

American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

JULY 1975/ONE DOLLAR



THE AMERICAN SOCIETY OF CINEMATOGRAPHERS
FIRST ANNUAL A.S.C. AWARDS

BEST ACHIEVEMENT IN COLLEGE CINEMATOGRAPHY

SAN DIEGO STATE UNIVERSITY

"NEGATIVE IMAGE"

DENNIS MAYER, CINEMATOGRAPHER

MAY 21, 1975

FIRST ANNUAL A.S.C. AWARDS FOR BEST ACHIEVEMENT IN COLLEGE CINEMATOGRAPHY

The Great Freight Rebate!

We'll pay the freight both ways. By air, rail or truck to any point in the continental U.S.* on rentals of one week or more.

*Ask us about our overseas rentals, too.



DIAL (800) 223-5829 TOLL FREE.
Wherever you are, we'll ship immediately.

Filmmakers in Dallas, Miami, Washington, D.C., San Francisco, Atlanta, Detroit, Phoenix, Nashville, Albuquerque — anywhere — pay attention.

Now F&B/CECO will send you first class top-condition professional equipment from our New York or California branches delivered when and where you want it — at no shipping cost.

Don't be compromised by local suppliers. Don't substitute for hard-to-get items. Demand and get exactly the equipment you need from the world's Number One Rental House.

Cameras? We've got 'em. Over 150 Arris, 50 Eclairs, 27 BNC Reflexes, Mitchells and all the rest. With all the lenses and accessories you could ask for.

We've got lighting equipment by the ton. 5,000,000 watts of it. Over a million feet of cable. Gennies of every size and description.

Now we have 7 Cecomobiles ready and rolling.

We've got all kinds of sound equipment, editing gear, viewing equipment, dollies, microphones and booms. Anything that has to do with filmmaking. All carefully maintained in perfect working order. And every bit of it is yours with one toll-free call.

Ask for Walt Druker or John Babb.

Send for our **FREE** New 1975 Rental Catalog

We want you to come back.

F&B CECO
THE RENTAL SPECIALISTS

SALES - SOS DIVISION

315 West 43 St., New York, N.Y. 10036 / (212) 586-1420
7051 Santa Monica Blvd., Hollywood, Calif. 90038 / (213) 466-9361
Phone Toll Free (800) 223-5829. In New York State Phone Collect (212) 586-1420

“What if a camel sits on my TGX-16?”

So what if he does?

The TGX-16 hi rez body is virtually indestructible. If he cracks your TGX lens, just pop on an adapter and use any Arri, Eclair or C mounted lens.

If he fouls up the camera's electronics, just plug in the spare solid state circuit board you've thoughtfully brought along and you're back in business.

If the beast steps on the cassette, well, just top-load a Mitchell mag.

If he kicks the clutch on your take-up, hopelessly jamming the camera, you can readjust the clutch by turning one single screw.

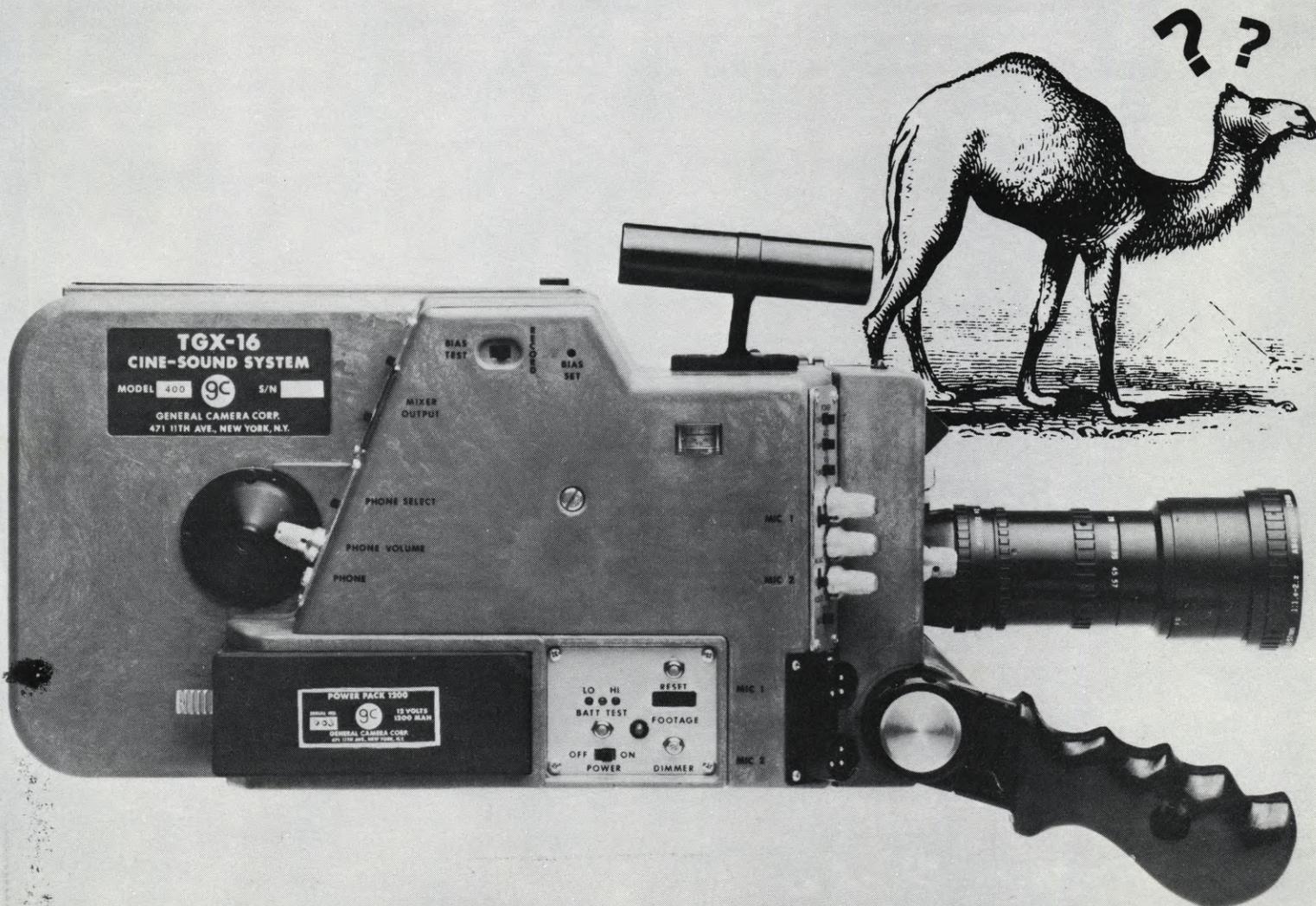
The point is this. The TGX-16, the world's newest and by far most sophisticated 16mm single/double system sound camera, is built for the field. Not for the repair shop. Almost anything that can possibly go wrong with a TGX-16 can be

fixed, on the spot, by a man with a screwdriver. Any man with a screwdriver.

So when people frequently ask us, “what if a camel sits on my TGX-16?”, we answer quite candidly. Bring your camel in for servicing.

TGX-16
Built for the field.

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



Will Rogers never met Sy Cane.

What's to like?

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

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

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

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

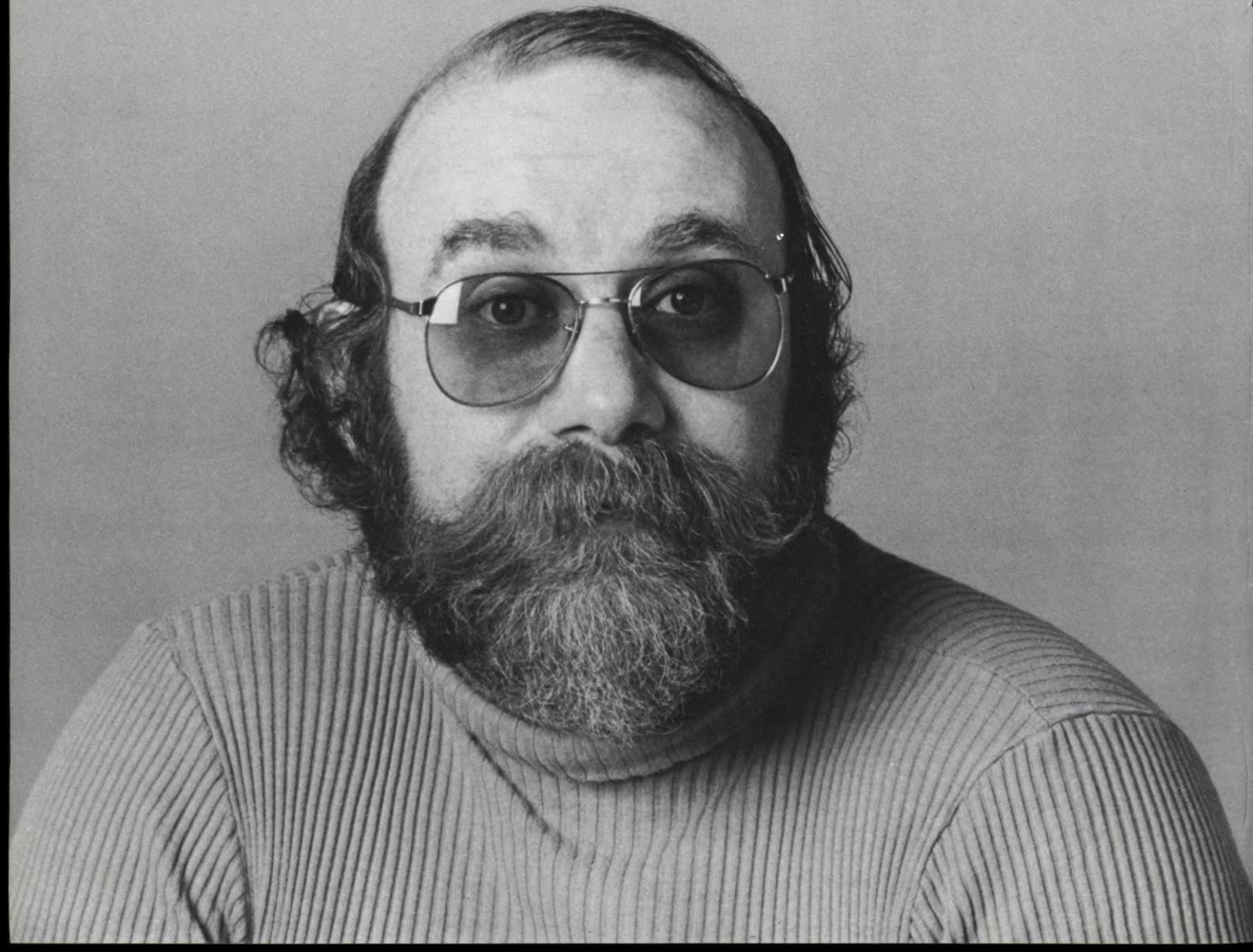
Sy Cane is fussy. Fussy enough to hire Eclair's Bernie O'Doherty to head up the Mobius service department. And heartless enough to guarantee 24 hour service in many cases, by threatening Bernie's life.

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

MOBIUS

7 East 47th Street, New York, N.Y. 10017
(212) 758-3770

CINE LTD.



American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

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

JULY, 1975

VOL. 56, NO. 7

Herb A. Lightman
editor

Three Tyler
editorial assistant

Barry Day
production control

Pat Black
advertising

Barbara Prevedel
accounting

Gabrielle de Ganges
layout assembly

Lisa Friedman
research

Contributing Editors

David Samuelson
Sidney P. Solow
Anton Wilson

Editorial Advisory Board

Lee Garmes, Chairman
Charles Clarke
Stanley Cortez
George Folsey
Sol Halprin
Winton Hoch
Ernest Laszlo
William Fraker
Conrad Hall
William Margulies
Joseph Ruttenberg
Ted Voigtlander
Vilmos Zsigmond

