But now--even though Federal money is not as abundant--sales of the overhead projector is rising again. The teacher finds it an extremely useful tool in the classroom.

These four systems encompass both hardware and software. Sales of equipment in 1968 were just short of three hundred million dollars. In ten years sales should be close to half a billion dollars for a modest 60 percent increase.

Of course, your primary interest lies in software. This includes motion picture prints, filmstrips, slides, magnetic tape, video tape, overhead transparencies, etc. When the 1968 SMPTE market report is released, I suspect that it will show expenditures of about six hundred million dollars.

Where will this important portion of our industry be at the end of the next decade? I believe it will have risen an average of 10 percent a year until—in 1978—it will account for one billion, six-hundred million dollars in sales. That's far more than the total for nontheatrical film and audiovisual expenditures today.

A mere ten years ago our young industry was still under a half a billion dollars—an estimated four hundred and thirty-three million, to be exact. This was the total spent for hardware, software, and administration by all markets —schools, business, government, religions, community agencies, and medical.

When the 1968 report is released, I suspect it will show total dollar activity around one billion, one hundred-fifty million dollars, 270% higher than the 1958 figure. The average annual gain for the decade was about ten percent, which is more than the gross national product yearly average.

I'll make a prediction that by 1978 your industry will have risen to at least the three billion dollar mark. That would amount to a seven percent annual gain, a conservative forecast to say the least. What is your estimate? I am talking about *your* future, *your* next ten years.

Let me touch on one final important aspect--*people*. I have talked about tools and materials. In order to produce 30,000 motion pictures a year, it will take more film-makers than we have today. There are currently 7,000 to 8,000 film production units. In 10 years there should be 10,000 units. This means 20,000 additional film-makers will be needed for the new units, plus at least 10,000 to fill the normal attrition in existing units. We certainly have to encourage your people beginning with high school students to choose the motion picture industry as a profession.

(TOP) The 1949 Calvin Workshop was attended by 275 persons. (BOTTOM) The 1968 Workshop packed Calvin's huge sound stage "A" with more than 800 attendees from 47 states and four Canadian provinces. Within 30 minutes after this picture was made there was not an empty seat in the house.

Over the next three days you will see many excellent film samples, examples of motion pictures tackling many of the problem areas that I listed a few minutes ago—science, industrial training and others I am sure. Added together you can see why I am so optimistic about the future. ■

Baldwin Ba

In eight months, Baldwin Baker exposed a million and a quarter feet of 16mm film for ABC TV.

That's 7,000 feet a day, five days a week. All on location, sync sound, with one camera.

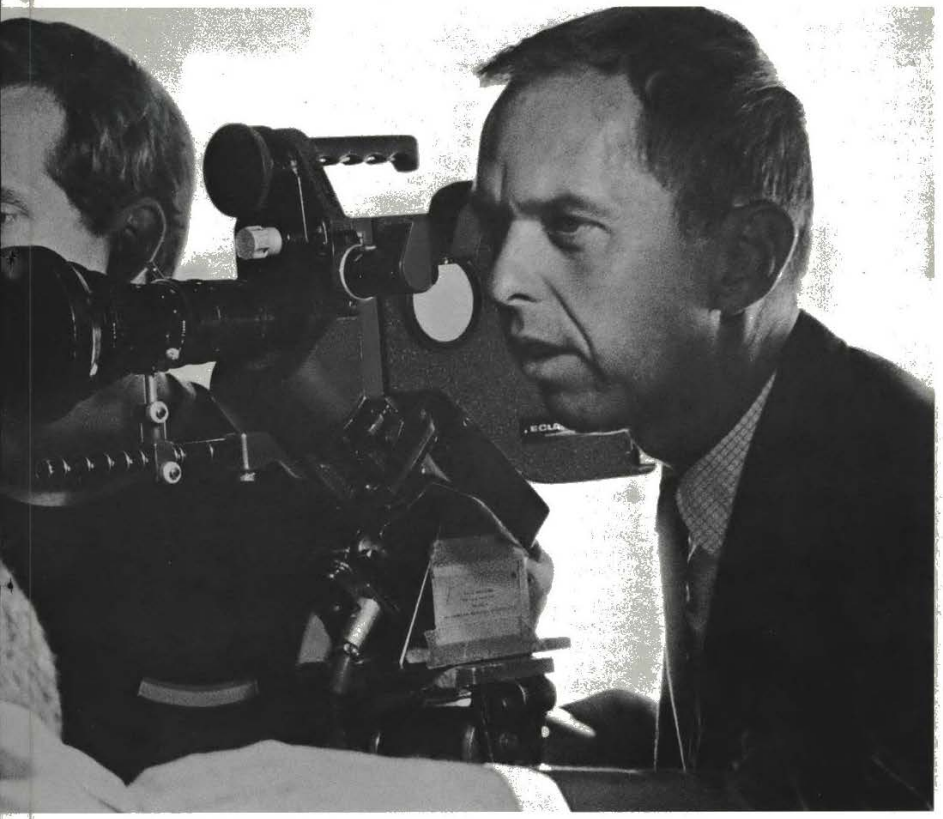
Mr. Baker needed a camera that was quick to operate and, above all, reliable. He used an NPR.

Baldwin Baker writes: "*Everybody's Talking* is an ABC Television show that really eats up film. In the first eight months of shooting, we regularly exposed between fifteen and twenty 400 foot rolls a day. In 35mm, that would be over 20,000 feet a day. All lip sync, of course, and all on location—very often three or more separate locations on the same day."

"Short film clips from our filmed footage of people talking about an unidentified subject were screened in the studio for a live panel, who had to guess what the people were talking about. Because we could never tell how long it would take the panel to guess the subject and because the people doing the talking were mostly non-professionals, we had to shoot literally miles of film to get good tantalizing quotes and to make sure there would be enough footage to keep running clips until a panelist finally guessed right. We used so much film, in fact, that more than once Eastman's Hollywood store ran completely out of 16mm black-and-white rawstock!"

"With travel between locations and a shooting schedule like that, you can imagine

r, the man in the photograph, is a member of the IATSE Hollywood local 659; and that's his NPR.



how much time there was to spare for setting up or for mechanical problems. Without the NPR's instant magazine change, I don't think we could have gotten that much footage in the can. Overall, it's a fast camera to work with, of course. But our NPR had to be completely reliable too; and it certainly was. We got a million and a quarter feet of rock-steady images."

As well as five-second magazine changes, the NPR gives you precise reflex viewing, balanced shoulder-resting, registration-pin movement, a constant-speed motor with sync-pulse generator and automatic clapper, a rotating two-lens turret, and, of course, it gives you blimp-free silence. May we send you a free copy of our sixteen page NPR brochure?

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CREATING A MULTI-MEDIA "SEE-IN"

Continued from Page 287

The first rehearsal went fairly well. Since the musicians in the band had not worked with the sound track until this time, they adjusted their levels so that at the proper places the film sound could be heard.

This was the first time the light show people had seen the film, but with the help of the log they were able to get the correct title slides up with the right film segments. They skillfully blended their effects in and around the movie scenes. It did not look like a light show that happened to be running at the same time a film was being shown. The separate elements combined to produce an integrated and pleasing effect. During this rehearsal the timings of the go-go dancers, the actors and the spotlight crews were precisely coordinated with the film.

Only one problem developed during the rehearsal. While the left projector ran in perfect sync with the Siemans, the right unit ran a little fast. Since its speed could not be changed, I turned it off several times during the show. Every four minutes while the projector was in black leader, I stopped it for two seconds. The next picture always showed up in sync with the other screens. While this method would be annoying in a more permanent installation, for our temporary use it was very practical.

We planned the multiple-screen effects so that they increased in quantity and impact as the tempo of the pictures rose. During the first few minutes the additional screens were used very little. The film began with our own open, using the theme line "It's a very special season". "It's" faded in on the center screen and then faded out as the left screen came up with "a very," the center screen with "special" followed by "season" on the right. It read all in one line "a very special season." It had begun on the left and expanded at normal reading speed. All three projectors faded at once. Next, the center projector faded in alone and began the first promo segment. For transition between segments I used the ABC design of moving concentric patterns which the network puts on the tail of their promos. Due to its color, design and movement this fit the style of our show very well. During transition between segments I ran the center film only, left and right only or all three depending on the mood of the segment.

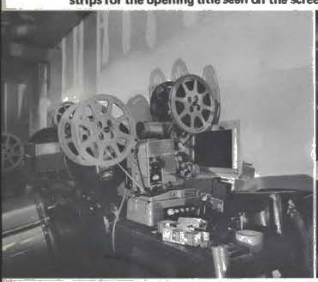
The multiple screens used in the open with the words looked like slide projections. The first obvious use of the technique was in the "Flying Nun" segment. When sister Bertrille was caught by the wind, she was raised into the air and another sister turned around, saw her and exclaimed, "Good grief!" For this short one-second exclamation, very much to the surprise of the audience, all three screens came on with the identical closeup as she spoke the line. Later a pilot looked out the window of his plane in the center screen and saw the nun flying on the left screen. This segment closed with three identical shots taken from above looking straight down as the nun flew along.

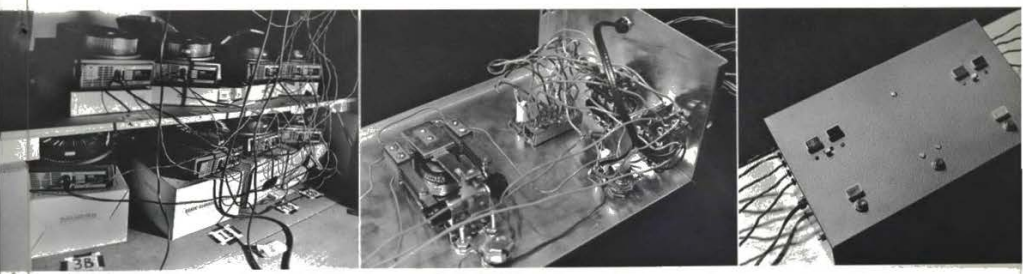
In "Garrison's Gorillas" one of the stars threw a knife from the right screen. It flew across the center and landed in the wall on the left. A similar use was in "N.Y.P.D." A motorcyclist roared up on the left screen and threw a torch across the center and started a large fire on the right screen, which spread back across the center and left screen so that all three were ablaze with fire. The "General Custer" segment ran on the center screen only, until he yelled, "Charge" and his men began their final ride across all three screens.

One of the most exciting segments was "The Guns of Will Sonnett". In one place the right screen showed a closeup of a finger cocking the trigger of a rifle. The left screen came on with a closeup of Will Sonnet's face as he and his son rode away. He made a facial gesture to indicate he heard the trigger click. Back on the right screen one of the three men pointed the gun at Sonnett's back. The Sonnetts whirled around and fired at the right screen and the three men. The left and right screens became medium shots of the men as they fired back and forth across the center screen, which was a blur of closeup faces, guns and horses. All the screens blurred into one fast-moving, smoke-filled montage of the battle. Then it was quiet, and three riderless horses ran from right to left across the three screens. The outside screens faded to black, and the center showed Will and the boy unharmed as they rode slowly off over a ridge.

For the first part of the presentation, the three screens were used only for dramatic emphasis. For the last two longer segments the style was different. The Olympic and Africa sections used the three screens most of the time. This worked very well because the earlier sparse but very effective use of the three screens had teased the audience into wanting more of this dramatic effect. In part of the Olympic section the athletes performed in the center screens while the outside screens had closeups of spectators' faces, score boards, referees and other related subjects. I especially liked the track section. Several runners were racing in the center section. On the outside screens close-up faces looked toward the center and the runner. The faces grew tense as the athletes neared

(LEFT) In 1967 show, a Siemans projector was used for the center screen picture and sound track. Three 16mm projectors were sandwiched between the 35mm projectors of the theatre's permanent installation. The projector for the left screen is shown in the background. (CENTER) Intricate editing set-up involved three viewers side-by-side, plus a four-gang, motor-driven synchronizer with a magnetic sound-head on the fourth gang. (RIGHT) Separate film strips for the opening title seen on the screens of the viewers.





(LEFT) Eight of the ten remote-controlled slide projectors used in the 1968 show. The taped-down numbers refer to screen positions. For this temporary set-up, projector boxes were used as stands. (CENTER) Part of the slide control-box interior. Sequencing relay is on the left. The two relays on the right could change slides in up to five projectors. (RIGHT) The remote-control box ran two banks of slide projectors. Colored lights indicated switch positions in the dark.

the finish line. One broke the tape, and the outside screens were filled with cheering spectators. With one screen we would have had to cut away from the runners to show the spectators, but in this way both appeared at the same time, giving the audience the effect of actually being there rather than watching a film full of cutaways.

The show was run on Friday night for the special guests with dinner and cocktails added, and alone four more times during the next day, free to children. All five presentations went very well. The only real problem occurred on Saturday when the Siemans amplifier blew a fuse and we lost film audio for a short time.

All in all, I was very happy with the show, but came away with a lot of ideas on how I would do it differently next time. The casual, and for the most part, *random* effect of the light show contrasting with the more static three-screen movie was effective. I decided that for the next year, though, I would like to do a multiple-screen show in which all the effects would be preplanned and automatically sequenced so that the show would be repeated identically each time. Instead of a light show crew and a film projection crew, I wanted one or two people to run the entire thing.

I experimented with various ideas and techniques in simplified, low-budget multiple-screen projection and filming. Having already used movies, I concentrated on 35mm slides. I again wanted to use three screens. The problems were several. I had to take three slides at once. The three individual slide projectors had to be synchronized, and I wanted to eliminate the distracting moment of black between slides and introduce some motion into the pictures.

The first problem was how to obtain three slides to be projected at once. The objects I wanted to photograph were all things that didn't move: printed material, flowers, colored lights and other stationary subjects. Because of this I was able to shoot with a single camera. I first shot the slide for the center frame, made a mental note of where the sides of the frame fell, then shot the outside frames, carefully matching the edges. I knew that due to the black separation line between the projections, a little misregistration would go unnoticed. I made up several sets of slides in this way and then put them aside to consider the projection problems.

In order to eliminate the black between slides, I needed two projectors for each screen and a dissolve control. Commercial disolve units proved to be too slow for my purposes and changed one slide with each dissolve. I built a special unit which would change from one slide to the other at speeds ranging from several times a second to once a second. The change rate was continuously variable and could be adjusted to the beat of the rock music used in the show. This did not affect the slide-change function, which was controlled from another unit. Changing from one projector to another at such a fast rate "animated" the slides. The combination of slide changes and projector changes looked exactly like a movie.

16mm MOVIE and 35mm SLIDE	16mm MOVIE only	16mm MOVIE and 35mm SLIDE
16mm MOVIE and 35mm SLIDE	35mm SLIDE only	16mm MOVIE and 35mm SLIDE

Screen layout for the 1968 show. It covered an area 35 feet by 80 feet. The upper center movie screen ran all the time joined by the other movie and slide screens in various combinations. Sometimes the upper and lower screens formed one picture and at other times two or three horizontal screens formed a picture.

The 1968 show was also held in the Pacific Science Center. This time it was in a 105' by 120' room. We used six screens, two rows of three, one above the other—movies and slides on the top row, slides only on the bottom. The projections filled a 35' by 80' area of 2800 square feet of visuals.

I built a special remote control box to run nine of the slide projectors. The left side ran the "A" bank with five projectors, and the right side ran the "B" bank with four. The banks had to be actuated in a certain sequence to run the show. It was easy for the operator to forget the sequence, so a light came on above the next button to be pushed. The control panel could be run in the darkness during the show, because the other switches also had colored lights to indicate their functions.

Instead of a booth we had a small area atop a scaffolding for our equipment; three 16mm movie projectors, ten 35mm slide projectors with special dissolve units and a spotlight with color wheel. There was barely room left for the two operators. This show was much more complicated and precise than the previous year's.

In only two shows we advanced a long way toward developing a low-budget multi-screen show similar to the sophisticated and expensive multi-screen presentations made for major exhibitions. ■

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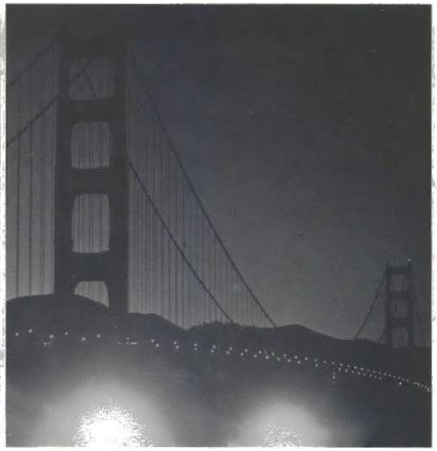

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But very often the most striking difference is the marked improvement in contrast.

These scenes of the Golden Gate Bridge were photographed under identical conditions with a Honeywell Pentax camera using a 15 element zoom lens. For the photograph on the left, the zoom lens was coated with a single layer MgF_2 antireflection coating. For the photograph on the right the zoom lens was HEA-coated. These photographs were taken at night, and all exposures were made at f/4.5 on Kodak Tri-X film. Car headlights produced the glare source near the bottom of the field of view, contributing to the intensity and number of stray images.

The reduction of stray light and improved contrast shown in the HEA photograph is obvious. Contrast can be improved even further than shown here depending on the lighting conditions and the particular type and number of elements coated.

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Continued from Page 281

Produced in 1964 it has been a top award winner at many major film festivals. For his film creation, "Breath," Murakami received The Grand Prix, highest award at the 1967 Festival d'Annecy. His entertainment film, "The Insects," won the British Academy Award. His "The Good Friend," exploring the nature of friendship, is currently in production.

•

Birns & Sawyer Plans New Hollywood Location

Continuing its expansion in the motion picture equipment business, the sales and rental firm of Birns & Sawyer, Inc. announced the purchase of a 14,000 sq. foot concrete building at 1026 N. Highland in the heart of Hollywood.

"The building is excellent for our needs," said Jack Birns, president. "There is easy loading dock access for our rental customers, both from the large parking lot as well as alleys to Highland and Romaine. The sales area is beautifully lit, high-ceilinged and air conditioned.

We'll be able to combine in one building both our facilities currently located on Vine Street and on Santa Monica Blvd. and hence effect operating economies as well as greater efficiencies of service to our customers."

The transaction details were not disclosed by the seller, Hunt Foods & Industries, but the purchase price and improvements were said to approximate $250,000.

"We moved into Hollywood from West Hollywood on March I, 1958 and hence start our second decade of service to the motion picture industry," said Birns. "Actually, April, 1969 begins our 16th year."

In addition to motion pictures, the firm is a major supplier to the U.S. Navy, and other marine agencies for underwater lights, which were nominated for an Academy Award this year.

•

The 40th Annual PSA-MPD International Film Festival

The Motion Picture Division of the Photographic Society of America invites all movie makers to participate in this 40th Annual Film Festival.

The Festival is open to all movie

Continued on Page 337

CANON AUTO ZOOM SUPER-8 CAMERA

Continued from Page 309

Release Sockets: For remote control, cable release and single frame.