Editorial-Advertising-

Business Offices

1782 North Orange Drive
Hollywood, Calif. 90028
(213) 876-5080

● **FEATURE ARTICLES**

770 First Annual A.S.C. College Cinematography Awards

772 The Filming of "NEGATIVE IMAGE"

774 Photographing "THE INVISIBLE MAN"

778 Tape-to-film "Transforming" for "THE INVISIBLE MAN"

782 Creating Electronic Special Effects for "THE INVISIBLE MAN"

785 "EMMY" Awards for Cinematography

788 American Film Institute Seminar with Joseph Ruttenberg, ASC

800 World Round-up of 1975 Film Festivals and Conferences

812 Unique New Astrovision, Inc. Jet Aerial Filming System

816 The Fascinating Challenges of Natural History Filming

822 The Atlanta Film Festival Moves to the U.S. Virgin Islands

784 A 200,000-candlepower Light from a 2½-cubic-inch Source

● **DEPARTMENTS**

744 What's New

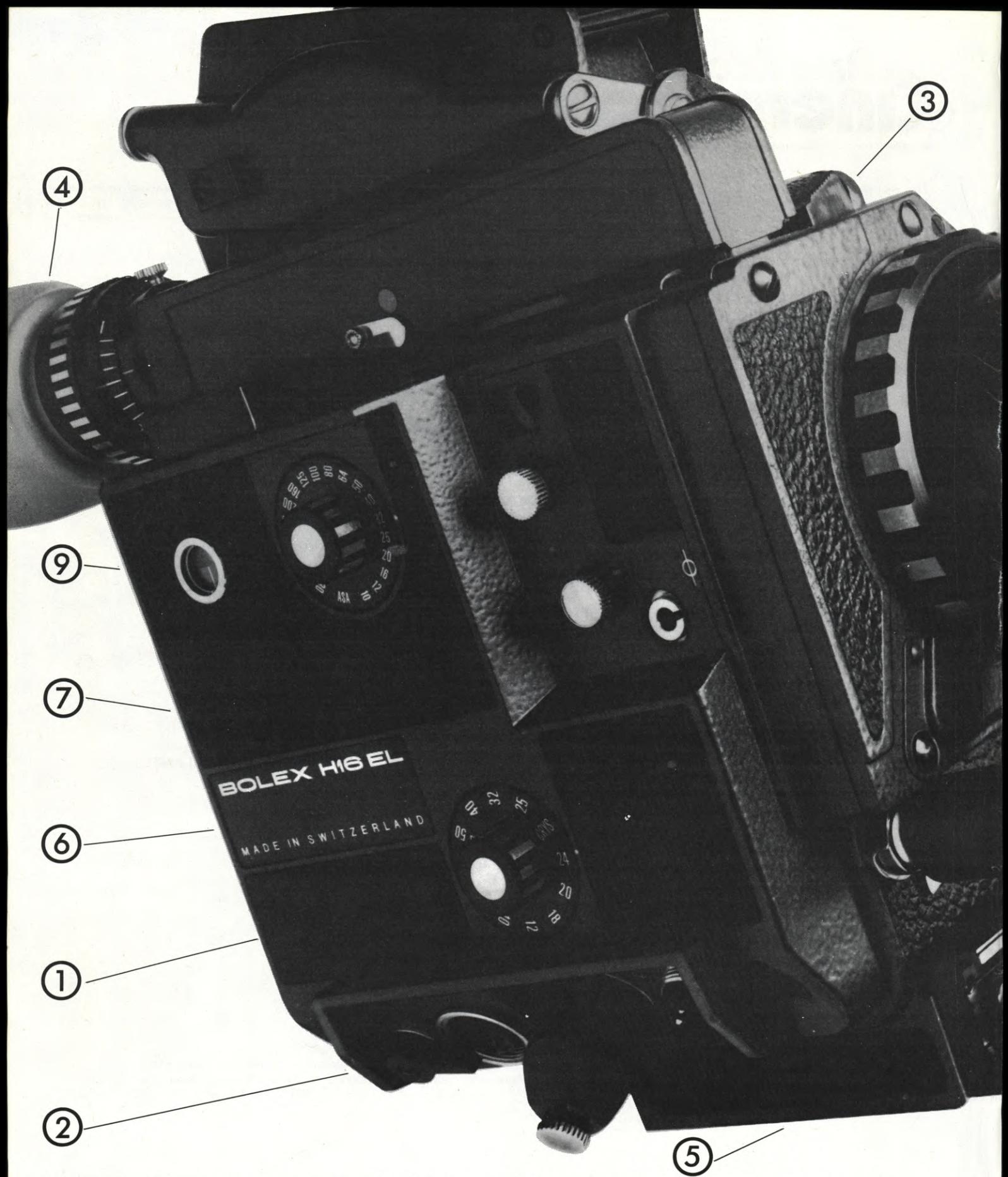
748 Questions & Answers

752 Cinema Workshop

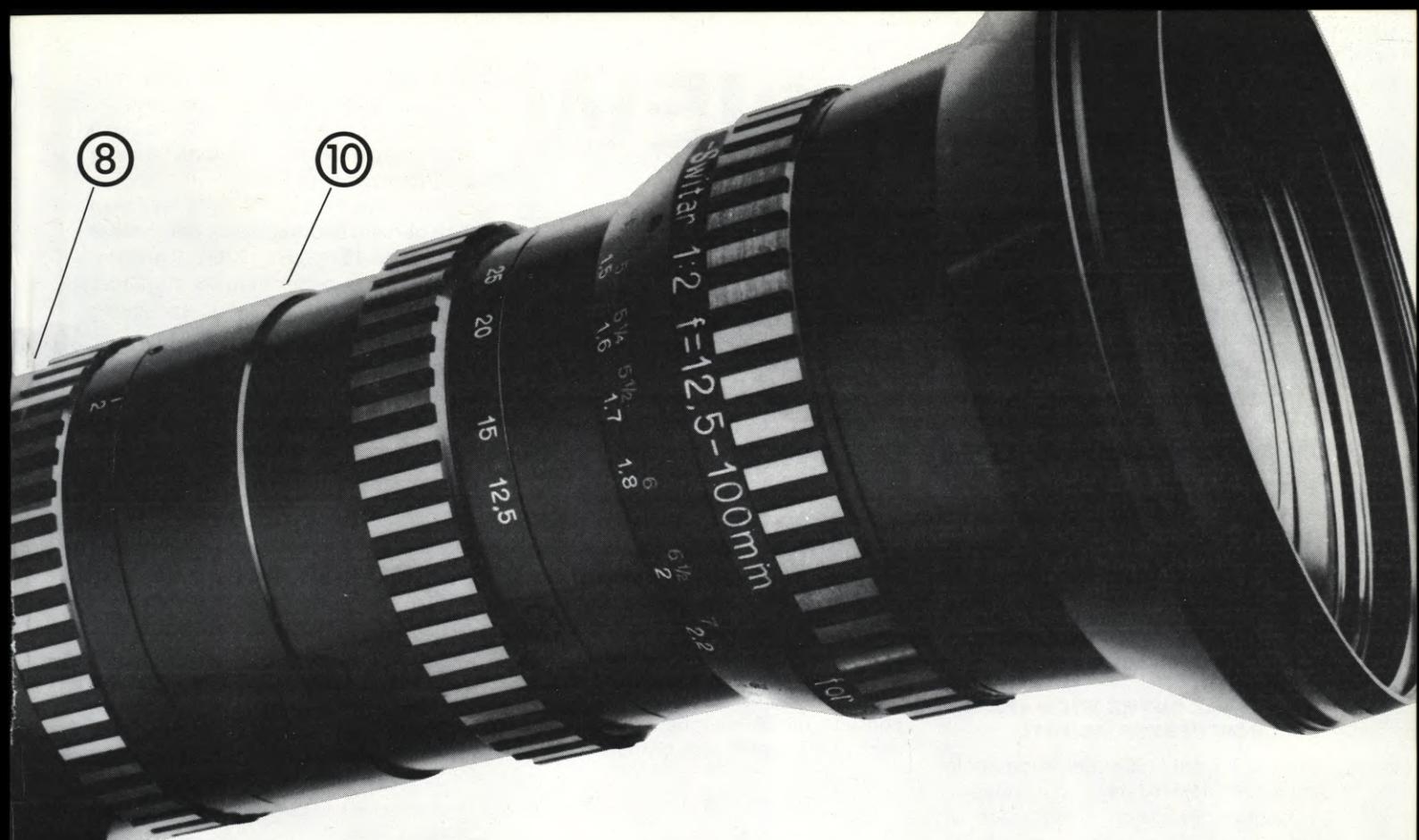
760 The Bookshelf

ON THE COVER: The specially designed lucite and gold trophy presented to winners of the First Annual American Society of Cinematographers Awards for Best Achievement in College Cinematography. Cover photograph by JOSEPH RUTTENBERG, ASC and GEORGE FOLSEY, ASC.

AMERICAN CINEMATOGRAPHER, established 1920, in 56th year of publication, is published monthly in Hollywood by ASC Holding Corp., 1782 North Orange Drive, Hollywood, California 90028, U. S. A. **SUBSCRIPTIONS:** U. S. \$9.00; Canada, foreign, including Pan-American Union, \$10.00 a year (remit International Money Order or other exchange payable in U.S.). **ADVERTISING:** rate card on request to Hollywood office. **CHANGE OF ADDRESS:** notify Hollywood office promptly. Copyright 1975 ASC Holding Corp. Second-class postage paid at Los Angeles, California.



- ① Crystal control motor for wireless sync sound. Other motor speeds from 10 to 50 fps forward and reverse, controlled by solid state electronics. Automatic slating with sync-pulse generator. ② Rechargeable battery that adds a mere 13 oz. to the weight and attaches right to the camera. ③ Technologically, the most advanced through-the-lens metering system. The silicon cell has no memory. So it reacts instantly, responds uniformly to all colors and is practically unaffected by temperature changes. Rugged, accurate and reliable. ④ Light-emitting diodes indicate correct exposure in bright 13X reflex finder. The completely electronic system has no mechanical parts or moving needles that can fail due to rough handling. Lighted diodes are always visible even in dim light. ⑤ Electro-magnetic control for instant start and stop with shutter in closed position. ⑥ Electronically controlled single frame capability assures the kind of accuracy and reliability found only in specially built animation units. ⑦ Superb picture steadiness to



THE ALL NEW BOLEX EL! IT'S ELECTRONIC.

We built this camera with every essential feature successful professionals use to create outstanding 16mm commercial films. Yet until now these same pros have had to pay thousands more for these same advantages—without having them in one camera.

And, with the Bolex EL, a pro can film more easily and get superb results. As a matter of

fact, so superb, he can blow up his film to 35mm for theatrical release if need be.

Now, study each Bolex EL feature carefully. Inspect the camera inside and out. Compare the price, quality and features of our camera with any other 16 available. Then choose your very own Bolex EL. And go out and experience camera performance.

satisfy the demands of the most discriminating pro. (8) The lens mount is so rugged and well-engineered you can safely carry the camera by the lens. (9) Automatic threading and spool ejector for swift change of film. (10) Complete line of superb optics: macro, power zoom, lenses with fully automatic exposure control, automatic depth of field scales, automatic diaphragm pre-setting, super fast f/1.1 aperture. • Professional accessories include 400' magazine, matte box, blimp, shoulder brace, u/w housing and many more. Bolex also has four H16 cameras, accessories and Bolex 421 optical/magnetic sound projector. Write for full-color brochure and catalog and tell us if you'd like to see a film we produced about the EL.

BOLEX

Paillard Incorporated
1900 Lower Road, Linden, New Jersey 07036
Canada: W. Carsen Co. Ltd., 31 Scarsdale Rd., Don Mills, Ont.

WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE



5.7mm F/1.8 SUPER WIDE ANGLE LENS NOW IN ARRI MOUNT!

A new 5.7mm f1.8 Super Wide Angle lens for Arriflex 16 has been developed by Century Precision Cine/Optics of North Hollywood. It is now available for Eclair and CP-16R bayonet-mount cameras, while previously it was available only in "C" or Bolex Rex mount.

The physical size is only 2" in diameter, the smallest ever achieved for a lens of this type. The weight is only 7 ounces! The angle of view is 100° and covers the full 16mm format with less than 30% distortion at the edges. Optical resolution is 260 lines per millimeter, and the unit is highly color corrected. All optical surfaces are anti-reflection coated for maximum light transmission and color saturation. Due to the extreme depth of field, no focusing is required. At f/4 objects from 2 feet to infinity are in sharp focus.

The new lens is recommended for cinematography of sports, race cars, special effects, vehicle interiors, instrumentation and any application requiring wide coverage. Very unusual effects can also be achieved by panning with this unit. The price is only \$575.00 user net. Series VIII filter adapters are priced at \$24.50.

For further information contact the manufacturer at 10661 Burbank Blvd., North Hollywood, CA, (213) 766-3715.

12 NEW MEMBERS ELECTED TO BOARD OF GOVERNORS OF ACADEMY OF MOTION PICTURE ARTS AND SCIENCES

Twelve new members have been elected to the Board of Governors of

the Academy of Motion Picture Arts and Sciences, following the recent election conducted by the accounting firm of Price Waterhouse & Co.

Those elected, and the branch they represent, are: Gregory Peck, actors; Robert F. Boyle, art directors; Stanley Cortez, cinematographers; Frank Capra, directors; E. Cardon Walker, executives; Frank Keller, film editors; John Green, music; and Howard W. Koch, producers.

Also elected were: Charles Powell, public relations; T. Hee, short films; Leo Chaloukian, sound; and Michael Blankfort, writers.

The Academy's Board of Governors consists of 36 members, three from each of the twelve craft branches.



UHER OFFERS ADVANCED PORTABLE STEREO CASSETTE RECORDER WITH FILM SYNC CAPABILITY

Uher of America Inc. has introduced the CR-210, world's smallest portable stereo cassette recorder. It is a second-generation machine, offering photo-sensitive electronic control of the tape drive mechanism, on/off ALC switch and automatic bias switching for chromium dioxide tape. It also features a socket for the accommodation of an 8mm and 16mm film dubbing accessory.

Price of the CR-210 is \$605.95, including carrying case (less batteries).

The CR-210 has automatic tape reversal which is provided by the specially-designed four-track in-line tape head. It has a built-in condenser microphone, self-contained stereo power stage and internal monitor loudspeakers.

Designed for universal applications where high-performance is a requirement, it has total flexibility, serving as a stereo tape deck in a component system, for film synchronization or what is commonly called "sound hunting," as a car stereo deck, or when used with

batteries, as a go-anywhere tape machine. It has a variable power supply and can be used with an AC line, lead acid or nicad rechargeable batteries or 12V auto batteries.

Wow and Flutter (RMS) is less than 0.12 percent and frequency response is from 20 to 16,000 Hz. (CrO₂). Signal-to-noise ratio is better than 58 dB (CrO₂). Operating modes are mono and stereo in both playback and record.

The CR-210 measures 7-inches wide, by 2-inches high and 7-inches deep.

Its compact construction and versatility give the CR-210 a special position among cassette recorders throughout the world.

Uher is one of the world's most experienced specialists in the manufacture of cassette and open-reel recorders and accessories for home, office and special applications.

For further information, contact: Uher of America Inc., 621 S. Hindry Avenue, Inglewood, Calif. 90301.



NEW TREISE CATALOG FEATURES PROCESSORS AND ACCESSORIES

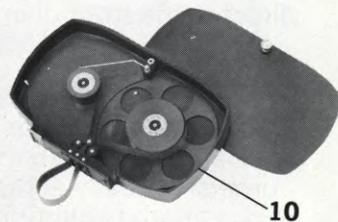
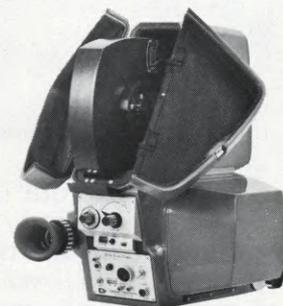
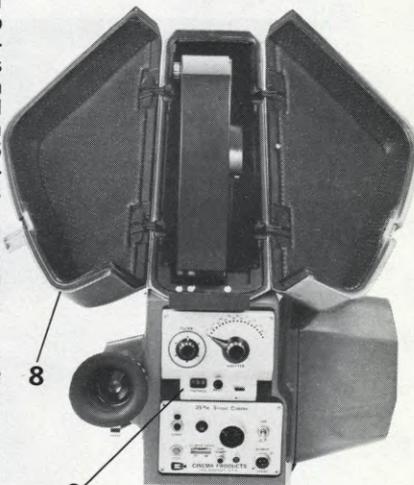
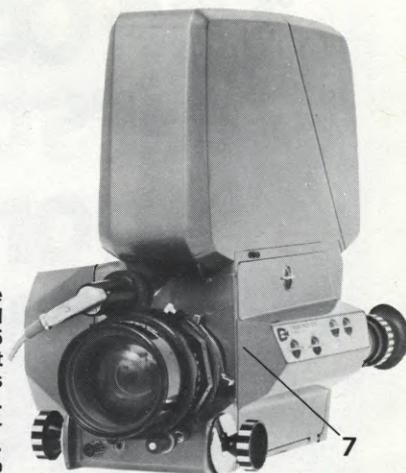
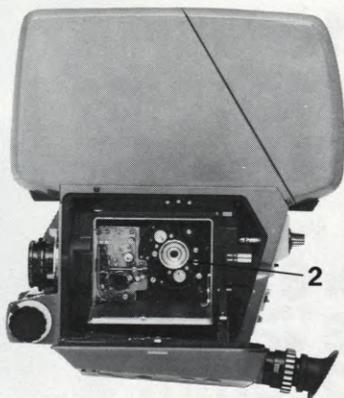
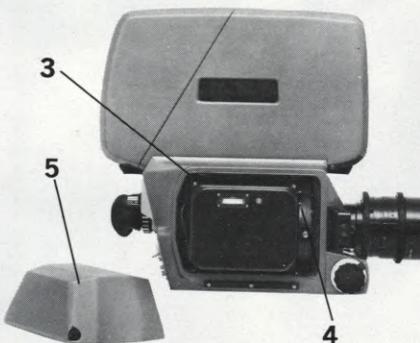
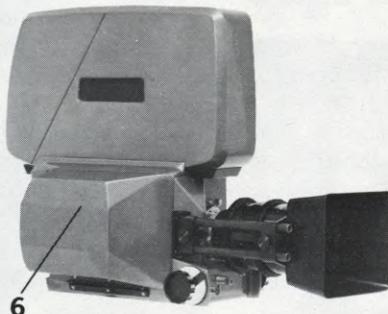
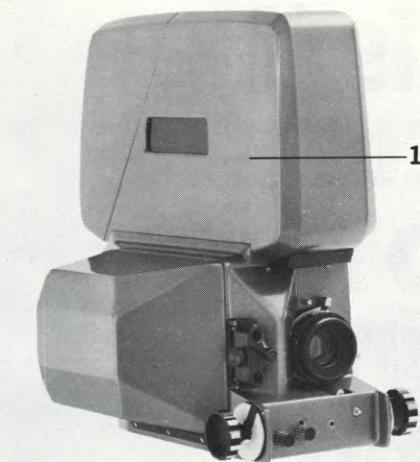
Recently announced by Treise Engineering, Inc. of San Fernando, California, is a new catalog describing their complete line of continuous lab processors and accessories. The 32-page 2-color catalog contains illustrations and detailed descriptions of various products offered by the firm and provides valuable tips as to their use.