Trigger Grip: Detachable. With wrist strap.

Body Color: Black.

Accessories: Lens Hood, Remote Control Switch 3, Series IX Filters, 85mm Lens Cap, Viewfinder Cover 4, Release 5, Carrying Case.

Size: Body, 256 x 104 x 89mm (10" x 4" x 3½"). Trigger grip, 128 x 115 x 32mm (5" x 4½" x 1¼").

Weight: Body, 2,000 grams (4lb. 6oz.). Trigger grip, 280 grams (10 oz.)

The feature of primary appeal to professional and semi-professional filmmakers is, of course, the high-quality 12-to-1 zoom lens—not simply because of its zooming capability, but because (when used as a vari-focal instrument) it makes available an extensive selection of focal lengths, ranging from extreme wide-angle to rather long telephoto.

When actually used for zooming, the fact that the lens is motorized and presents a choice of two speeds makes it a smooth and versatile instrument. Also valuable is the capability for pre-setting the zoom renge by shifting the zoom range setting levers to any two focal lengths within the entire range. Thus, if the cameraman wishes to zoom precisely from 28mm to 72mm, for example, he simply sets one of the levers at 28mm and the other at 72mm. Zooming for that particular shot will not extend beyond the range fixed by those settings.

Single-frame filming, especially adaptable to animation and time-lapse work, is easily accomplished by means of a cable release inserted into the single-frame release socket. A separately available remote control switch permits the camera to be operated from a maximum distance of 25 feet, an option that is of particular value when filming wildlife.

The Canon Super-8 Auto Zoom Camera is available in a complete package which includes leather case, chest pod, and special lens hood and cap at a suggested list price of $800.

The new camera is an addition to the extensive line of Canon Super-8 movie cameras which are exclusively sold, serviced, and guaranteed by the Bell & Howell Company in the United States and Canada. ■

NEW Model RE10 $80.00, shown on Model 421 desk stand $10.50. Model RE15 $153.00, shown with Model 307 suspension mount $20.70. NEW Model RE11 $96.00, shown with Model 311 snap-out stand adapter $3.90. NEW Model RE16 $159.00, shown on Model 421 desk stand $10.50. All prices suggested net.

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Professional sound has entered a new era. It started with the Electro-Voice Model RE15. And now there are four E-V dynamic cardioid microphones that share its distinctive advantages — with some unique benefits of their own.

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Basic to all of these microphones is Exclusive Electro-Voice Continuously Variable-D* construction. Now it offers something you've never heard before with any microphone: no matter what you do, microphone response never varies!

Whether performers almost swallow the microphone, wander far off-mike ... or even move around to the back ... you'll still get the same smooth response. Only the level changes.

Once you set equalization it remains constant. You have full assurance that tonal balance won't change between the dress rehearsal and the final performance, no matter what the talent does.

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Only acoustics and noise can limit you. Yet even here these new E-V microphones gain an advantage from the super-cardioid pattern that provides better sound control than ordinary cardioids. With maximum rejection 150° off axis, it is easier to eliminate unwanted sound while maintaining normal stand or boom microphone positions. There's also an integral bass-tilt circuit to cut rumble below 100 Hz. when needed.

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In addition to the original RE15, we've added the RE16. The same fine microphone with an external "pop" filter to solve the problems of ultra-close miking.

The new RE10 is the economy version of the RE15. The same concept and quality, but for slightly less rigid requirements. And the RE11 is the lower cost twin to the RE16.

These four great cardioid microphones give you new freedom to head off sound problems before they start. Your E-V microphone headquarters has them waiting. Choose today.

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"THE DEVIL'S HIGHWAY"

Continued from Page 306

brother-in-law's?" the man offered. "He is only 15 kilometers up the road and they would be happy to have you as guests."

If we had been invited to the Ritz in Paris, an invitation wouldn't have been more gratefully received. Less than an hour later we were sitting in front of a warm fire downing a hot Mexican meal in the home of Hector Salazar, a rancher and operator of a brewery halfway between Arizpe and Cananea. The man who had extended the first invitation was Vincent Diaz, who lives in Los Angeles and just happened to be visiting at the time.

We now headed for the U.S. border, but on the way we made several stops for fill-in shots, closeups, and some lap dissolves while we had the Mexican scenery as a background. We stopped by a river and staged some fordings to illustrate our experience the night before, but had trouble with reflections on the water.

I closed the lens down two stops and fired away. This gave the footage an "arty" look and helped to create the illusion of darkness. A Polaroid filter would have been welcome at this time, but we hadn't felt the need for it at the start—alas.

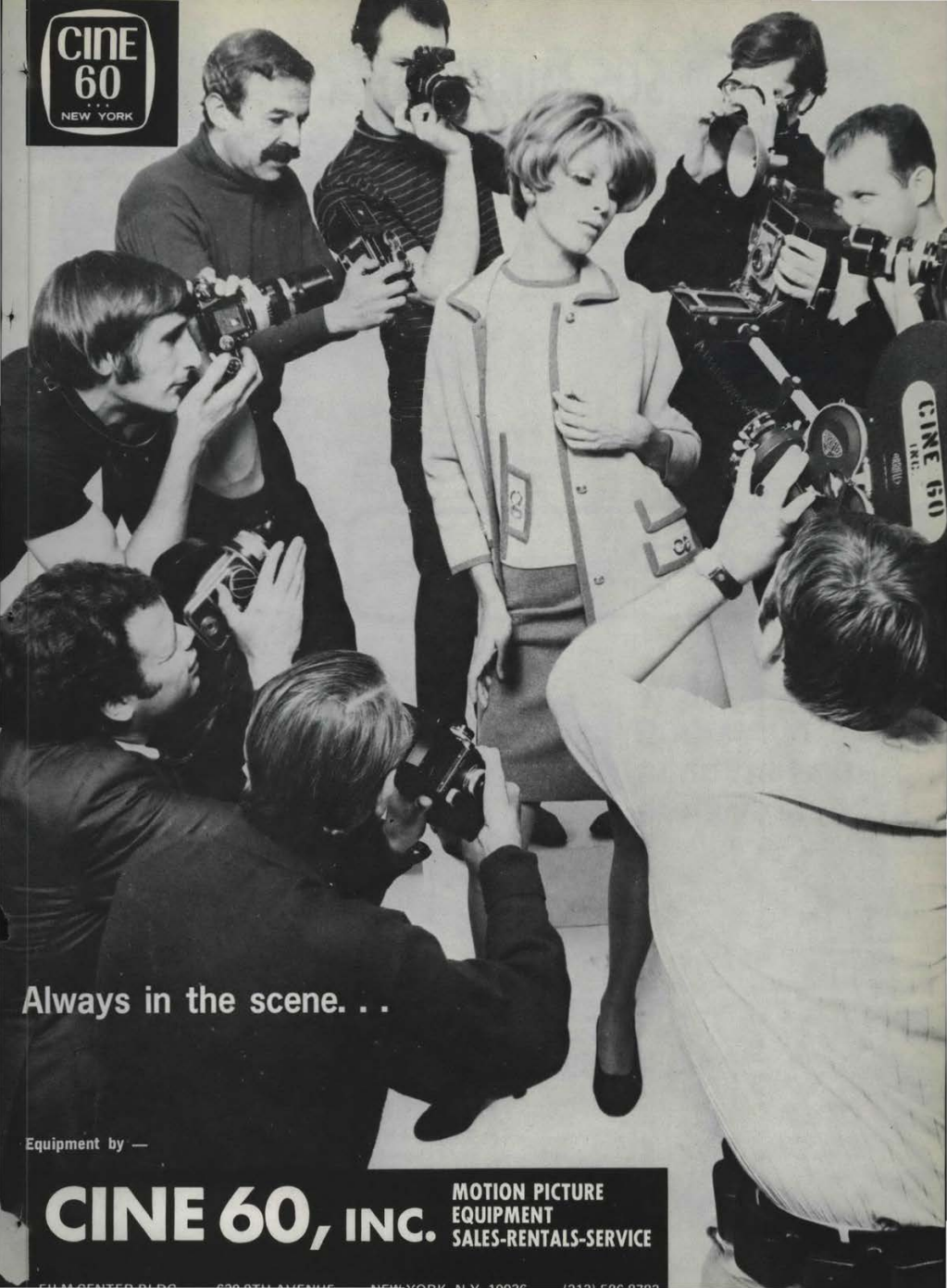
It had been our intention to shoot our crossing of the U.S. Border, but the reluctance of the customs officials to be "actors" decided us against the idea. I tallied up the costs of our five days and nights South of the Border and discovered it had cost a mere $340. I might mention $1.80 of this was for gas. I have since wished all my location movies could work on a budget like this!

We drove north to Tubac on paved roads, (a relief for our weary muscles) and spent two hours shooting in the warm, bright Arizona sunshine. The state officials at the Tubac Monument were very excited about the movie project since it would receive national distribution on TV and this would give them free publicity.

Using a bent coat hanger and tinfoil, we made a reflector to light our faces from below while we did closeups on the road home. I would lie down on the ground and shoot from the side as Don rode past, and he would do the same for me. The reflector was perfect for this operation and the finished film proves its value.

Our troubles with water weren't yet over. Midway between Gila Bend and

Continued on Page 328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"THE DEVIL'S HIGHWAY"

Continued from Page 326

Yuma the skies opened up over our heads and in less time than it takes to write about it here, we were soaked. Again we were grateful for the waterproof boxes that kept our film and equipment dry during the storm.

Using a plastic ground cloth for a makeshift tent, we set up the camera and did a few shots of us riding in the rain and mud. Until the water collected in puddles in the sagging center of our cloth, things were fine. The water got so heavy, the plastic gave way and we got an extra dunking, but the camera had just been put away when this occurred.

Our exposed film was shipped to Los Angeles via Greyhound whenever we came to a depot, this gave us more baggage space, and reduced the chances of losing any precious footage through heat or other causes. My lab would pick up the film at the Greyhound station in Hollywood (the package would state: "call on arrival" and give the Greyhound number) and have it processed the next day.

A quick check of the results by the lab on an editor showed instantly if there was camera trouble or other problems. Thus we could have been alerted within two days of any equipment or exposure problems and been able to correct the trouble.

We passed the Mission San Gabriel on our return journey over three weeks after our departure and both of us sighed a deep breath of relief. The pair of us had sprained ankles, numerous cuts, scratches, and what seems to be a multitude of burns and bruises. But the satisfaction that comes from knowing the job we set out to do was well done, more than made up for the discomfort we felt.

As this is being written, the film is in the final stages of preparation and will be released by Sterling Movies of Hollywood as a travelog for TV dates throughout the U.S. Voice-over narration is used, and the titles were created by my firm. The movie is being released as "Yamaha Conquers The Devil's Highway" and is slated for mid-spring appearances on television. It is a 20-minute picture.

The entire cost of the film will run about $2500, which is modest indeed, but the experience of riding the Old Spanish Trail was worth something. At least it seems so, now that it is all over and time has dimmed the trials and tribulations of the two displaced Hollywood film-makers! ■

COLOR FILTERS

Continued from Page 302

The camera appearance of the scene is generally controlled by both adding and subtracting light.

The final result presented to the camera has been evaluated visually by our own eyes and is, therefore, subject to their inherent visual limitations. (For example, we cannot see ultraviolet light, but many films can.)

The color response of the film is inherent in the emulsion and has been carefully analyzed and controlled by the manufacturer. This information is usually available from the manufacturer. The color response does vary with the film emulsions selected and the balancing filters chosen.

The inherent colors of the various scene elements are determined by the dye or pigmentation existent, modified by the nature of their carriers and the surface textures. Grass, foliage, flowers, fabrics, paints, rocks, earth, soils, etc. all have their own spectral energies. Generally they all have continuous spectral energy curves. Notable exceptions are excited gasses, such as mercury lights, sodium lights, neon signs, etc., with whose response we do become familiar.

While these extreme exceptions noted are not usually used as illuminants, there is an intermediate group of illuminates, such as most fluorescent lights, that are frequently used. Their deviations from the color rendition by a black body radiator are recognized and indicated by the Color Rendering Index (CRI) rating.

Usually we work with and control the color design of our scenes by selecting pigments, paints, makeup and fabrics of known response. The unknowns we are wise to test, if time allows. Many of us remember an exceptional blue sensitivity inherent in an older color negative stock that would cause many blue fabrics to "jump off the screen" with unusual brilliance and color saturation. We controlled this tendency by drastic modification of the blues as best we could. For example, in emergencies, we dipped blue jeans in strong coffee until they looked like an olive drab. It was always a pleasant surprise to see the film restore the blue! Fortunately, the film manufacturers have solved this problem.

The scene to be photographed must be illuminated (assuming that it is not self-luminous) by either natural light or artificial light.

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FILMING "STAR!"

Continued from Page 296

lem could have been solved easily enough by merely shooting the new "old" scenes under exactly the same technical conditions as the original newsreel footage was shot, but it wasn't that simple. The old hand-cranked cameras, some in perfectly operable condition, still exist—but the technology of film emulsions and processing has come a long way since the days of orthochromatic nitrate raw stock and rack-and-tank development.

It was decided, instead, to use modern film stocks and equipment, but to "degrade" the technical quality of the new footage in various ways so that it would match that of the old.

For Cinematographer Laszlo, conditioned by many years of striving to get the very finest quality onto film, this was not an altogether cheerful prospect.

"This was probably the most difficult thing for me to do in the entire picture," he recalls. "It runs against the grain of any cameraman to deliberately do a bad job. Nobody wants to do poor work, even on purpose—but it was necessary to do so in order to match the character of the existing newsreel footage. So I just gritted my teeth and tried to do the worst job that I could."

He ran the actual newsreel footage over and over again in the projection room, studying the lighting, camera handling and other technical characteristics. For his own "newsreel" scenes supposedly photographed prior to 1928, Laszlo filmed the action at 16 frames per second. Hand-held Arriflexes were used to shoot most of these scenes and when a tripod was used, the camera was jiggled in order to obtain the authentic shakey quality characteristic of old newsreels. Interior sequences were flatly lighted, using obsolete lighting equipment such as Duarcs.

"As a last resort, we threw the film on the floor and walked all over it," says Laszlo. "We did everything we could think of to make it look bad."

But it wasn't quite enough. In desperation, L. B. Abbott, ASC, head of the 20th Century-Fox Special Photographic Effects Department, was called in to add the final miserable touches.

"Getting this new material to look like old newsreel footage was a big chore, because the aging process itself produces all kinds of strange-looking effects," Abbott explains. "We started out with a selection of scenes from stock material filmed at various periods.

The problem was to take the new material and degrade it to match the actual newsreels filmed during those different periods. Modern emulsions have a much finer grain than the older raw stocks, so the first step was to add grain to the new footage. The most pronounced grain you can get in modern film is from the blue-sensitive record of multi-layer color stock.

"So we photographed a white field, took a blue-light print from it, enlarged it, scratched it up a bit, and so forth. Then we bi-packed this 'grain-modulating' film with a print of the new footage that had been shot and made a dupe from it.

"I've got some really bad developing machines that can be made to produce a terrible result by running them too fast. The turbulence of the solutions is incorrect and the resultant developer fluctuation produces the kind of streaks that simulate an old-time dupe.

"By making as many generations as you want from the dupe, you can run the contrast gamma all the way up and down the scale. This made it possible for us to match the varying contrast of the stock scenes and also the gradual improvement of quality over the years, as film stocks and processing methods improved."

Because "STAR!" was photographed on 65mm color negative stock for 70mm release printing, the final step was to re-photograph the newsreel scenes (both old and new) onto 65mm film. This Abbott did by rear-projecting the scenes onto the screen used in the projection room set.

When Julie did scenes within the Cartier Salon in New York, she was surrounded by $28,000,000 worth of real jewelry. Since the year was 1940, Wise insisted that any piece designed since that year be hidden so that authenticity could be maintained. Wise's insistence on reality also caused him to graciously reject a display on tables while depicting a 1924 after-theatre party at the Algonquin Hotel of silver ice buckets for champagne bottles. At this time, of course, prohibition was the order of the day.

Eleven top New York heel-and-toe amateur walkers worked with Julie in Washington Square to recreate a 1925 contest at which Gertrude Lawrence crowned the winner. The athletes worked for free and 20th Century-Fox contributed in their behalf to the AAU athletic fund.

All dialogue recorded in New York had to be re-dubbed in Hollywood if automobile horns could be heard in the background. Modern toots sound far

different from those klaxon sounds of 1921. When Julie Andrews wore a breath-taking black and white Donald Brooks creation in a scene at the New York National Guard Armory, the camera was jiggled because the shot represented a newsreel record of the arrival at a 1925 charity affair of Gertrude Lawrence.

Authenticity reared its head again when Wise used a 4-story Elizabethan home on a 35-acre estate in Mill Neck, Long Island, for a 1932 Gertrude Lawrence home. Filming within the library (all bookcase windows were stripped of glass to avoid reflections) for scenes looking beyond to a grassy lawn and garden and an 8-acre lake, the library was depleted of all books published since the year 1932.

Because collectors are diverse, a double-decker bus authentic for 1923 scenes was obtainable. It came from a large collection of period transport vehicles in the Clapham Museum, London. Likewise, 36 expensive cars manufactured prior to 1943 were readily obtainable in London, 41 genuine pre-1924 autos were located in New York and 53 earlier-than-1917 gas buggies were located in Hollywood. Add to this a two-wheeled cart more than 50 years old which property men dug up in London for scenes. The latter was so decrepit a wheel disintegrated during a "take."

Even the budget for a Robert Wise picture couldn't have afforded three mansions supposedly occupied by extravagant Gertrude Lawrence. Two in Southern France and one on Long Island totalled a value of more than $4,000,000.

The Italia Conti drama school where Gertie Lawrence and Noel Coward first learned acting techniques still flourishes in London. But Wise had to film scenes with that school one door removed from the site where it was in Gertie's day since the original door now opens onto a Chinese laundry.

Speaker's Corner in Hyde Park where Gertie Lawrence once did a stump speech still affords open forums but it is a far cry from the depression years, so Wise had to stage his 1932 scenes on the cricket fields of Marble Hill Park in Twickenham. On other London streets, Wise not only had to remove TV aerials but he had electric light standards removed and portable gas street lamps brought in. Wise's longest wait for sunshine was at Hyde Park in London where the sun hid from dawn until 5 P.M., then burst forth long enough to permit the photographing of a brilliant scene. Since nobody knew when Old Sol

would snile, property master Dennis Parrish had to toss bread to ducks all day to keep them within camera range ready when the time came.

Scenes were made at the Theatre Royal in Stratford where Gertrude Lawrence once played vaudeville. Julie Andrews says, "I never got that far into London in my early years." But she, as well as Gertie, did play Brixton and Swansea, which are locales in "STAR!"

Both in New York and London, 20th Century-Fox had to lease a building adequate to store 2000 period costumes and provide dressing and make-up for as many as 1500 extras in a single day.