Of particular interest to laboratories, photofinishers, TV stations, microfilm systems, etc., is an extensive section on accessories and component parts. Inasmuch as Treise Engineering not only builds processors, but also rebuilds them, it is able to offer parts and advice to firms who are anxious to modify or modernize their existing equipment. As indicated in the

Continued on Page 784

What Is an XR-35?

When you consider that until just a short time ago, the most "modern" 35mm studio camera had been around for about 40 years, it would be easy to call the XR-35 the newest concept in studio cameras. It is that, but it's also much more. It has a list of innovative features that set it apart from any other camera of its type. Many of these features are highlighted in the accompanying photos. But there's even more to the XR-35. It has more features than the most famous studio cameras, yet is the most compact and lightweight of them all. It is rugged and reliable and its rapid set-up time is a production time and money saver. Its exclusive two-axis vari-pitch stroke adjustment assures silent film transport. It is manufactured by Cinema Products Corporation, a company whose technological creativity has made it the foremost producer of motion picture cameras in the industry. Best of all, the XR-35 has passed the rigorous test of actual use — by demanding professional cinematographers — and has compiled a list of credits that is more than impressive. We have XR-35s available for rental or for purchase. And we're available to answer any questions you might have about this outstanding studio camera. Before you begin your next production, give us a call. **MOST PROS DO.**



- 1 XR-35 features unitized construction. Magazine blimp is permanently attached to camera. The compact and light weight camera is stored, ready to shoot (except for lens), in one compact carrying case.
- 2 XR-35 has exclusive two-axis vari-pitch stroke adjustment. Internal threading knob is on movement shaft.
- 3 Crystal controlled motor, with sync and continuously variable speed capability from 4-32 fps.
- 4 Built-in filter wheel located forward of shutter with spaces for six selectable standard gelatin filters.
- 5 Quick-acting snap-latch on motor blimp housing provides fast access to motor and filter wheel.
- 6 Silent operation. No lens shroud required.
- 7 Normal and anamorphic viewing with Hi-Lo magnification, using large BFC-type helically adjustable eyepiece.
- 8 "Clam shell" opening at rear of low profile magazine blimp housing provides easy access for magazine loading, yet requires no side or headroom clearance.
- 9 Illuminated footage counter and bubble level, plus internal blimp work light.
- 10 New lightweight "QUAD" displacement-type magnesium 1000-ft. magazine, with quick-open cover and snap-latch hold-down for fast loading.

SERVING THE WORLD

alan gordon enterprises inc.



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

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

TWX: 910-321-4526 · Cable: GORDENT

The Cooke Varotal is the first motion picture zoom lens not to be designed on the principle of a bicycle pump.



The Universal Bicycle Pump: Highest quality for sucking in air and blowing it out.



The Taylor Hobson Cooke Varotal: sets new standards for pin sharp motion picture images from a zoom lens.

The Cooke Varotal is the world's first 35mm/16mm professional cine zoom lens to have a fixed front. So, to start with, you can fix matte boxes and filters direct to the front diameter.

Image quality? Pin sharp. 100 line pairs per mm optically on axis. 75 at the corners. Actually achieves such superb resolution with high contrast. It also holds perfect focus throughout the entire zoom even when you're shooting as close as 13 inches. And you can go as wide as 58°.

Meanwhile, it's the only zoom lens that zooms only when you want it too. Try throwing focus at wide angle. You get no zoom effect. We've also provided tapped holes and special diameters for attaching a support cradle and control mechanisms to the lens barrel so you don't distort the optics.

Rush me the literature about the Cooke Varotal and the Cine Varotal.

Name: _____

Address: _____



In the USA post to:
RANK PRECISION INDUSTRIES INC
 411 Jarvis Avenue,
 Des Plaines,
 Illinois 60018,
 U.S.A.

And when only the best 10:1 in the world will do, there's the Cine Varotal - 25-250mm

The Cine Varotal is ideal for long shots on location as well as the usual range of studio shots. Same colour rendition as the Cooke Varotal. Same sealed lens benefits.

Elsewhere in the world post to:
RANK OPTICS TAYLOR HOBSON
 P.O. Box 64,
 Stoughton Street,
 Leicester LE2 0SP
 England.

EDITING PROBLEMS COME IN 3 SIZES.

NOW THE SOLUTION DOES, TOO.

SMALL

Moviola M-84 2-Plate Editing Console. 16mm composite optical/magnetic picture head, 0-240 fps forward or reverse, digital counter. Masters to M-85 and M-77 with servo-tach system.



MEDIUM

Moviola M-85 4-Plate Editing Console. 16mm composite optical/magnetic picture head; interchangeable 16mm and 35mm sound modules for second set of plates; 0-240 fps forward or reverse, digital counter. Multi-track mixing capabilities. Masters to M-84 or M-77 with servo-tach system.

LARGE

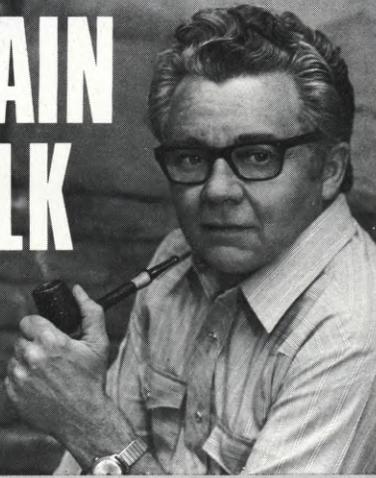
Moviola M-77 6-Plate Editing Console. 16mm composite optical/magnetic picture head; two sets of sound heads (16 or 35mm interchangeable modules). 0-240 fps forward or reverse, digital counter. Extensive mixing capabilities. Masters to M-84 or M-85 with servo-tach system.

CAMERA MART 
THE CAMERA MART, INC.

New York, N.Y. 10019 (212) 757-6977

SALES • RENTALS • LONG-TERM LEASES

PLAIN TALK



by *J. Carl Treise*

“Modular design works fine... if everything else is right”

We're hearing a lot these days about “modular design.”

It's a good concept. The manufacturer creates a basic “building block” and then repeats it as often as needed to get the desired result.

Modular design is ideal, because it's flexible. But, to work properly, it must have an equally flexible support system.

For example, if you want a processor with more film capacity, you add more tanks, right? — But that's not enough. In order for the unit to work properly, you must also lengthen the drive train, enlarge the drying capacity, add more power, etc.

Get the picture?

In other words, whenever a processor manufacturer changes the number or arrangement of modules, he has to change the support system itself to provide the proper base. If his system is flexible and designed so that parts can be added or removed without losing efficiency, you're in clover.

Otherwise, you'll pay through the nose for a good concept, but a lousy operating unit.

**TREISE
ENGINEERING, INC.**

1941 FIRST ST. • SAN FERNANDO, CALIF. 91340
PHONE: (213) 365-3124

QUESTIONS & ANSWERS

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



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

Q If an Ultra Panavision Anamorphic picture is shown not in this aspect ratio 2.75-1 but in 70mm in a theater with a 2.2-1 aspect ratio, is that the same 70mm print as the Ultra Panavision print?

A An Ultra Panavision Cinerama picture has been squeezed to a 1.25 anamorphic ratio. When properly projected on a 70mm projector, the projector lens, equipped with the proper anamorphic attachment, will unsqueeze this by the same amount. If, for some reason, an Ultra Panavision Cinemascope 70mm picture is projected without the anamorphic projection lens, the aspect ratio will be the same as any regular 70mm print, that is 2.2-1. However, it will appear squeezed in the ratio of 2.25-1.

An audience will doubtless accept an unsqueezed Ultra Panavision picture without too much objection since even when viewing normal pictures the majority of the viewers are seated off axis from the projector and the apparent squeeze (lateral compression) increases as the viewing angle increases. It is a cosin function. For example, a viewer 37° off the projection axis will observe an average compression or squeeze ratio of 1.25, a viewer at 40° off axis will observe an average compression ratio of 1.4.

Q Why can't black and white film be used for photographing cartoons by making separation negatives on the film, each color on the same progression, that is, one for the red record, second for green record and third for blue record of the one cartoon cell combination? These negatives could then be transferred by experts to economize on the cost of the original color negative. An alternate method is the old Thomas Color process.

A This concept has been successfully used when the Technicolor 3-strip cameras were few in number and difficult to obtain. At the present time, however, the problem no longer exists. Inherently, the successive exposure system requires three times as

much film footage to be purchased and developed as the color negative footage which is now available. In addition, the successive frame black and white negative images must be printed to either three separation films or optically printed to a duplicate color negative. The costs of these procedures are appreciatively more expensive than a color negative in the camera. This successive exposure method of using black and white film is currently being used to preserve selected color films for archival purposes where interest and money allow, because the current color negative and current monopack type print stock are both subject to color fading.

Regarding Thomas Color, the film area for each is 25 percent or less of the film area in the camera aperture. The problems of grain, resolution and registration when the images are optically printed make this system rather impractical.

Q I would like actual operating manuals which must have been issued for Vistavision and Technirama systems, or the name of those who published them and their titles?

A There were no operating manuals per se printed since these cameras were not for sale. Personnel using them were trained with the equipment by Paramount and Technicolor. The October, 1966 issue of AMERICAN CINEMATOGRAPHER contains an article by Walter Beyer, ASC presenting ASC Recommendation Number 12 on the Technirama and VistaVision Systems. The May 1956 issue of the JOURNAL OF THE SMPTE contains an article on “Paramount lightweight horizontal-movement VistaVision camera.”

Caution: If you desire practical operational units, make sure you have available, in addition to the camera body, the necessary film magazines, motors and lenses, etc. Technicolor did have a rather large sound-proof blimp, which, in turn, required a very heavy support. Are you sure you want to purchase and use one of these obsolete systems? ■

CLEAN answer prints from 7247 A&B Negatives

Take advantage of the excellent quality of 7247 negative without the fear of dirt, scratches, and cinch marks.

Du Art's unique computer system* of negative handling and timing keeps your negative in brand-new condition—

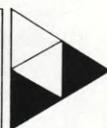
No Notches...No Metallic Tabs...Nothing touches your negative.

The proof is in the spotless condition of the answer print. But don't just take our word for it. Try it! You'll agree, there's nothing in the industry like it.

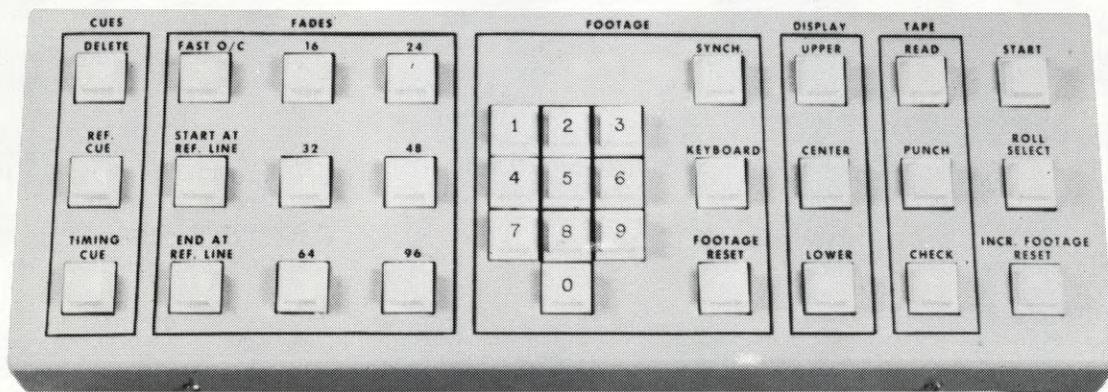
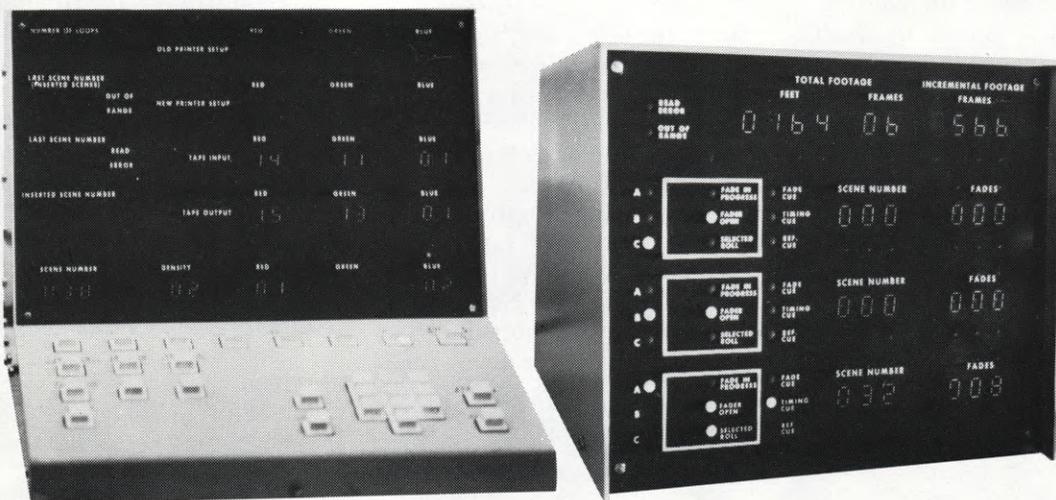
Call Bob Smith for further information.