Also from archives in England came an engine and five coaches built in 1909 and still in use to train transport troops. Another street, a block on Albury in London, SE 8, which is more than 300 years old, was taken over for restoration to its original appearance by an historical society after Wise used it for 1907 scenes. Added to other wrinkles was the teaching of sentries in the famed Royal Horseguards to use 1923 rifles for scenes with Michael Craig, who plays a Captain in the Life Guards (Reds). Modern weapons are vastly different from those used 44 years ago.

Among the property men's tough assignments was the need for 25 white doves to fly in formation with Julie Andrews as she was drawn from stage floor to Heavenly clouds during "Jenny". 100 doves were trained for weeks on the stage and flew in squadrons of 25 for each "take." Lures were females and food in a cage aloft--and a man with a whistle.

For a 1910 scene in London, workmen had to rush in and remove an electric doorbell to avoid an anachronism.

A lance corporal of the Horseguards was assigned to dress Michael Craig correctly in a captain's Life Guards uniform in London and later in Hollywood. The 10-year-old black Irish horse Craig rides is the personal mount of Lord Mountbatten when he participates in ceremonies of the Guards.

The production was filled with oddities such as the day Julie Andrews did a 17th Century scene in the year 1936 on a sound stage in 1967. She was portraying Gertie Lawrence making the movie "Rembrandt".

When "The Physician" was staged in a harem setting, a ram, dyed orange, was required. To get a sheep with two years' growth of wool, the animal had to be ordered months in advance.

In the confines of Westminster School next to the famous Abbey in London, Wise staged a scene showing

dignitaries being shocked as they looked through a window at Julie and Daniel Massey wrestling on a sofa (shot later in Hollywood). A boy and girl were cast to hold attention by romancing beyond the window. The two, apparently "living" the part, fell in love and got married.

And when Wise advertised for children who looked like Julie Andrews, a Mexican mother sent in photos of her brood, noting, "They are the right age so maybe you can use them for the Spanish version."

"Star!" required 149 shooting days before Todd-AO, color cameras. During the schedule, production closed for a total of 30 after the final story scenes on October 4 so that Miss Andrews could rehearse, record and be costumed for the last four big numbers. There also were seven days required for travel, from Hollywood to New York, to Cape Cod, to the French Riviera, to London and back to Hollywood.

More than a half million feet of film were exposed by director of photography Ernest Laszlo.

Three thousand and forty individual costumes were designed by Donald Brooks and made specially by the studio. The total wardrobe cost was more than three fourths of a million dollars. Julie Andrews wore 125 different outfits costing a total of $347,000.

Jewelry of all kinds valued at more than $3,000,000 was obtained from Cartier, the famed New York jeweler, for Julie to wear. During every moment she wore the jewelry on location a special Pinkerton detective was standing guard close to her.

A total of 185 sets were built for the picture under the supervision of art director Boris Leven. They demanded authenticity for places in years extending from 1905 to 1940.

During 46 camera days on locations away from Hollywood, most sites were out-of-doors. By contrast, in Hollywood, only an aggregate of five days out of 103 were in the open. Two days and one night were scheduled at the Desilu lot on an English street, a half day at a park near 20th Century-Fox and one and one-half days outside sound stages at the studio. The remaining 98 "home" filming days were spent on stages.

6815 different hand-prop items had to be made to order or collected from antique storage spots for the picture to match precisely the kinds of items (from cigaret lighters to billboards) used between 1905 and 1940. This also included trick props such as an umbrella that sprouted flowers to telescopes which became cocktail shakers. ■

INDUSTRY ACTIVITIES

Continued from Page 321

makers anywhere in the world. Films may be on any subject and may be in black and white, color or both, with or without sound, original or duplicates. They may be on 8mm, Super 8mm or 16mm film. Films which have received any award in any previous PSA/MPD competition or ACL "Ten Best" contests are not eligible for re-entry.

All films must be received by the Festival Chairman no later than July 31st.

The Annual PSA/MPD Film Festival is the world's oldest motion picture competition . . . . . originally the "Ten Best" Competition.

All films will be pre-screened in Chicago U.S.A. between July 1st and August 8, 1969. Accepted films will be screened during the Film Festival at the Photographic Society of America International Convention in Washington D.C.—October 7 through 11, 1969.

Complete competition rules and entry forms may be obtained by writing to the Festival Chairman, STAN ZEEK, 1554 West Terrace, Homewood, Ill. 60430

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105th SMPTE Technical Conference

Following a coordinating meeting between members of local arrangements and national committees, the final program for the 105th Technical Conference of the Society of Motion Picture and Television Engineers has been set. The Conference will take place April 20-25, at the Fontainebleau Hotel, Miami Beach, Fla. According to SMPTE Conference Vice-President E. B. McGreal, the program promises to be high caliber in its technical content and of far-reaching interest to those in the motion picture and television fields.

Conference Program Chairman V. D. Armstrong has lined up over 70 technical papers to be presented in nine topic sessions during the week. Areas in which papers will be presented are: Aerospace; Cinematography; Education and Medicine; Instrumentation and High-Speed Photography; Sound; Laboratory Practices; Oceanography; Photo-Science; Television; and Theater Presentation and Projection.

Conference Arrangements Chairman William M. Sheahan has announced that facilities for Conference events have been set. Accommodations for technical sessions, luncheons, committee meetings

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Second Annual Atlanta International Film Festival Announces Competition

Scarlett O'Hara's home town will again play host in June to the significant film *fête* that made its debut there last year

Entries are now being accepted for the Atlanta Festival in the 1969 competition series. Between five hundred and one thousand films are expected to compete for the grand award of the Atlanta Festival, the Golden Phoenix. The Atlanta International Film Festival program was organized in 1967 under the auspices of Forward Atlanta, The Atlanta Chamber of Commerce, Eastern Airlines, Inc., Cinema East/INTERFILM, The Regency/Hyatt House, and the Atlanta Arts Alliance. Headquarters for Festival Week is the famed Regency /Hyatt House Hotel.

Screenings of the award-winning films during Festival Week are being held in the new thirteen million dollar Atlanta Arts Alliance Center. This unusual film festival provides the world's film makers with the most inclusive competition of any festival in the world. Included in the categories for competition are: feature motion pictures, theatrical short subjects, documentaries, television commercials, and experimental films. Films in format from 70mm to 65mm, 35mm, and 16mm are acceptable, in all screen ratios. Color and black and white video tape recordings compatible to Ampex VTR 2000 are accepted also. This is the only major world competition accepting all film and television types and formats. Executive producer of the Atlanta Festival J. Hunter Todd, announced that one of the sponsors of the festival, Mini-Cinemas International is awarding a five hundred dollar cash grant to the best student film maker in the competition.

The grand award of the festival is the Golden Phoenix. Only one of these rare Golden Birds is awarded each year as tribute to the world's best motion picture. The Golden Phoenix, created by sculptress Lesley Behrman, is the symbol of the dynamic city of Atlanta. This mythological bird was consumed in its own flames every one hundred years and reborn from its own ashes to an even greater life. This symbol of creativity and continual excitement is especially appropriate to a grand award in the motion picture world.

Public relations director for the festival, Leonard Allen, expects the Atlanta Festival to become the United States' counterpart of the Cannes Competition with producers, directors, and major companies from around the world attending the screening and award sessions. Art director, Norm Kohn, has created an exciting new, psychedelic image for the second Atlanta Festival which could well be one of the most unusual film festival designs in the world of motion pictures. The Atlanta International Film Festival is the only United States competition that is a member of the International Festival Association.

Looking up in the open-air lobby of the famed *Regency/Hyatt House*, headquarters for the Festival. Lighted glass bubble elevators ascend the 22 stories of the futuristic hostelry.

Closing date for entries in the 1969 Festival is March 31, and entries must be postmarked by that date. Judging begins April 1, and will continue through June 1, with the awards week and screening sessions scheduled June 16-21, 1969.

Eastern Airlines, Inc., one of the prime sponsors of the Atlanta Festival, and the official airline of the Festival is providing special VIP service for all award winners to and from Atlanta. In addition, Eestern is providing a special shuttle service, between the Regency/ Hyatt House and the Atlanta Arts Alliance Auditorium for the screenings.

Retrospect

The premiere Atlanta Festival was

(LEFT) The magnificent new Atlanta Arts Alliance Center, where screenings of the award-winning films will be held during Festival Week, June 16-21. (RIGHT) At the 1968 Festival, starlet Kathy Dix presented the Golden Phoenix award to producer Robert Carlisle for his film "SOFI" adapted from Gogol's short story, "THE DIARY OF A MADMAN".

regarded as a fantastic success by all who participated and attended. Over three hundred films were entered for competition from producers all over the world. This large number of initial entries made the Atlanta International Film Festival the world's largest for a first year of operation. In keeping with its international character, producers from Japan, U.S.A., France, Germany, Mexico, Italy, Canada, Sweden, and Great Britain entered the Festival.

Due to the exceptional level of excellence of the film entries, competition judging was very difficult. After some weeks of careful deliberation, the Blue Ribbon panel of judges selected the Robert Carlisle production of "Sofi" as winner of the grand award, The Golden Phoenix, Best of Festival. This original feature motion picture was taken from Nikolai Gogol's short story, "The Diary of a Madman".

The Silver Phoenix for best feature was captured by American International Pictures for their United States Italian Production, "The Wild Eye." The Silver Phoenix for the best theatrical short subject was awarded to Carl G. Jaeger's production of "Springtime Souvenir." J. Walter Thompson and MPO garnered the Silver Phoenix for the world's best television commercial . . . their production of "Yesterdays" for the Eastman Kodak Company. The experimental film Silver Phoenix went to TeePee Productions for their delightful undertaking, "Jazzoo." Guggenheim Productions won the Silver Phoenix for best documentary with their film "Monument to the Dream." Paramount Pictures and Gold Dolphin Productions took Eastern Airlines Ionosphere Award for the Best International Film on flight with their production "Ballet in the Blue."

Board of Advisors

The Atlanta International Film Festival is especially pleased to acknowledge the assistance and support of its Board of Advisors. This group has shared its wisdom, advice, and experience with the Atlanta Festival in forming the entire production of the 1969 Competition. Their awareness and creativity in our industry has helped the design and organization of one of the world's most exciting festivals.

Elmer Bernstein of The Academy of Motion Picture Arts and Sciences

Miss Judith Crist of The Today Show, NBC Television

Louis de Rochemont III, of Louis de Rochemont Associates

Morton Goldsholl of Morton Goldsholl & Associates

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OFFICIAL FESTIVAL DESIGN MOTIF CREATED BY ART DIRECTOR NORM KOHN

UNIVERSITY OF SOUTHERN CALIFORNIA STUDY ANALYZES TV AUDIENCES' "IDENTIFICATION"

Survey of audience program preferences reveals facts of importance to television film-makers

If you're a television viewer who tends to be strong, self-assured and fatherly, you're probably a fan of television's "Bonanza", and Ben Cartwright.

Or if you're the rugged, outdoor-type, the "Daniel Boone" television series and its principal character are likely to appeal to you.

That is because adults tend to prefer and view most frequently those television roles whose personalities the viewers perceive to be similar to their own personalities, a University of Southern California research study shows.

The study is the first one of its kind to measure statistically the degree to which viewers "identify" with television characters in the selection of their video fare.

The research was conducted by Maxwell V. Perrow, who compiled his findings in a doctoral dissertation at USC, where he recently earned the Ph.D. degree in communication.

Perrow characterized his USC research study as "a first step toward developing a simple but effective pretesting instrument which could accurately predict whether any given group of viewers would watch a given television show regularly."

The implications of such a predictive device, Perrow declared, are significant.

Developing of a single index having maximum predictive power would allow television producers to structure character roles and shows that could command maximum audience.

"Further, such a tool would allow them to zero-in on specific target groups which they want to reach, by structuring in their programs personalities that would appeal to those groups," he said.

The USC researcher said authorities on the use of mass media have long known that viewer identification with television characters' personalities is important, but heretofore, none has provided a quantitative measurement of the similarity that was believed to exist between viewers and most-liked television roles.

In surveying 206 married adults in the Los Angeles area, Perrow found that some personality traits of television roles appeal to a broad group of viewers.

The outstanding example of this was what he called "strong self-concept"—a person who has strength of character, knows where he's going, knows his place in society, is fully aware of his own identity, and has a well-defined value structure—as manifested by Ben Cartwright of "Bonanza".

All of the roles that were rated as most-liked by Perrow's research sample had this trait in common. They were Cartwright, Dr. Richard Kimble of "The Fugitive", Perry Mason, Rob Petrie of "The Dick Van Dyke Show", Sheriff Andy Taylor of "The Andy Griffith Show", and John Novak of "Mr. Novak".

While some personality traits appealed to the large group of viewers, other traits appealed to smaller groups within the larger viewing audience.

Although both Petrie and Dr. Kimble were most liked roles and both were rated highly on self-concept, the two were rated oppositely on four significant factors: Petrie was seen to be outgoing, happy-go-lucky, venturesome and a "joiner;" while Dr. Kimble was seen as just the opposite—reserved, sober, shy and self-sufficient.

Perrow gave a hypothetical guide for a producer who might want to structure a role that would be favored by the majority of the research sample: Traits that should be included in the character's personality are strong self-concept, reservedness, humility, sobriety, conscientiousness, and trustingness. Traits to be avoided include assertiveness, emotional instability, expediency, being opinionated, artless, and careless of protocol.

The 206 persons surveyed by Perrow kept a television viewing diary for three non-consecutive weeks, completed a role preference questionnaire and completed two Sixteen Personality Factor Questionnaires.

Other findings of his research include:

- Viewers who differ in their liking or disliking of a particular role will tend to differ in their respective personality characteristics.
- There was some correlation between age of the viewers and age of the television character: Young adults composed the largest segment of Dick Van Dyke viewers.
- There also was some correlation between the intelligence level of the viewer and that perceived for the television role: The better-educated the viewers were, the higher they rated Perry Mason, the brilliant attorney in the long-running television series.

A native of Princeton, W. Va., Perrow was graduated from Hampden-Sydney College, Hampden-Sydney, Va., in 1948. Three years later, he earned the Bachelor of Divinity degree of Louisville Presbyterian Theological Seminary.

An ordained minister in the Presbyterian Church, Perrow formerly served pastorates in West Virginia, Florida and Los Angeles, before earning his master's degree in communication at USC in 1960.

For five years, he was a communication consultant to Cathedral Films, Inc., Burbank, and has conducted various church-related research studies in communication. ■

BOOK REVIEW

THE FIRST TWENTY YEARS, A Segment of Film History. By Kemp R. Niver. Edited by Bebe Bergsten. Los Angeles: Locare Research Group. 1968. 179pp. Illustrated. $7.50

Although moving pictures were invented by Thomas A. Edison scarcely more than seventy-five years ago, the early history of this vital art form is clouded with a great deal of misleading, self-serving and often angled information. This book, a scholarly and factual history of the first formative years of the moving picture industry, corrects a great deal of such misinformation. Film students, historians and those interested in the evolution of screen technique will be eternally grateful to Mr. Niver for the superb job he has accomplished in THE FIRST TWENTY YEARS.

This book was literally made possible by the more than 3,000 films that the author, an ASC Associate Member, restored over a ten-year period from the Library of Congress paper print collection. All of these films, among the earliest ever made, were originally transferred from a nitrate base negative to an opaque bromide paper and sent by their producers to the Copyright Office so that they could be copyrighted under the then existing laws. It is fortunate that they were deposited in this manner rather than on their original nitrocellulose base. Had that been the case, they would have deteriorated and would have been lost forever. And it is also fortunate that Mr. Niver was able to develop an efficient method of transferring them to 16mm acetate base film so that they could be studied—and enjoyed.

From these 3,000-odd films, the author has selected more than one hundred which he believes are significant in illustrating the evolution of film technique during the first twenty years. Indeed, it appears that most of the motion picture technique we use today was actually developed during this period. Writes Mr. Niver: "Each film described was selected because, in the author's opinion, it contributed something of value to the progress of communication through the new medium of moving photography."

Significant films made by such early

directors as Edwin S. Porter, Georges Melies, Cecil Hepworth, Wallace McCutcheon and the legendary D.W. Griffith are examined in detail, complete with frame enlargements from many of the pictures discussed.

The author lets the films tell their own story. He avoids mentioning any new technique or innovation as a "first" but instead lets the date the picture was made allow the reader to draw his own conclusions. One of the most fascinating aspects about this book is the wealth of new material about early film history that has been brought to light. And, in so doing, a few of the time honored and oft-repeated myths have been destroyed.

The book begins in 1893 with Edison's invention of the Kinetograph and the Kinetoscope. By 1898, the Kinetoscope (a peep-show machine) had been largely replaced by the projector. The first films discussed are ELOPEMENT ON HORSEBACK (1898), STRANGE ADVENTURE OF A NEW YORK DRUMMER (1899) and LOVE AND WAR (1899). Each of these early examples illustrate narrative or story-telling films. Prior to that, moving pictures were often made up of novelty scenes and rarely attempted to tell a story.

One of the finest sections in this book deals with the work of Edwin S. Porter, a much underrated pioneer director. "If ever there was a business and a man that were instinctively compatible and ready for one another, it was the moving picture business and Porter," states the author. "He had the mechanical ability to construct a motion picture camera, the knowledge to operate it, the skill to develop film, as well as the creativity to design a production to increase the appeal of the films he made at a period when new thought in motion pictures was sadly needed."

Although Porter's name has become synonymous today with THE LIFE OF AN AMERICAN FIREMAN and THE GREAT TRAIN ROBBERY, the author shows how the innovations and techniques believed to have been used for the first time in these two films had actually appeared two years before. For example, in UNCLE JOSH AT THE MOVING PICTURE SHOW, Porter had a narrative story which featured live action combined with previously photographed film projected on a screen to which he added double exposure and matte shots. Some of these effects were achieved with an optical printer manufactured by the Edison Studio. In JACK AND THE BEANSTALK (Copyrighted

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COLOR FILTERS

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Natural light usually means sunlight, daylight, skylight, or reflections from them. Daylight I consider the basic natural light.

Artificial light under studio conditions is generally arc light, with or without modifying filters, and incandescent lights, with or without modifying filters.

Newsreels and documentaries face many additional available light problems, depending upon the locations and conditions. Fluorescent light can present problems, as mentioned above.

Before any further discussion of artificial light, I believe the subject of color temperature should be briefly reviewed. The term "color temperature" applies to the degrees Kelvin to which a "black body radiator" is heated. One degree Kelvin is equal to one degree Centigrade, but the Kelvin scale starts at absolute zero or minus 273°C. Incandescent tungsten filament lamps are for our purposes excellent black body radiators. Their highest practical color temperature is considered to be about 3400°K. It should be noted that tungsten melts near 3600°K. Many of our set lighting lamps are designed for 3200°K. There is a very appreciable difference between the life of an incandescent lamp, burning at 3200°K, as compared to one burning at 3400°K.

Color temperature, as a theoretical concept, is not limited to finite attainable values. Planck has presented a generally accepted mathematical equation that determines the spectral energy distribution curve for a black body radiator for any temperature, such as 5,000°K, 10,000°K, 20,000°K, or any other temperature you choose to select up to infinity. For our purposes, almost any selected light source, whose energy is the result of heat, can be considered to have the same color temperature as that Planckian black body radiator, whose color it apparently matches.