*Pat. Pending

DU ART
FILM LABORATORIES, INC.



the CLEAN way to 7247 answer prints



Now in our 53rd year

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

MAKING IT IN FILM

Steve Spielberg

"I began as a filmmaker by shooting eight-millimeter home movies with neighbors and friends as cast and extras, writing my own scenarios, adding sound, exhibiting the product in a local auditorium. My first big home feature was completed when I was fourteen, and it went into profits the second night it showed, at a quarter a head.

"Now I'm twenty-seven, I've been directing or wanting to direct more than half my life, and the end result of any early success I've enjoyed is that I will spend the second half of my life giving interviews about how young I was when I started. So, forget along with me, and pretend that all those 'boy wonder' assignments were directed by old studio pros wearing short pants and beanies and pretending to be me.

"The only thing I remember for sure (besides that part about going into profits) is that I began by shooting with Eastman film, shooting eight millimeter, and moving up to super 8 and sixteen millimeter as I got older and could afford the technology. I still own a Kodak Ektasound



movie camera which I enjoy using for personal films.

"When I was shooting JAWS for Universal Pictures, Eastman film always came through. Even when a boat sank into the depths of Nantucket Sound, carrying a cast, crew, and Panavision camera. The magazine was recovered by divers, retrieved from the salt water, and hand-carried to a lab in New York in a bucket of fresh water. It was subsequently developed without incident into perfect negative material.

"After four months of shooting on open water, I only wish somebody would've carried Steve Spielberg to New York in a bucket of fresh water. It would've given me a new per-

spective on the film. I have never been seasick, but I have been sick of the sea.

"JAWS is a film about survival, and shooting on location at sea is a practical lesson in that complex art. Between winds and weather, tides, and complex special effects, we all learned about what it is to struggle against the immovable forces of nature. Sometimes nature would win; sometimes we would. The battle is recorded in the more than half-million feet of exposed film.

"It's more than letting the camera tell the story. It's letting the story tell the camera. It's my own desire to let the filming experience bring out aspects of my personality that I can put back into the picture to make it better.

"It's how I became a director —by wanting to be one, and by making movies. I've always wanted to do that, I started young, kept at it, showed my work, eventually was accepted on the strength of what I did. It's the basis of my advice to anyone who wants to be a film director—make home movies, learn from mistakes, ask, be judged on your ability; and when you're hired, it'll be on the basis of what you know, and what you've shown you know.

"Going into profits early doesn't hurt either."



On location with JAWS—the motion picture based on the best selling book.

Encouragement. That's what's behind every Eastman Kodak Company development. For a copy of this and other interviews with people in the moving visuals industry, free of charge, write:

Eastman Kodak Company
Dept. 640 YF, Rochester, N.Y. 14650

Name _____

Street _____

City _____

State _____ Zip _____

Norm Bleicher knows only one standard, Excellence

When it's time to rig his Coronado 25 for a Sunday afternoon sail, Norm Bleicher calls his years of sailing experience to the fore, checking wind direction and speed, improvising for unique conditions with his own special rigging. He knows when the mains'l fills and "Thrice" knifes cleanly through the waves, he'll get the best possible performance. The

same performance he expects from the equipment he handles as Corporate Sales Manager for Victor Duncan, Inc. And when special conditions call for improvising with lights and lenses, he'll rig the equipment to suit the job. Excellence . . . whether it's handling the tiller or a camera, it's the only standard Norm Bleicher knows. **And we're proud of it.**



Member Professional
Motion Picture
Equipment Association

VICTOR DUNCAN, INC.

Rentals, Sales, Service

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



. . . the check and double check people

CINEMA WORKSHOP



By ANTON WILSON

UNDERWATER III

Filming underwater is similar to filming in a dense smog. Suspended particles in the water cause many problems for the cinematographer. We have discussed the lighting problems to a certain extent, but these particles will diffuse the light source and kick back incident light into the camera much like headlights in a fog. The photographed image will also suffer a similar diffusion effect due to the underwater particles. The effect, again, is similar to photographing in a dense fog. As distance is increased between subject and camera, the subject will lose resolution and saturation. At distances considered normal on the surface, subjects underwater could be totally indistinguishable.

Which brings us to point number one: work as close to the subject as practical so as to cut through a minimum of suspended particles. This brings us to point number two: a wide angle lens must be employed to take in all the action at these close distances. The beginner who goes down with a normal or telephoto lens will most likely come back with either murky ghost-like images in the distance or clear sharp pictures of earlobes and eyeballs.

Choosing underwater optics requires the cinematographer to shift his thinking to the short focal lengths. Thus, in the 16mm format an 8mm to 10mm lens would be considered a "normal" lens, while a 16mm lens would be considered a "telephoto". For a wide-angle effect, a 5.9mm would have to be employed. Likewise, in the 35mm format an 18mm objective would be considered "normal", a 28mm lens would perform the telephoto function while a 9.8mm lens would be considered a "wide angle". In general, almost all underwater shooting could be accomplished with an 8mm lens for the 16mm format and a 18mm for the 35mm format.

When a closeup is required, the camera rig is just brought in tight with the "normal" lens. About the only reason for going to a longer focal-length would be an extreme close-up where the presence of the camera rig would block the light or cast a shadow.

Such a shot might be a cutaway of a wrist watch or pressure gauge, etc. A telephoto might also be appreciated when the subject is less than friendly, such as a killer shark.

There are other reasons for employing wide angle lenses underwater. The refractive index of water is 1.33, which will make objects appear 25% closer than they actually are. This will effectively *increase* the apparent focal length of a lens. The use of wide angle lenses will neutralize this phenomenon. The short focal length objectives will also minimize the visual effect of camera unsteadiness. Of course, wide angle lenses also minimize hand-held unsteadiness on the surface, but camera unsteadiness seems to be a consistent problem underwater.

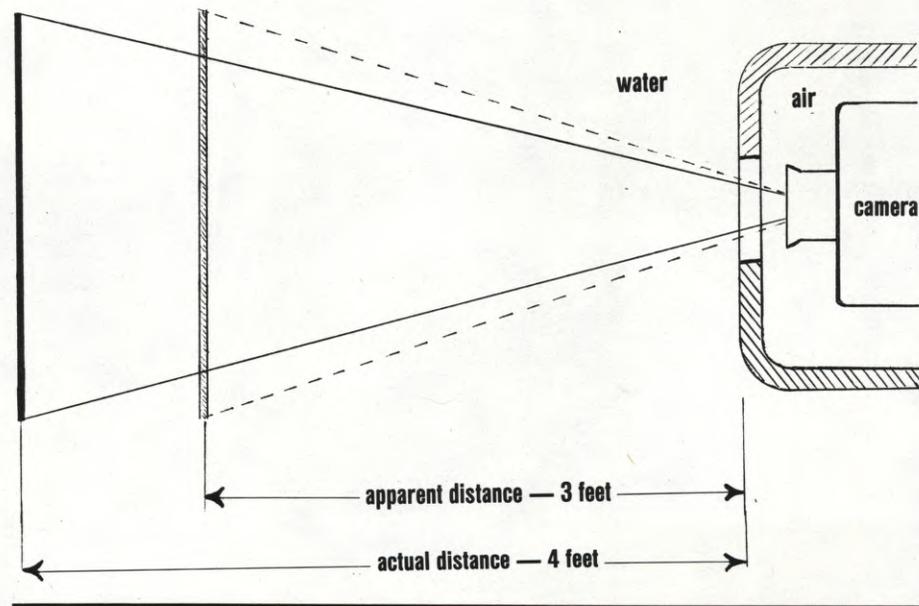
The fact that water has a refractive index of 1.33 will also affect focus calculations. As stated previously, objects will appear 25% closer. This poses no problem if the distance is approximated visually, as the observer and camera lens are similarly affected. The cinematographer can just set the

lens to the distance where the object *appears* to be (as if he were on the surface). Similarly, a reflex camera will be focused in the normal fashion. However, if a tape measure is employed, the lens must be set to only 75% of the indicated distance.

One last point. The colors of costumes and props should be chosen with care. Poor judgment here could completely negate all other efforts for good underwater footage. Stay away from reds and oranges as they will quickly desaturate at even minimum depths. They will appear mud-brown or even black. Bright chrome yellow will show up best. Bright greens and blues also work well. Pure white usually produces less than ideal results, due to a halo or haze effect.

In summary, film in as shallow an area as possible (10' to 25' ideal), the clearest water, use a wide angle lens and stay close to the subject (7-15 feet), film at 22 fps, chose good colors for subjects and make sure your laboratory is proficient in correcting underwater footage. ■

FIGURE 1 — Diagram illustrating the difference between the refractive indexes of air and water. The refractive index of water is 1.33, which makes objects appear 25% closer than what they are. This will effectively increase the apparent focal length of a lens. The use of a wide angle lens will neutralize this phenomenon, as well as allowing the underwater cameraman to work closer to his subject, thus minimizing the effect of particles suspended in the water.



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

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

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

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

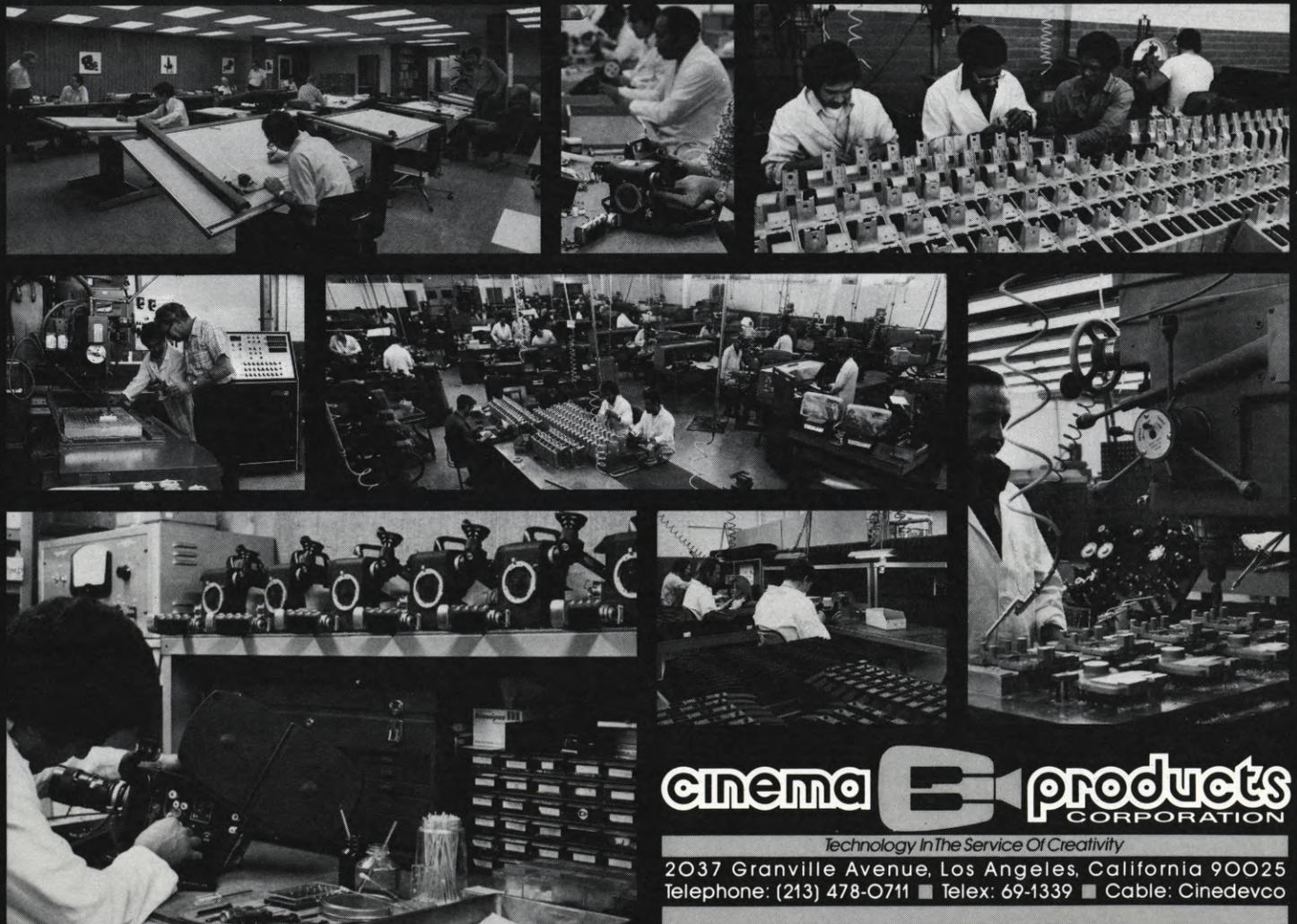
With more than 2000 reflex and non-reflex cameras actually delivered in a mere three years, our CP-16's have already proven themselves in the field beyond any question.

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

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

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

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



cinema E products
CORPORATION

Technology In The Service Of Creativity

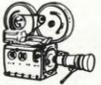
2037 Granville Avenue, Los Angeles, California 90025
Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

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

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



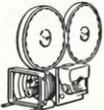
CINE-VOICE II
100 FT. RUNS 2-3/4 MIN.



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

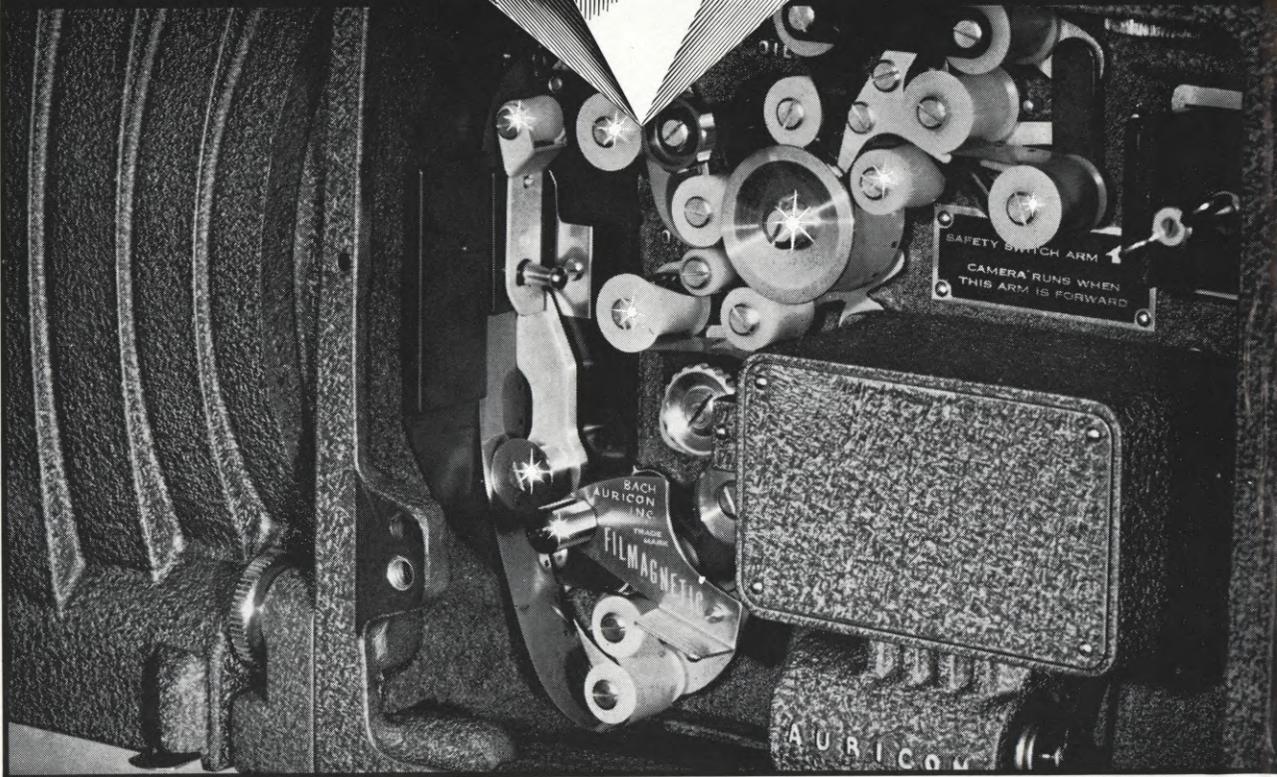


AURICON "PRO-600"
600 FT. RUNS 16-1/2 MIN.