Daylight is a most important light source, and has a variable color temperature depending largely on the time of day, latitude and the season of the year, plus any effects such as smog, haze, dust, smoke, etc.

Natural unpolluted daylight is usually considered to have a color temperature of roughly 6,000°K to 6,500°K. Please note the use of the term "daylight." Daylight is considered to be the sum of the light from the sun and the entire sky. It follows that sunlight alone has a lower color temperature due to

the atmosphere and the inherent "Rayleigh effect." The Rayleigh effect, as we know it, makes the sky blue and the sunsets red, even without dust, smoke, etc.

Outside the earth's atmosphere, the color temperature of the sun is, for our purposes, essentially equal to the color temperature of daylight on the earth's surface.

Arc lights with "white carbons"—that is, carbons balanced to daylight—can, as we know, be photographically matched to 3200°K incandescent light by using an overall MT-2 filter on the lights. Filters of this type are most useful. They can double in application by being used to cover windows that face exterior scenes—sometimes in connection with neutral filters—allowing us to use incandescent light inside the room and still satisfactorily record the exterior viewed through the windows as part of the scene.

In using arc lights with a 3200°K color temperature base, an MT-2 filter and white carbons are often used in preference to "yellow carbons," as the white carbons tend to burn more steadily and with less flicker.

The spectral energy transmission curves of available absorption filters show an interesting, but little discussed feature. The yellows, ambers and reds are all generally quite efficient in transmission. The blues, greens, blue-greens, purples, etc. are much less efficient. With their low transmission efficiency, they also tend to be highly transient, fading quite rapidly.

Fortunately for today's photographer, we have available dichroic filters that are very efficient and permanent, although with incandescent light, heat is always a problem. In addition, some dichroic surfaces suffer physical abrasion because of insufficient protection.

Blue daylight (or a low brightness overcast hiding its light source or sources) can have a color temperature roughly of the order of 12,000°K to 25,000°K. On occasion, it can probably be higher! However, in all the exterior photographic conditions I have met over the years, only on one occasion.

I will mention this later.

There do seem to be certain manufacturing and standardization problems with the currently marketed dichroic blue filters. Some are theoretically designed to bring the incandescent light of 3200°K up to a color temperature of 5000°K, if that is what is wanted. Others claim a correction to 5600°K. I have noticed a definite visual variation in filters of the same manufacturer,

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ATLANTA FILM FESTIVAL

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Lenore Hershey of McCall's
Samuel C. Johns of Wilding, Inc.
Samuel Magdoff of Elektra Film Productions
E. D. Martin of Martin Theatres
P. J. Mooney of Audio Productions
John L. Peckham of Peckham Productions
Judd L. Pollock of MPO Videotronics
Carl V. Ragsdale of Sun Dial Films
J. C. Rebman of the A-V Corporation
Spyros P. Skouras of Twentieth Century-Fox
Frederick G. Storey of Storey Theatres
Allan Zwerdling of Backstage Magazine
Herb A. Lightman, Editor of *AMERICAN CINEMATOGRAPHER*

Awards

In addition to the Golden Phoenix as Grand Award for Best of Festival and the Silver Phoenix for the best film in each major category, several other important awards shall be made during the second annual Atlanta Festival. The Eastern Ionosphere Award is for the best international film dealing with flight in any category. The Regency/Hyatt Award is to the best film by a Southern U.S.A. producer in any category and the Forward Atlanta Award recognizes the best production by an Atlanta Company in any category. Especially noteworthy is the Mini-Cinema's International Award . . . a five hundred dollar cash grant for the best film by a student film maker in any category.

The deadline for application forms and films is March 31, Monday, 1969. Entries must be postmarked by this date. The gala awards banquet and cocktail party is Saturday evening, June 21, 1969, at the Phoenix Ballroom in the Regency/Hyatt House. Cinema East/INTERFILM is providing their Hughes and Bell jet-ranger helicopters for special VIP service to and from the Regency Helipad and the airport. Inquiries should be sent to: J. Hunter Todd, Executive Producer, The Atlanta International Film Festival, Drawer 13258 K, Atlanta, Georgia, U.S.A. 30324. Executive offices and facilities: 1584 Tullie Circle N.E., Suite 127. Cable/INTERFILM. Tele/404-633-4105, 633-4106, 633-4107 Telex/54-2484, Mobile Telephone All Channels 30844 ■

BOOK REVIEW

Continued from Page 343

June 20, 1902, 250 feet in length), Porter really outdid himself. The sets were ingenious and impressive. There were dissolves between scenes, stop camera action to allow people to appear and disappear, and the use of lantern slides as a projector of thought within a film. THE KLEPTOMANIAC and THE EX-CONVICT had social themes. Both were made in 1905 and indicated the extent to which Porter had advanced screen story-telling. There is little doubt that Porter was one of the most important of the early directors.

Several little-known films made by the French pioneer, Georges Melies, are used to show the many refinements to motion picture technique this great innovator contributed. In THE KINGDOM OF THE FAIRIES (1903), Melies employed just about every method of photographic special effect he knew. There were fades, dissolves, cartoons, stop-motion, sliding sets that divided, shots made through a fish tank to achieve an underwater effect, and tabletop miniatures. Projected slides, combined with live action, were also used by Melies in this film.

The Biograph/Griffith era (1908-1913) comprises one of the most significant and important portions of this book. Of the nearly four hundred Griffith-directed Biograph films restored by Niver under the paper print program, sixteen were selected for study in this book. However, the films chosen seem to have been overlooked by other film historians. Several of these films are among the earliest made by Griffith and indicate that from the very beginning of his career as a director he was able to visualize an entire motion picture before it was photographed and then transfer that idea to the screen in such a way that it was told with dramatic effect. Many films produced by the Biograph Company before Griffith became a director suggest that some of the techniques and innovations later solely attributed to Griffith had been used by Arthur Marvin, Billy Bitzer and others who were to subsequently work with Griffith.

THE FIRST TWENTY YEARS is a handsomely produced book with a multitude of illustrations—the majority of which appear in print for the first time. This is an important book on film history. It is enjoyable to read and a splendid reference to own. ■

—GEORGE J. MITCHELL

INDUSTRY ACTIVITIES

Continued from Page 337

and other events will be available in adjacent rooms on the Conference Level of the Fontainebleau.

In addition to the technical program a full range of special and social events is being planned. The Ladies Program will feature tours and shopping trips every day. On Sunday night preceding the Conference a Hawaiian Boatride and Luau, featuring Island music, will be held aboard the M-V Biscayne Belle. On Monday the Conference will officially begin with the Get-Together Luncheon, presided over by SMPTE President Deane R. White. The SMPTE Banquet and an evening of entertainment and dancing will be held on Wednesday. On Friday there will be a tour of the CCTV facilities of the Miami-Dade Junior College and a visit to the photography department of the University of Miami Institute of Marine Science.

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Old Chaplin Studio Declared Historical-Cultural Monument

The original Charlie Chaplin Studio at Sunset and La Brea, one of the first complete motion picture studios to be built in Hollywood, has been declared an historic-cultural monument by the City's Cultural Heritage Board.

Now owned by Herb Alpert of Tijuana Brass fame and Jerry Moss and now called A & M Records, the Chaplin studio has had an interesting evolution. It has gone from the period of silent to talking pictures, into television production (the Perry Mason series was made here under CBS ownership) and now into major recording operations with a return to motion pictures in the planning stage.

Cultural Heritage Board President, Carl S. Dentzel, stated that the present owners are to be commended for maintaining the studio so that this continuity from earliest times to the present is evident.

Despite the modernization that has taken place to accommodate A & M's expanding operational needs, it is interesting to note that the original structures built in 1919 have been successfully adapted for a thriving business five decades later and are virtually intact. Alpert is a native of Los Angeles with a strong interest in his city's cultural past.

Chaplin, born in London in 1889, came to the United States to appear in vaudeville. He remained to become the star of his own film classics such as

"Shoulder Arms", "The Kid", "The Gold Rush", "The Circus", and in later years, "Modern Times". Now a resident of Switzerland, Chaplin was one of the first great international artists to create the image of Hollywood as the film capital of the world.

The studio has long been a point of interest in the itinerary for bus tours in the Hollywood area.

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Calvin Facilities Renamed to Solidify Corporate Identity

With Calvin Communications the new name selected for Calvin Productions, Inc., the Kansas City headquartered motion picture firm has renamed its various facilities. The announcement was made February 3 to over 800 film makers attending the opening session of the 23rd Annual Calvin Workshop by Calvin President Leonard W. Keck.

The change will affect all Calvin locations which have been renamed Calvin Productions—Kansas City; Calvin Laboratories—Kansas City; Calvin Packaging—Independence (Missouri); Calvin Productions—Louisville (formerly Vogue Productions); and Calvin Productions—Philadelphia (formerly Calvin-DeFrenes). Nearly 500 persons are employed by Calvin at the various locations. The corporate mailing address remains 1105 Truman Road, Kansas City, Missouri 64106.

According to Mr. Keck, "Calvin corporate names aren't actually as critical in a service organization as our people and our products. However, the names are being changed to obtain additional public continuity and consolidate an extended operation. We feel the changes will serve our own best interests and will help us better identify ourselves to the industry."

Calvin Communications Industries is one of the nation's largest producers of non-theatrical motion pictures. Founded in 1931 by Forrest Calvin in a one-room location, the firm was an industry pioneer in the development of the 16mm film format. Calvin also introduced the first 8mm sound projector in 1952.

A year earlier, the firm was the first ever to be licensed by the Eastman Company to process Kodachrome. Calvin laboratories currently process nearly 10,000,000 feet of motion picture film per month. Calvin camera crews have filmed "on location" in major cities in all 50 states and in 34 foreign countries.

WHAT'S NEW

Continued from Page 272

phone in acoustically unfavorable environments and also eliminates the effects of low frequency boom, rumble or wind noise.

The new AKG microphone, designated D-900E is 26-1/8 inches long x 1-1/4 inches in diameter. Its frequency range is 40-13,000 Hz., ±3 dB. Impedance is 200 ohms. It is inconspicuously finished in matte charcoal grey. Supplied with stand adapter and zippered imitation leather padded case.

Price is $149.00

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Anthropology Film Center

The Anthropology Film Center was established in 1966 to facilitate training, research and communication among Anthropologists who have recognized the possibility of utilizing film in their field. This independent, non-profit organization has opened its new facilities, with an anthropology film maker training program, library, research work space and consultation services directed by C. Warner Williams. An "Anthropology-Film Newsletter" is to be the first release of a publications division.

The Center is committed to a program of studying the problems of film in anthropology, film recording and communication, techniques and methodologies, that will more fully utilize the medium's qualities. Educational film, of anthropological content, will be incorporated as part of the approach.

For further information write Anthropology Film Center, P. O. Box 493, Santa Fe, New Mexico 87501

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Outstanding Show Planned For TV Spot Awards Presentation

Sanford "Sandy" Cummings will produce a gala entertainment show surrounding presentation of the 9th annual International Broadcasting Awards at the Century Plaza Hotel on March 11.

Cummings was named as producer by Ben Hoberman, president of the Hollywood Radio and Television Society, sponsor of the "Spike" awards which annually honor the "world's best" radio and television commercials.

The March 11 show will include presentation of trophy-winning commercials in 12 television and eight radio categories plus sweepstakes awards for each medium. ■

BEHIND THE CAMERAS

Continued from Page 270

CHARLES ROY: Industrial Film, commercials

WILLIAM STORZ, ASC: Wilde Films, New York

WALTER DOMBROS: "Eric Hoffer", "60 Minutes" (tv)

TED PAHLE, ASC: Commercials

LINWOOD DUNN, ASC: Special Photographic Effects: "Airport", Universal, EXPO 70.

DRUMMOND DRURY: Commercials

BERT SPEILVOGEL: MPO VIDEOTRONICS, New York

HENRY V. JAVORSKY: Commercials, Documentary

WILLIAM HINES: Commercials

UNIVERSAL

JACK HILYARD: "Topaz", Technicolor

ROBERT MORENO: "Skulduggery", Saul David Prod., Technicolor, Panavision, shooting in Jamaica

ERNEST LASZLO: "AIRPORT", Ross Hunter Prod., Technicolor Todd-AD, shooting in Minneapolis-St. Paul

GABRIEL FIGUEROA: "Two Mules for Sister Sara", color, Panavision, shooting in Mexico

20th FOX

LEON SHAMROY, ASC: "Justine", Pandro Berman Prod., Panavision

HENRI DECAE: "The Only Game In Town", George Stevens-Fred Kohlmar, Prod. shooting in Paris

CHARLES WHEELER, ASC: TAKAO SAITO: "Tora, Tora, Tora", 20th Century-Fox, Deluxe Color, shooting in Japan, Hawaii, Washington, D.C.

ANDREW LASZLO, ASC: "Angel Levine", color, shooting in New York.

WARNER-SEVEN ARTS

MARGARITA PILIKHINA: "Tschaikowsky", Soviet Ministry of Cinematography.

ROBERT SURTEES, ASC: "The Arrangement", Athena Enterprises Prod. Technicolor, Panavision

BILL BUTLER: "Return of the Boomerang", SBP Films, color, wide-screen shooting in Australia

ARTHUR GRANT: "Frankenstein Must Be Destroyed", Hammer Prod. color, widescreen, shooting in London

LUCIEN BALLARD, ASC: "The Ballad of Cable Hogue", Phil Feldman Prod., color widescreen, shooting in the Valley of Fire, Nevada. ■

COLOR FILTERS

Continued from Page 345

reputed to have the same correction.

As we judge the scene values and modify them for the camera, we rely upon our eye response to color and brightness values. The limitations of these responses are well documented, but we are wise to keep them continually in mind.

Another challenge is presented by the drastic change in eye response when changing from photopic to scotopic vision. This, of course, is the well-known Purkinje effect. It occurs with surprising rapidity when the incident light level falls to about one-tenth to one one-hundredth of a foot-candle. Since the sensors of photopic vision are the cones of the retina, and the sensors of scotopic vision are the rods, their distribution pattern in the retina becomes an important factor. The color sensitivity shift of scotopic vision (from the photopic vision) toward the blue end of the spectrum, of approximately 400 Angstrom units, is noteworthy. A further examination of this scotopic color sensitivity curve points up a drastic decrease in red sensitivity, if it can be said that red is visible at all, except as grey or black.

Still another visual factor that requires close watching is retinal fatigue. In addition, our color memories are notoriously short.

Retinal fatigue is most obvious when we look for a prolonged time at a strong colored light. When we look away, the "after image" on the retina persists, but in the complementary color.

All these factors must be mentioned because they are so important to the visual control of the overall scene color and its various individual color elements. Of necessity, each of us must draw his own conclusions regarding the resultant effects and the use of these phenomena.

Let us consider, with these factors in mind, a recurring practical problem that is of importance to the cinematographer. We are repeatedly faced with the problem of photographing night exteriors. A well-lighted city street is generally well defined in concept. An exterior scene lighted entirely by moonlight is, by tradition, sketchy and on the blue side. The definitive handling of this night exterior—to make it appear in its recreated form on a theatre screen that is above the illumination level subject to the Purkinje effect, as it did at scotopic levels—is a perpetual challenge. To assist toward achieving this effect, I have

often used a one-half strength MT-2 filter on an arc light with white carbons, generally resulting in quite an acceptable basic bluish cast, assisting greatly toward the feeling of a moonlight exterior. The camera was balanced to 3200°K and the laboratory was requested not to correct for the blue cast.

The handling of faces and brightly colored clothes or other brightly colored picture elements is quite another problem. The laboratories have tried to solve this problem in some cases by desaturating the prints, especially on scenes shot "day for night," but this approach has thus far only presented other problems.

Getting back to the use of filters, we generally recognize the Wratten 85 or 85B filters—in the camera of course—to balance daylight to 3200°K film or receptors.

The MT-2 filters we have already mentioned.

For exterior or daylight balance auxiliary lighting, the arcs with white carbons and the pale amber or Y-1 filters come into their own. The use of the pale yellow or Y-1 filter is, in my opinion, optional, depending upon the use of the booster light. Sometimes I do not use it. At least once, on an overcast day, I have used a #26 blue Brigham gelatine filter with white carbons for booster light on faces. Double Y-1 filters are useful. On one occasion, late in the day, I have used a one-half strength MT-2 over an arc as a key light on a face. These uses were all determined by visual judgment. They were not intended for extreme effects, they were needed to give acceptable flesh tones for the daylight color prevailing. These applications were all successful.

Incandescent lights with the older Technicolor MacBeth blue glass absorption filters can be most useful, even on 3200°K lamps, although they were originally balanced for use with the Technicolor three-strip camera and incandescent units of 3350°K rating. The light transmission of these filters, as measured by a Weston photometer cell through a Viseor filter, was about one-third.

The development of the dichroic blue filters is a most welcome step forward. It is hoped that the potential filter market might justify further development toward even more efficient and non-fading filters.

Regarding Gelatine and plastic filters, it would be an advantage to correlate the colors of the plastic filters, so that they are in agreement with those having a gelatine base, especially in their numbering for color identification. Dupli-

cate colors in gelatine and plastic would be most useful, especially with those colors most frequently used.

The use of a photometer to measure the photographic response of colored effect lights can be very misleading. Usually the spectral energy response of the photo-cells is not readily available. If it is available, it must be interpreted. I prefer to establish the value of these effect colors by eye. Once these values are established for the key light level used, I can measure the colored light values and use them as a guide for subsequent scenes in that sequence.

The use of colored light for dramatic effect is not new. Theatrical use of color to enhance drama has certainly preceded color motion pictures. In fact, the Brigham gelatine filters we use for accent today were, I believe, originally intended for theatre use. Many of the darker colors are most impractical for motion picture work. In addition, our films see these filters much differently than the eye. For example, on some color tests I once ran, the most saturated red I could obtain with the film I then had, was obtainable with a #63 Brigham gelatine filter. If I used a red stronger in visual appearance, I did not gain in picture saturation for an equivalent screen brightness. A range of exposures was shot with each red filter and the frames of comparable density compared. In other words, in viewing the tests, I did not gain in image saturation for an equivalent screen brightness.

At this time, it is well to remind ourselves that saturation and brightness become interdependent in the photographic process. A highly saturated color can lose its saturation when an attempt is made to cart the color in a high key. It is so easy to over-expose and wash-out the color. In addition, we be careful not to desaturateour accent colors with overlapping complementary colors or spilled white light. The laws of additive color must be recognized.

Our photographic problems with colored accent and effect lights are much different from those of the legitimate theatre.

In any event, filters of various colors are all really essential to give us a pallet from which to draw. Many scenes need color balancing from an artistic standpoint—before we roll the cameras. A cool area here to balance another cool area, a warm area someplace else to supplement another warm area, or a cool area or spot to complement a warm area.

Color filters, properly used, are one of our most valuable facilities.

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