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

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



GUARANTEE

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



WRITE FOR
YOUR FREE
COPY OF THIS
74 PAGE
AURICON
CATALOG

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

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

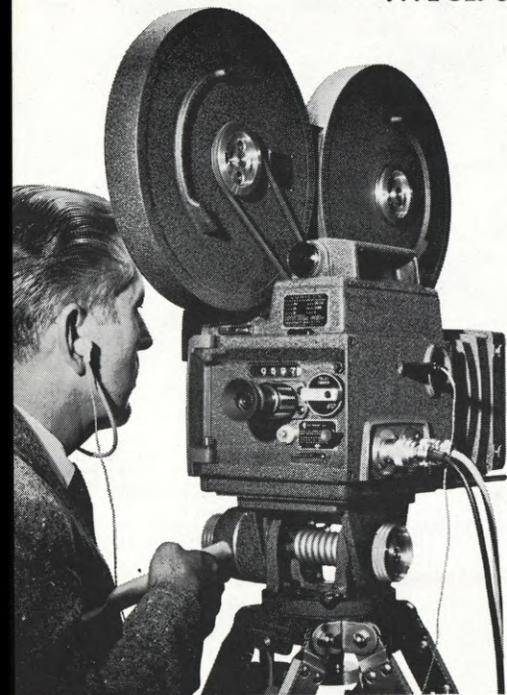
The Auricon "Super-1200", like all Auricon 16mm Professional Cameras, is a superb picture-taking instrument. Every precision-engineered part of this finest of all 16mm Cameras is carefully built and assembled with the rare watch-maker skill of old-world craftsmanship, combined with modern, space-age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

BACH AURICON, Inc.

6902 Romaine St., Hollywood 38, California
HOLLYWOOD 2-0931



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



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

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

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

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

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

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

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

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

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



CINE 60
INCORPORATED

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

Rebate Discount Rebate Discount Rebate

**Rebate — Discount
You Name It!
Whatever you call it
we're sure you'll say
it's the best buy**

CAMERAS MAGNASYNC MOVIOLA TRIPODS MAGNECORD
GOSSEN AKG CINEMA BEAULIEU ARRIFLEX
ELECTRO VOICE SHURE BIRNS & SAWYERS VEGA
SONOREX NAGRA SPINDLER & SAUPPE SENNHEISER
AUDIO TELEX MILLER GRAFLEX
AURICON DALITE NIKON GUILLOTINE
WOLLENSAK
ARRIFLEX 16S/B-GS 7,375.00
with 10/100 Zeiss Vario Sonnar Lens
STS INVENTORY REBATE 2,212.50
CASH PRICE **\$5,162.50**
ARRIFLEX 16 S/B 6,120.00
with 12/120 ANGENIEUX LENS 1,836.00
STS INVENTORY REBATE
CASH PRICE **\$4,284.00**
CANON SOUND SCOOPIC 200 SE 6,795.00
COMPLETE SET 1,000.00
STS INVENTORY REBATE
CASH PRICE **\$5,795.00**
CANON SCOOPIC 16M CAMERA 1,810.00
COMPLETE SET 515.00
STS INVENTORY REBATE
CASH PRICE **\$1,295.00**

**CELEBRATING OUR 40th YEAR OF SUPPLYING OUR
CUSTOMERS WITH PROFESSIONAL EQUIPMENT AND SERVICE —
CONTACT US FOR DELIVERY AND PRICES FROM OUR LARGE INVENTORY!**

Standard Theatre Supply

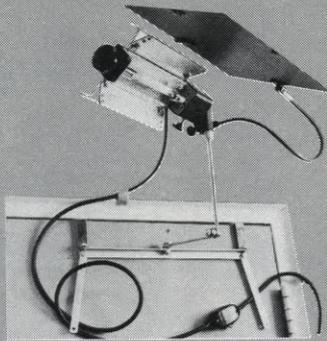
**CINEMATOGRAPHY and AUDIOVISUAL
SALES—SERVICE—RENTAL**

125 HIGGINS STREET, GREENSBORO, N. CAROLINA

(919)272-6165 — 1-800-632-0225(N.C.) — 1-800-334-0201 (S.Ohio,S.C.,Va,W.Va,Tenn,Del,D.C.,Ga, Md.)

Member Professional
Motion Picture
Equipment Association
pmpea

Location lighting's not what it used to be.



Tota-Light: new flexibility in mounting and control.

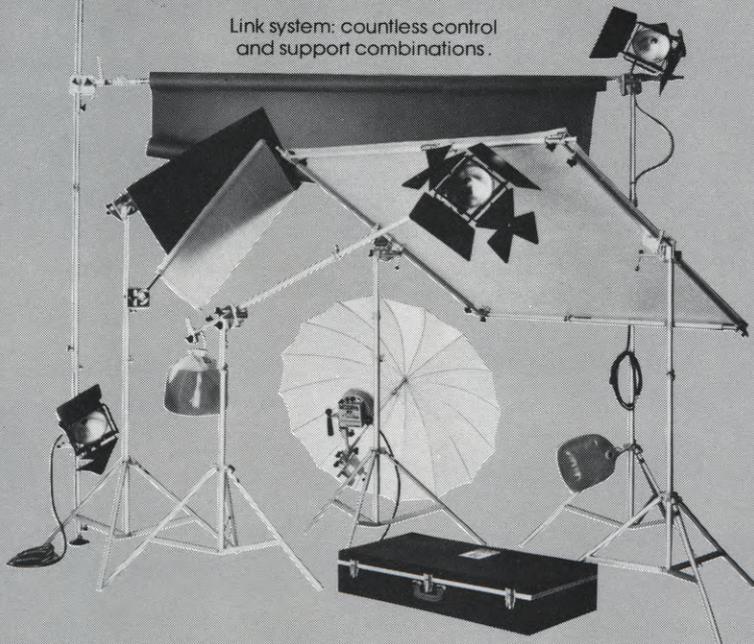
Location lighting imposes a number of unique requirements for well-thought-out, durably-built equipment. Over the last fifteen years, Lowel systems have proven themselves in a wide variety of applica-

tions in motion pictures, still photography and video. And, in the process, changed location lighting from a compromise to a creative tool.

Tiny Tota-Light. More than a small 1000, 750 and 500-watt light with an ultra-wide, even pattern: it's the first professional quartz light built like a system camera, with lock-on mounting and control accessories.

Modular Link System. Solves grip and control problems as they occur on location. Rugged, light-weight components interlock to form flags, booms, diffusers...dozens of other rigs. Outstanding stands: with unusually high strength-to-weight ratios.

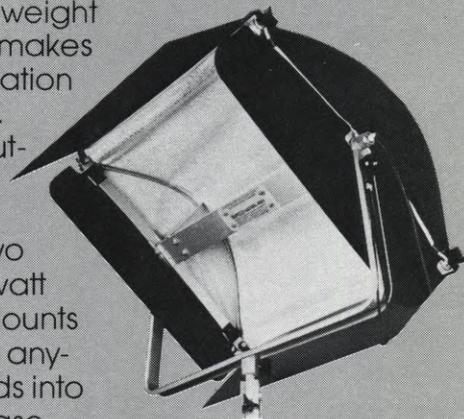
Link system: countless control and support combinations.



Variflector II: the only roll-up, flood-out reflector.

Folding Softlight 1500. Only a fraction of the weight of studio units, it makes soft-shadow location lighting a reality. Delivers more output than most 2K softlights

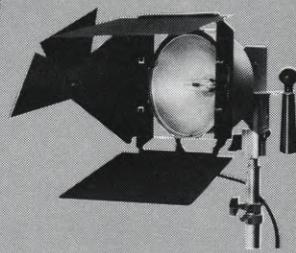
with two 750-watt lamps. Mounts or clamps anywhere...folds into compact case for travel.



Softlight 1500: the large, soft-shadow source that fits in a small case.

Roll-up

Variflector II. The only truly portable, professional reflector. Complete flood control through 3:1 ratio, to adjust brightness and spread. Rolls up to fit in compact case with stand.

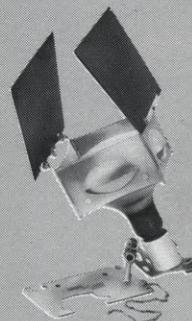


Quartz "D": 7:1 focusing plus high intensity.

Workhorse Quartz "D". Studio versatility in a compact, light-weight focusing unit with wide (7:1) spot/flood ratio and inter-

changeable 1000, 750 and 500-watt lamps. Quick-change accessory-reflector system transforms it from a versatile general-purpose light to a high-intensity, long-throw source.

Lowel-Light. The tape-up, clamp-on light that helped change the industry's approach to location lighting, and introduced Gaffer-Tape™. Some of the original units are still going strong, after 15 years of rental.



The Antique.

For more information on Lowel products see your dealer or contact us.

lowel 

421 West 54th Street, New York, N.Y. 10019 (212) 245-6744
West Coast 3407 West Olive Avenue,
Burbank, Ca (213) 846-7740

Ever have one of those days when nothing seems to go right?

It's times like that when you can really appreciate a continuous film processor that won't add to your problems.

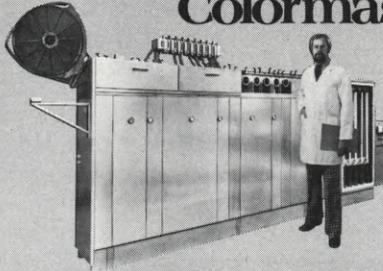
We've been making dependable processors since the 1930's. And our latest Houston Fearless Advanced Colormaster processors for ECN II are no exception.

In fact, they contain the same *tried and true* components found in Advanced Colormaster processors for color positive, reversal and intermediate films and Advanced Labmaster processors for black and

white motion picture film and microfilm.

Same components, different arrangement. A unique component construction

Advanced Colormaster™



Houston Fearless®/Technology Incorporated
Products

concept makes it possible.

For the full story on our quality stainless steel construction and reliable workings, call the Marketing Department at (213) 479-3941.

Then you can go out and watch a good disaster film without worrying about a *film disaster* in your processing equipment.

Technology Incorporated,
11801 West Olympic Blvd.,
Los Angeles, CA 90064. Cable
address: TECHINCLA; TWX:
910-342-6899. In Canada, Braun
Electric Canada Ltd., Ontario.

Avoid disaster.

Ask for your big
free full-color
"Disaster" poster.



Professional eyes can't be fooled.

A professional can see through anything that isn't up to professional standards.

And what a professional sees in GEVACOLOR TYPE 985 Print Film meets and surpasses even his most critical requirements in a print film. Because Agfa-Gevaert has a tradition of providing only the highest quality professional material.

GEVACOLOR TYPE 985 Print Film provides the professional with a product that consistently delivers pin-point sharpness and honest reproduction from originals. And it's

fast and problem-free in every lab using current processing methods.

GEVACOLOR TYPE 985 Print Film has earned the reputation of being "technically perfect" throughout the world. It's just one more example of Agfa-Gevaert's top-grade materials for television and cinematography. For professional eyes.

If you'd like to know more about our Motion Picture products, write to: Motion Picture Department, Agfa-Gevaert, Inc., 275 North Street, Teterboro, N.J. 07608.



SYSTEMS FOR PHOTOGRAPHY • MOTION PICTURES • GRAPHIC ARTS • RADIOGRAPHY • VISUAL ARTS • REPROGRAPHY • MAGNETIC RECORDING

CELLULOID SHEEPSKINS

The coming of age of the movies as an established academic discipline is seen in the publication by Arno Press of doctoral theses on a wide range of cinematic subjects. Here are seven recent ones.

In PUDOVKIN'S FILMS AND FILM THEORY, Peter Dart assembles significant materials on the Soviet director's creative techniques. (\$12.)

Albert Edward Benderson uses a psychoanalytical viewpoint in CRITICAL APPROACHES TO FELLINI'S "8½", a study of the director's personality as expressed in the film. (\$12.)

The story of the American Film Manufacturing Co., active between 1910 and 1921, is engagingly told in THE SILENT PARTNER by Timothy James Lyons. (\$14.)

In BOSLEY CROWTHER: SOCIAL CRITIC OF THE FILM, Frank Eugene Beaver praises the influence on cinema of the reviewer-emeritus (1940-1967) of the *N.Y. Times*. (\$10.)

Paul W. Facey's THE LEGION OF DECENCY is a sober study of that organization's activities as a pressure group to control movie content. (\$11.)

An authoritative study by Louis Harris Cohen, THE CULTURAL-POLITICAL TRADITIONS AND DEVELOPMENTS OF THE SOVIET CINEMA 1917-1972 surveys Soviet film history in its broad societal impact. (\$35.)

In BROADWAY AND HOLLYWOOD, Robert McLaughlin documents and assesses the economic interaction of stage and screen. (\$16.)

MOVIES AND THEIR MAKERS

The Arthur Freed Unit at MGM, fountainhead of Hollywood's greatest musicals, comes to life in all its glory in Hugh Fordin's THE WORLD OF ENTERTAINMENT!, a superbly documented and perceptive study of a unique achievement in the annals of the industry and of the gifted man who brought it off. (Doubleday \$15.)

A panoramic view of a major Hollywood studio, Charles Higham's WARNER BROTHERS traces the achievements of Sam, Albert, Jack and Harry Warner in a lively and fascinating tale with an all-star cast. (Scribners \$9.95)

Exploring the rich and largely unexplored world of grade B (and C and Z) movies, Todd McCarthy and Charles Flynn have compiled KINGS OF THE Bs, a revealing anthology of articles about a segment vital to the Hollywood economy (production and distribution) and significant in its wide popular appeal. (Dutton \$12.50/6.95)

THE BOOKSHELF

By GEORGE L. GEORGE

Visually appealing and extensively documented, Herman G. Weinberg's STROHEIM: A PICTORIAL RECORD OF HIS NINE FILMS offers over 200 stills of the films Stroheim directed between 1919 (*Blind Husbands*) and 1933 (*Walking Down Broadway*), plus Weinberg's incisive and scholarly observations. (Dover \$4.95)

In THERE MUST BE A LONE RANGER, Jenni Calder offers a well-informed and thoughtful study of the interplay between the historic reality of the American west and its representation in movies, two contrasting worlds that are both part of our national mythology. (Taplinger \$8.95)

Joan Mellen's VOICES FROM THE JAPANESE CINEMA offers a series of probing conversations with top Japanese directors and, through their eyes, a compelling view of a country striving to achieve a contemporary image out of a burdensome feudal past. (Liveright/Norton \$12.50)

THEY SHOOT ACTORS . . .

. . . don't they? At least, cinematographers do, and thereby make a unique contribution to the image of popular performers.

Charles Higham's KATE is an expertly written account of Katharine Hepburn's acting career, and a skillful and sensitive portrait of a sparkling — yet very private — personality. (Norton \$7.95)

A well-rounded and informative portrait, JACK NICHOLSON FACE TO FACE features probing interviews conducted by the authors, Robert David Crane and Christopher Fryer, with Nicholson's directors and fellow-performers. A detailed filmography is appended. (Evans \$9.95/5.95)

Juliet Benita Colman's book of very personal reminiscences about her father, RONALD COLMAN, evokes with dignity and candor the romantic personality of the actor. (Morrow \$7.95)

A controversial biography that the actor tried to stop, CAGNEY by Michael Freedland is an exciting story where the life and career of the popular actor are recounted in appropriately dramatic style. (Stein & Day \$8.95)

Actor, filmmaker, playwright and

comic genius, Woody Allen is observed at close range in a delightful, hilarious and perceptive book, ON BEING FUNNY: WOODY ALLEN AND COMEDY by Eric Lax. (Charterhouse/McKay \$8.95)

In BODY AND SOUL, Larry Swindell writes a poignant biography of the tough and tender John Garfield, an intense personality whose political naïveté cost him his life. (Morrow \$8.95)

In BRANDO, David Shipman writes effectively of the rise, decline and renaissance of a superbly trained and impressively gifted actor. (Doubleday \$7.50)

An attractive portrait gallery, James Mercer's GREAT LOVERS OF THE MOVIES surveys 23 of the handsomest male stars from Douglas Fairbanks to Robert Redford, with superb photographs and detailed bio-filmographies. (Crown/Crescent \$5.98)

DATABANK BOOKS

With a remarkable display of genuine erudition and good taste, Nancy Warfield offers three useful and appealing monographs: THE STRUCTURE OF JOHN FORD'S "STAGE-COACH", an expert study of filmic architecture; NOTES ON "LES ENFANTS DU PARADIS", an original perspective on the Carné-Prévert movie classic; and ALAIN DELON AND "BORSALINO", dealing with the actor's career as it culminated in this picture. (Cinemabilia Bookshop, 10 W. 13 St., N.Y.C. 10011 \$4.95 ea.)

A knowledgeable selection of 500 movies less than 60 minutes, THE SHORT FILM has been compiled and annotated by educator George Rehauer, an authority on the subject. Fully cross-indexed, this is a highly useful critical guide. (Macmillan \$12.50)

Film lovers of every kind will be delighted with the entertainment provided in THE MOVIE BUFF'S BOOK, Ted Sennett's attractive potpourri of articles, stills, quizzes and puzzles about all-time screen favorites. (Pyramid \$3.95)

Reissued in an imposing 450 page paperback, THE WORLD ENCYCLOPEDIA OF THE FILM, edited by Tim Cawkwell and John M. Smith, is a comprehensive reference work with over 2000 cross-indexed entries. (A & W Visual Library \$7.95)

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

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

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

Professional "High Fidelity" Sound

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

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

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

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

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

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

Continuously Variable Power Zoom

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

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

Macrocinematography (Special Effects)

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

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

Fully Automatic Exposure Control

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

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

Lens Interchangeability

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

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

HERVIC CORPORATION
14225 Ventura Boulevard
Sherman Oaks, California 91423



The Beaulieu "5008S" Sound Movie Camera

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

CP-16 cameras are designed and manufactured by:



**The great CP-16
& 16R Cameras:
Where you
choose to buy it
is as important
as why.**

Trade Up to a CP-16
We offer a liberal trade-in
allowance on your Cinevoice
conversions and other cameras.

Seattle or Sarasota, Chicago or
Cheyenne, *anywhere* in America.
F&B/Ceco will deliver a CP-16 camera
right into your hands. At the best price
you can get anywhere.

The fabulous CP-16 and CP-16R
need very little introduction. They are
the choice of professionals for just about
every kind of news and documentary
assignment, as well as for legitimate
feature production.

And F&B/Ceco is the ideal
source for these cameras. We're Factory
Authorized dealers with our own
staff of expert technicians and our own
complete maintenance and repair
department.

So now that you have a choice
of dealers for the great CP-16 & 16R
cameras, there's no other choice:
F&B/Ceco.

Write or call for brochures.
Put us on your bid list.

We want you to come back.



SALES - SOS DIVISION

315 West 43 St., New York, N.Y. 10036 / (212) 586-1420
7051 Santa Monica Blvd., Hollywood, Calif. 90038 / (213) 466-9361
Phone Toll Free (800) 223-5829. In New York State Phone Collect (212) 586-1420

PEOPLE

QUALITY

SERVICE

The three ingredients that make a great lab. MPL has an abundance of all three. People with years of film experience dedicated to serving your needs. Quality of unmatched excellence throughout the industry. Service that's fast, accurate, personal. At MPL we care... about your film... your deadline... your budget... and you.

PROCESSING: B & W Reversal, B & W Neg/Pos, Color ECO and EF, Color Interneg/Pos, Reg. & Super 8, also

SOUND: Original Recording, Rerecording, Mixing, Interlock Screenings, Sound Optical Transfers, Music Libraries

PRODUCTION SERVICES: Editorial, Conforming A/B Rolls, Tinting, Film Treatments, Film Lubrication, Scripting

PRINTING: B & W Interneg/Pos, B & W Reversal, Color Interneg/Pos, Kodachrome Prints, Ektachrome Prints, Printing Masters, Reg. & Super 8, also

SPECIAL SERVICES: Color or B & W Videotape to Film Transfers, 35 mm to 16mm Optical Reductions, 16mm Optical with Effects, 16mm to 8mm Reductions

EQUIPMENT SALES/RENTAL: all types 16mm Professional Camera equipment and supplies. Call us.

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

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



**MOTION PICTURE
LABORATORIES, INC.**

**781 South Main Street
Memphis, Tenn. 38101
(901) 774-4944**



Patek-Phillipe watch courtesy of Donovan & Seamans Company, Los Angeles, California.

Somebody has to set the standards ... and in post-production, it's CFI!

Like the world renowned Patek-Phillipe watch, CFI has become legend in *its* chosen field. No less than 10 Academy Awards have *verified* our creative achievements for laboratory excellence — for engineering, technical merit and overall contributions to industry progress.

What is not so well known is our prowess in *all* post-production work. Our videotape division features the very latest in sophisticated equipment and technical

expertise. We're unsurpassed in film strips and slides as well as in titles and opticals. And no other sound studio anywhere has more stature than Glen Glenn Sound.

So CFI, The Big Hollywood Laboratory, besides being tops in leadership and equipment, boasts a wealth of talent wide and deep in every facet of post-production. All with one-stop service, under one roof. Try us!

CFI CONSOLIDATED FILM INDUSTRIES

Home Office: 959 Seward Street, Hollywood, California 90038 • (213) 462-3161

the 'head' man



AT THESE NCE DEALERS

Camera Mart

456 W. 55th St., New York, N. Y. 10019

Victor Duncan

676 St. Clair St., Chicago, Ill. 60611

Victor Duncan

11043 Gratiot, Detroit, Mich. 48213

Victor Duncan

2659 Fondren Dr., Dallas, Texas 75206

Galaxy Film Service

3000 France Ave., Minneapolis, Minn. 55416

Alan Gordon Enterprises

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

Helix

679 N. Orleans, Chicago, Ill. 60610

Oscar H. Hirt, Inc.

41 N. 11th St., Philadelphia, Pa. 19107

Mobius Cine Ltd.

7 E. 47th St., New York, N. Y. 10017

Photomart

6321 S. Orange Ave., Orlando, Fla. 32809

Export Distributor

Cinecraft International

11 Caesar Place, Moonachie, N. J. 07074

Erwin Harwood, the genius product-designer-president of NCE is best known for his 'heads'. Seven of them. His patented line of Hydrofluid tripod heads can't be equalled for creamy smooth movement. Starting with a 4½ pound lightweight wonder that will support your lightweight wonders (up to 20 pounds), to a 30 pound MASTER that can turn a 150 pound monster into a pussy cat.

And NCE is not just THE source for Hydrofluid tripod heads. There's a unique cradle Gear Head, really great Hydrodollies, and innumerable tripod adaptors, bases and cases. But don't take our word for all these NCE wonders. Visit one of our dealers and see for yourself or write for literature to the head man, Erwin Harwood.

nce

national cine equipment, inc.

4140 Austin Blvd., Island Park, N.Y. 11558



Tel: (516) 889-4600

BARGAINS *at* **Birns & Sawyer**



Now Only
\$18.95

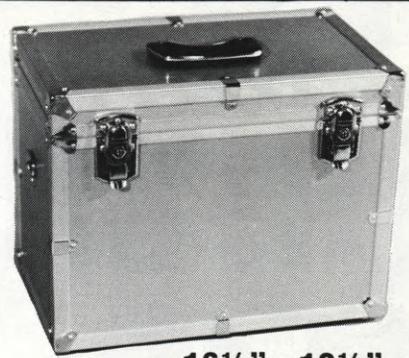
Directors Chairs

Sit on a bargain. Be an instant director for only \$18.95. Selling nationally for \$34.95. Selected hardwood and custom dyed canvas seat and back. Overall size 24" x 33", seat height 17". No charges, please. Best Director Chair in Hollywood. Limited time only (while they last)!

Carrying Cases

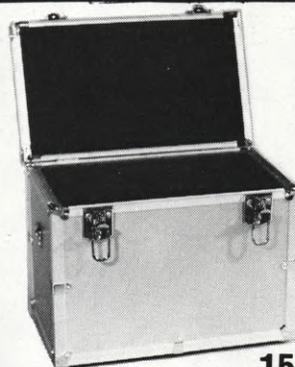
The new B & S heavy-duty reinforced aluminum carrying cases are light but rugged and they're beautifully fitted. Foam insulation assures maximum protection for valuable cameras and lenses against heat, cold, shock, vibration, dirt and moisture. These ingenious foam-lined, plan-it-yourself cases are made of reinforced aluminum. Interiors may be custom fitted to your own space and equipment requirements. Comes with sturdy mouldings, corner braces, maximum security locks, foam cutting knife and broad shoulder straps. Specially priced startlingly lower than manufacturer's suggested list prices.

BIRNS & SAWYER, INC.
940 N. HIGHLAND AVE. 1026 N. HIGHLAND, LOS ANGELES, CA 90038
(213) 466-8211 • CABLE: BIRNSAW-HOLLYWOOD • TELEX: 673280



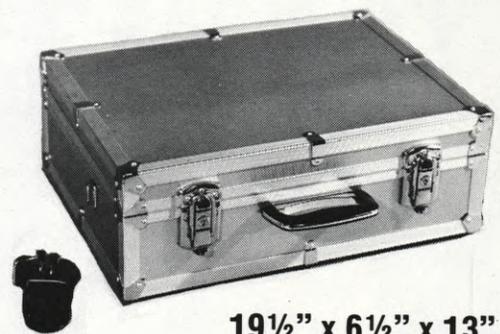
16½" x 12½" x 10"

Regular \$84.50 Now Only **\$57.46**



15½" x 10½" x 8"

Regular \$72.50 Now Only **\$49.50**



19½" x 6½" x 13"

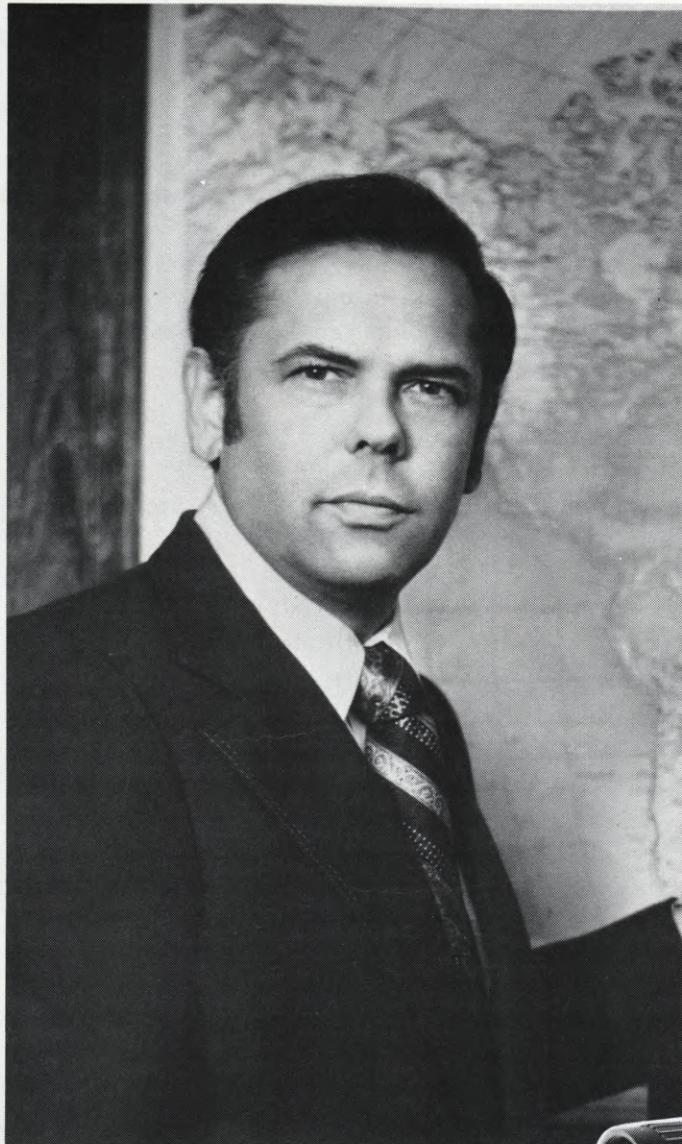
Regular \$73.95 Now Only **\$49.95**



15" x 6" x 11½"

Regular \$66.50 Now Only **\$45.25**

Grant Loucks talks about angenieux service...



Grant Loucks, President
Alan Gordon Enterprises, Hollywood, Calif.
Providing world wide service in sales, rental,
maintenance and manufacturing of
professional motion picture equipment.

...“Everyone knows that sales without service is the fastest way to devastation for a company, regardless of what the product may be. Certainly in the cine equipment business that is absolutely true! At Alan Gordon Enterprises, all of our rental equipment, as well as our new sales inventory, is in top shape, ready to go without delay. We spend a lot of money keeping it that way! When it comes to optics, there is only one company we know of that we can rely on to back up their product with proper service when it is needed and that’s Angenieux! We have worked out a service program with Angenieux that ensures us of having all of our lenses in new working order all of the time, regardless of when the lens was originally purchased. We also know that when an emergency arises, we can depend on Angenieux to service our lenses quickly and properly, installing all new factory replacement parts. This is important to us and our customers. We cannot afford to have a customer return to us a second time after having his lens “fixed” once. Angenieux service will always inform us if they feel additional work is required. By providing all new replacement parts, we can feel secure that our lenses will not only perform properly but will continue to do so for a long time to come.

All of us at Alan Gordon Enterprises know that we are backed up by the finest optical service facilities in the world when we rent or sell an Angenieux lens— that’s why we do so— so often.”



9.5-57mm
f/1.6-2.2

angenieux corporation of america

ISLIP AIRPORT, BOX 340, RONKONKOMA, N.Y. 11779 • (516) 567-1800
13381 BEACH AVE., VENICE, CALIF. 90291 • (213) 821-5080

CUT YOUR PRODUCTION COSTS WITH NEW EASTMAN 16mm COLOR NEGATIVE TYPE 7247

AS THE MID-WEST'S FIRST LABORATORY TO PROCESS EASTMAN COLOR NEG II, WE'D LIKE TO SHARE SOME FACTS WITH YOU.

FACT: Color Neg II is 4 times faster than ECO. Available light situations on location no longer limit conception or production techniques.

FACT: Midwest Producers claim up to 50% saving in set-up time for lighting, plus reduced equipment rental costs, cables, bulbs, etc.

FACT: The film's grain structure and improved sharpness, translate into better resolution on the TV tube.... 16mm prints transferred to tape have 35mm telecast quality at reduced production cost.

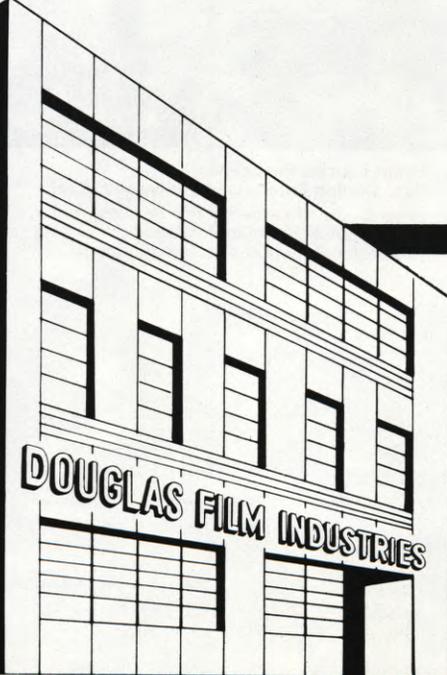
FACT: Ratings of ASA 200 (normal 100) are used without force processing. Our latitude in printing this negative easily picks up this extra stop.

We have other facts and most important, first-hand experience on how this new photographic tool can benefit you and your customer.

Shoot Eastman Color Neg II on your next job. Send it to us for processing. We're ready when you are.



DOUGLAS
FILM INDUSTRIES
10 W. KINZIE ST.
CHICAGO, ILL. 60610
AREA 312-664-7455

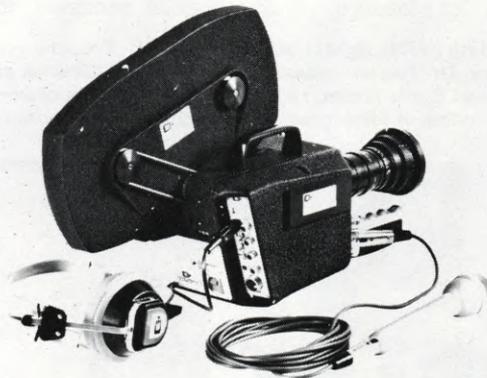


DOUGLAS FILM INDUSTRIES

There they go...



...The obvious replacement



Member Professional
Motion Picture
Equipment Association
mppea

**ALAN GORDON
ENTERPRISES INC.**

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

CP-16

VICTOR DUNCAN, INC.

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

cinema
E Technology in the
Service of Creativity
products
CORPORATION

**THE
CAMERA MART, INC.**

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

WINNERS OF FIRST ANNUAL AMERICAN SOCIETY OF CINEMATOGRAPHERS AWARDS FOR BEST PHOTOGRAPHED COLLEGE FILMS FETED IN HOLLYWOOD

A.S.C. Members and their guests gather to honor young film-makers who were finalists of competition in which each college or university selected from its student films the one featuring the best cinematography

By HERB A. LIGHTMAN

On the evening of May 21st last, Denis Mayer, a recent graduate of San Diego State University, was named winner of the first annual American Society of Cinematographers award for the best photographed college film of 1974.

Gregory Peck presented Mayer with a specially-created lucite and gold trophy for his work as cinematographer on the 25-minute color film, "NEGATIVE IMAGE" (see Page 772), which was screened for the awards banquet audience following the presentation at the A.S.C. Clubhouse in Hollywood. Additionally, a trophy was presented to Dr. Hayes Anderson of San Diego State, honoring the university which produced the winning film.

Four other nominees for the prestigious award were given plaques of achievement by A.S.C. President Lester Shorr. These were Samn Holcombe, Florida State University, for the film, "GAPS OF SILENCE"; Richard Fee, New York University, "BELLIGERENCE"; John Sharaf, UCLA, "AND I DON'T MEAN MAYBE"; and Vince Dyer, California Institute of the Arts, "WRITER'S CRAMP".

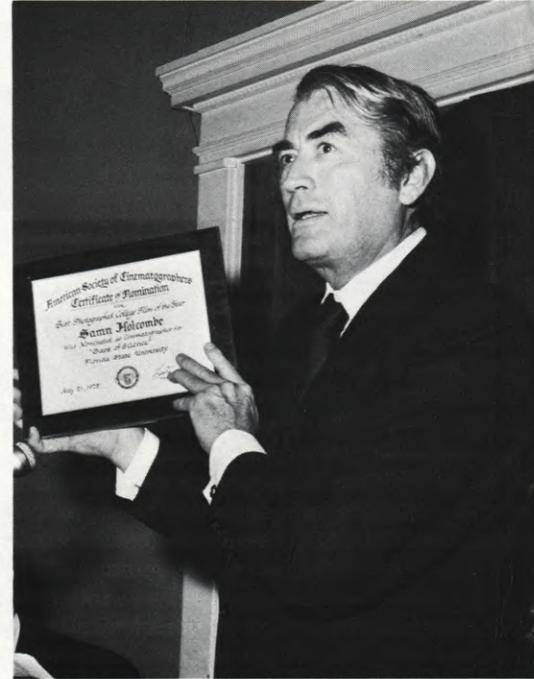
An official photograph for the record, including (left to right) Lester Shorr, ASC, President of the American Society of Cinematographers, Dr. Hayes Anderson, Professor of Cinema at San Diego State University, Gregory Peck, and Denis Mayer, recent Cinema graduate of San Diego State, who won the top award as Director of Photography of the 25-minute student-produced color film, "NEGATIVE IMAGE".

Famed comedian Edgar Bergen, who for many years has been an Associate Member of the American Society of Cinematographers, served as master-of-ceremonies for the gala event, convulsing the audience with his quips and clever ventriloquist routine.

Nominees for the coveted award were chosen by a 24-member A.S.C. judging panel from a total of 40 entries, each of which had been submitted by a college or university as its best-photographed student film of the year. The winner was then selected in a vote of the entire A.S.C. membership. Of the five films in the final voting, all but the UCLA entry were in color.

Honored guests at the awards banquet included Paul Beeson, BSC, of London, past president of the British Society of Cinematographers. Mr. Beeson was in Hollywood to attend the Emmy Awards presentation, having been nominated for that award for his work as cinematographer on the seven-hour TV special, "QB VII".

In his opening remarks, A.S.C. President Lester Shorr said, "Good evening, ladies and gentlemen. It is indeed a pleasure, on this special occasion, to



Academy Award-winning actor/producer, and past President of the Academy of Motion Picture Arts and Sciences, Gregory Peck, shows those attending the banquet one of the plaques awarded all five competition finalists.

extend a warm welcome to our honored guests, who are all around me, to the ladies and gentlemen of the media, and to the large turn-out of our own membership. For us at the A.S.C., this is a notable event, because it marks the presentation of our first annual College Film Award, created to honor the best achievement in cinematography among college film-makers . . .

"From its inception, the A.S.C. has always been interested in encouraging young and enthusiastic students of cinematography. Our magazine, *American Cinematographer*, is widely accepted and read by students and young film-makers the world over, and our photographic manual is used as a textbook by students in many of the film schools. Many of our members have conducted seminars and lectures at colleges and universities throughout the country, passing on their know-how in the profession to film students."

Mr. Shorr then introduced A.S.C. past president Ernest Laszlo, who said, "I am very pleased and happy that the





(ABOVE LEFT) Chairman of the Society's Awards Committee, Stanley Cortez, ASC, explains how the student-produced films in competition were selected and the awards voted. (RIGHT) Famed comedian/ventriloquist Edgar Bergen, for many years an Associate Member of A.S.C., adds his scintillating wit to chores as Master of Ceremonies at the Awards Banquet. (BELOW LEFT) Gregory Peck, who presented the top awards, comments on the importance of such competitions to the future of the film industry. (RIGHT) The San Diego State University winners of the top award, Dr. Hayes Anderson and student cinematographer Denis Mayer.



idea of this competition was conceived early in my administration. Now that the child has been born, I want to tell you that it has many, many fathers. This is not a night to pat ourselves on the back, but I want to express my gratitude and thanks to our judging committee of 24 members, and particularly to the chairman of that committee, Stanley Cortez, and also to our public relations representatives, Ormond & Nicholson. They all worked very hard to make this event possible. Thank you very much."

Mr. Shorr next introduced Stanley Cortez, who said, "In accepting your applause, I am taking a bow for all those concerned — my colleagues, the staff and certainly John Ormond and

Continued on Page 827

Gathering at the A.S.C. Clubhouse in Hollywood to judge the student films entered in the competition, the 24-man jury is briefed on the rules of judging by public relations consultant John Ormond. The jury, comprised mainly of A.S.C. Active (cinematographer) Members, put in an entire day of viewing and judging. All of the jury members viewed each and every film in competition.



THE FILMING OF "NEGATIVE IMAGE"

A behind-the-scenes glimpse of the making of the film produced by students which won the First Annual American Society of Cinematographers Award for best cinematography in a college film

By DENIS MAYER
with WAYNE KENNAN

Students specializing in film production in San Diego State University's Department of Telecommunications and Film are required to take a course in advanced film production as a requirement for their bachelor's degrees. This was one motivation behind the production of "NEGATIVE IMAGE". However, our production team of Joseph Jordan, Bill Hall, and myself, Denis Mayer, also wanted to produce a film that would demonstrate our various abilities — to serve as a visual resume of our college work.

It wasn't long after we began discussing ideas for the film that we realized we all couldn't produce and direct. Since Bill Hall had come up with the basic plot of the film, he assumed the role of producer. Joe Jordan expressed a desire to direct, and I looked forward to handling the cinematography. Wayne Kennan, who had just completed a twenty-minute film a few months earlier offered his assistance on "NEGATIVE IMAGE", and since his speciality was lighting, his assistance was greatly appreciated. Although we had given ourselves certain titles, the film was very much of a collaborative effort and, as with virtually all college films, we all did a little of everything on the film.

The story is a suspense drama centering on a student who fantasizes himself destroying the university's computer center in violent protest. Subsequently, however, he awakens to find violent destruction is inconsistent with his true values. Following this storyline, "NEGATIVE IMAGE" was shot entirely on location and 90% of its shots were night interiors. To gain access to the computer center and classroom locations we had to adopt a set-up and shooting schedule of 11 p.m. to 4 a.m. for much of the film.

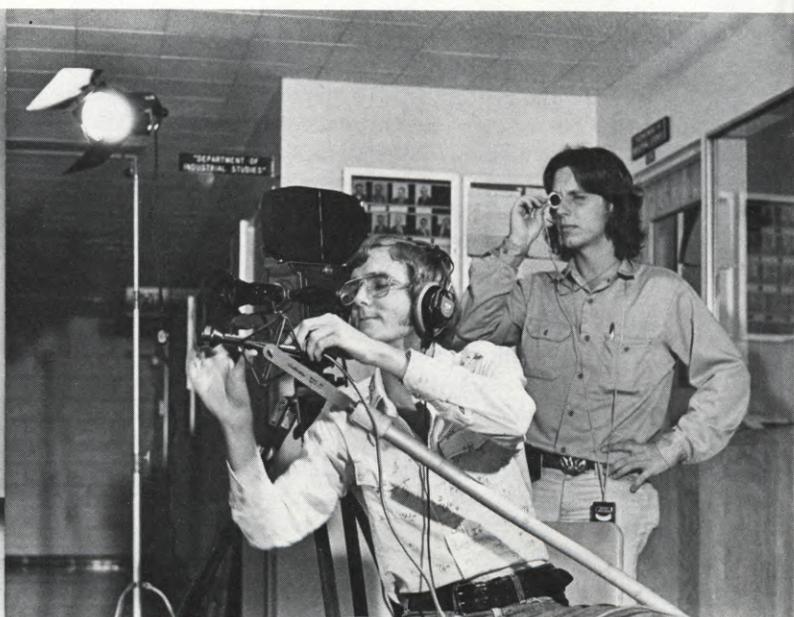
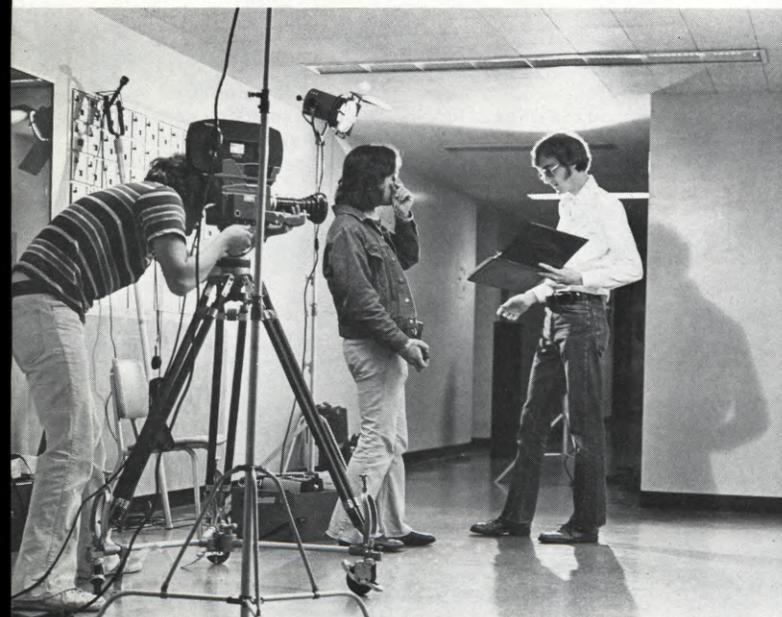
Of the equipment available to us from the university, we chose to work with three cameras. Our primary camera was an Auricon Pro-600 with an Angenieux 12-120mm lens. The Auricon had been converted for double-system use. For many of the exteriors and other locations where self-contained power was needed, we used a Beaulieu R16B, again with the Angenieux zoom. On our more rugged locations, such as the beach exteriors, we used a motor-drive Bolex H16 Rex with a Pan Cinor zoom. For the lighting equipment, we had access to several Colortran location lighting kits. These kits contained two 1K Multi-10 focusable spots and three 1K broads per kit. There was really no other means of light control, other than barn-

doors and screen scrims.

When it came to deciding what film stock to use we had to take into consideration the location problems and the lighting equipment available to us. We had three to four of the Colortran location lighting kits available, but not really a sufficient amount of power to handle more than several units at a time. For these reasons we eliminated ECO 7252 because there simply wasn't enough light to work with any flexibility in f-stops, even when the stock was pushed a stop. We also had to eliminate 7254 and 7247 color negative because of the expense involved, especially in having the lab cut it. We decided to use EFB 7242 post-flashed to lower its contrast and bring out shadow detail. Its ASA of 125 allowed us to shoot the interiors generally around f/4.5. This stock was also mandatory for our night exteriors where we had to under-crank to 12 f.p.s. on some of the static shots.

"NEGATIVE IMAGE" presented us with some challenging lighting problems. For a start, a good number of scenes took place in areas where the subject moved 50 to 75 feet. For those shots where actors had to move down long, low-ceilinged hallways, this meant we had to inconspicuously hide our 1K lighting units in doorways and around

(LEFT) Setting up to shoot in the corridor of the computer center at San Diego State University. Denis Mayer sets the Auricon Pro-600 camera, while gaffer Wayne Kennan discusses a problem with producer Bill Hall. (RIGHT) Hall, switching hats, puts in a stint as sound man, while Kennan checks his lighting. Although definite assignments were made initially, as it turned out, everybody did a bit of everything on "NEGATIVE IMAGE".



corners. Of course, since all of the hallways contained fluorescent lights, we had to keep them off to avoid the blue-green cast they create.

Lighting sequences that took place in the elevator presented one of the more interesting problems. There was no source of AC power available in the elevator to operate lighting units or our Auricon 600. Since it would have been virtually impossible to record sync sound in this extremely "live", echoey elevator, we shot these sequences with a Beaulieu R16B and looped the sound. But that still left us with a lighting problem. We solved this by using a Colortran Mini-pro operated from a battery pack, and bounced lighting off some made-on-the-spot reflectors. Since the Mini-pro was battery operated, we had to shoot quickly and we kept it off when not in use in order to avoid the inevitable red shift as the batteries ran low.

Lighting the night exteriors was also challenging. Where actors were involved, the mood allowed the use of very low key lighting, which heightened the dramatic effect. However, lighting the entire front exterior of a large building was a different matter. Here we needed a reasonably flat illumination of the building so that we could photograph it in wide shot some distance away. This required spacing ten 1K's down the length of the four-story building. With all of these lights we were still shooting wide open at 12 f.p.s. In another instance of shooting a building in long shot, we simply had to shoot dusk-for-night to record it on film, and this turned out to be one of our best exterior shots.

(LEFT) when not actually engaged in filming a scene, cinematographer Denis Mayer repeatedly rehearsed the compound camera moves. **(RIGHT)** Wayne Kennan's lighting expertise was highly appreciated, especially in the long hallway sequences. The only time period when the crew could shoot in these areas was between 11 p.m. and 4 a.m. Joseph Jordan, the film's director, was continuously behind the scenes, keeping the actors on their toes and preparing them for upcoming scenes.

At one point in the film our actor, Dave, stops to look into an empty classroom on his way to plant his bomb in the computer center. To clearly show that the classroom was deserted because it was late at night was a bit tricky, until producer Bill Hall agreed to hang out of a fourth-story window with a 1K on a pole. This light was used to shine through the venetian blinds of the adjacent classroom to simulate moonlight. This effect would have been very straightforward and simple if not for the fact that we were four stories off the ground.

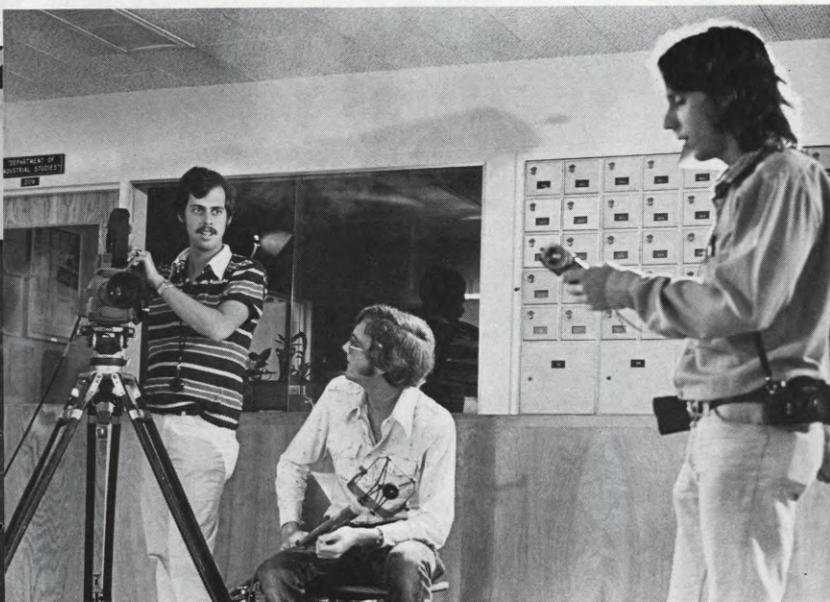
The apartment sequence, where Dave is building the bomb while the camera explores the room and its contents to reveal something of his character, gave us a chance to try some different lighting techniques. The room was small with a rather low ceiling, so we used quite a bit of bounce lighting. This worked out fine for the pans, tilts, and zooms around the bookcases and walls of the room. For Dave, though, we wanted his key light source to be below him, as if reflected off his desk by the table lamp. For this we used a reflector below the desk and at a slight angle. This somewhat unnatural effect fit the mood as we had hoped. When Dave exits the room he turns off the lights, but the camera holds on an antique gold clock, so a crew member stood outside the room and shined a flashlight on the clock. The speed of the film allowed us to pick up just a bit more than the highlights, which helped make an effective dissolve to the following night exterior.

One scene in "NEGATIVE IMAGE" gave us headaches for several weeks. It



In accepting his trophy at the A.S.C. Awards Banquet, Mayer gave full credit to his colleagues, emphasizing that the winning film was very much a collaborative effort.

occurs during the sequence where Dave is disarming the bomb. Had the bomb been real it would have been detonated by a capacitor discharging into a homemade blasting cap. At a critical moment in Dave's disarming
Continued on Page 815



PHOTOGRAPHING "THE INVISIBLE MAN"

Photographing "The Man Who Wasn't There" adds up to an interesting challenge for cinematographer who thought he'd shot about everything

By ENZO A. MARTINELLI, ASC

Director of Photography

When I first received the assignment to serve as Director of Photography on Universal Television's "THE INVISIBLE MAN", a 90-minute World Premiere feature (and basis for a projected new TV series) starring David McCallum, I knew it would be an interesting challenge — but the immensity of that challenge (as things turned out) was something I had no way of foreseeing. It was an entirely new experience for me, involving a blend of original film and tape-to-film transfers to be directly intercut, and the application of a combination of sophisticated tech-

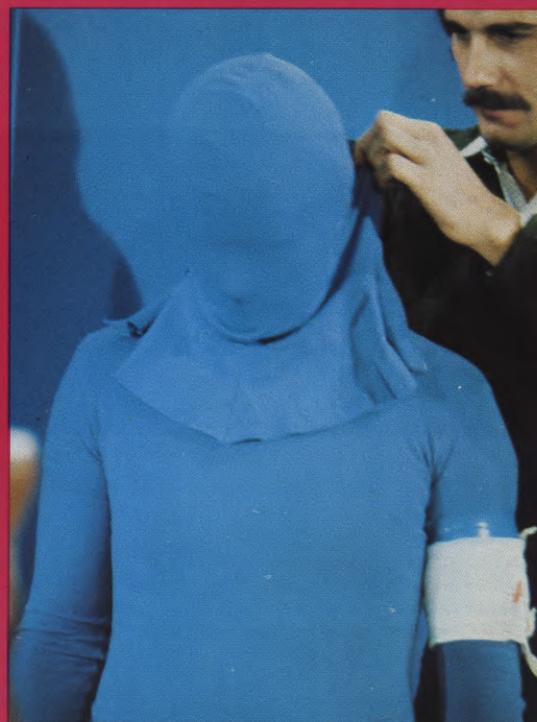
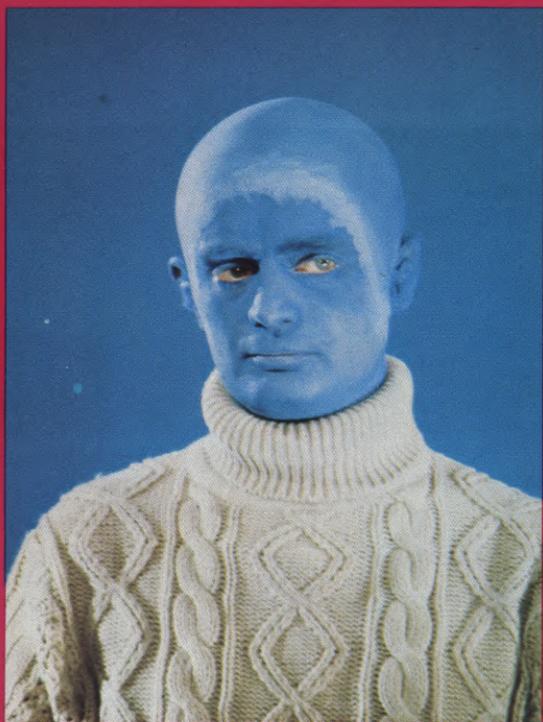
nologies that had never before been used in production.

All of this apparently worked out fine, because the program was aired on May 6 over the NBC Television Network and drew such favorable audience and critical response that the television series to be based on it was given the green light for production.

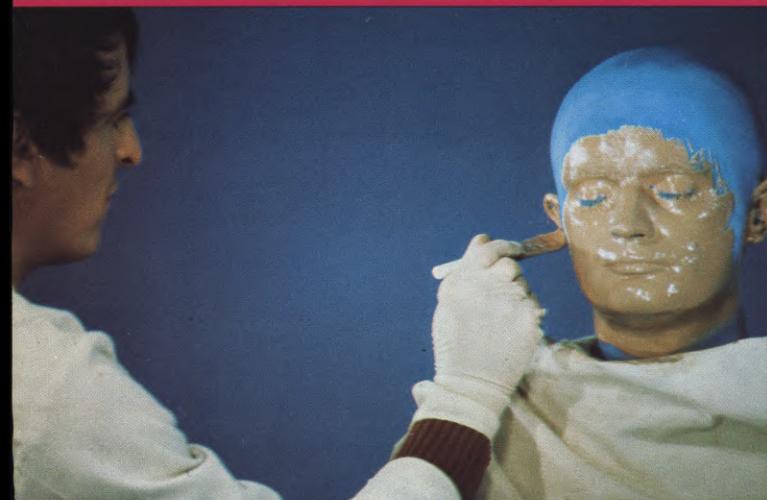
The visual requirements and special effects lined out for the current version of "THE INVISIBLE MAN" were much more ambitious and demanding than those featured in the original production by Universal of the H.G.

Wells classic, which starred Claude Rains in the barely perceptible title role back in 1933.

The initial intent was to shoot the entire production in 35mm Eastman Color Negative, using a combination of such conventional film special effects as: traveling matte, black velvet, blue screen and double exposure. Tests utilizing these methods involved film that was duped and re-duped, the final results being somewhat less than satisfactory. Consequently, the entire staff began looking for an alternative method, exploring such video tech-



The method used for shooting the special effects that enlivened Universal's World Premiere features (soon to be a TV series), "THE INVISIBLE MAN", had an element in common with both the film blue screen matting method and television Chroma-key in that it involved a blue set and (in this case) a blue actor. (ABOVE LEFT) David McCallum playing the title role wears blue makeup and latex cap. His eyes will show up when they are open. (Note bandage on his arm.) (RIGHT) A blue hood blanks out his eyes, as well as the rest of his face. (BELOW LEFT) Actor playing doctor paints liquid latex on the invisible man's face to give it form. (RIGHT) He pantomimes inserting contact lenses to make his eyes visible.





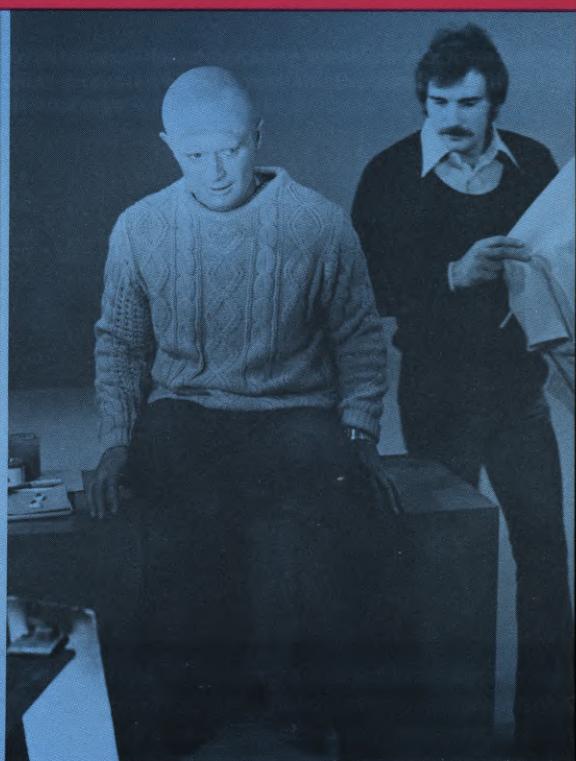
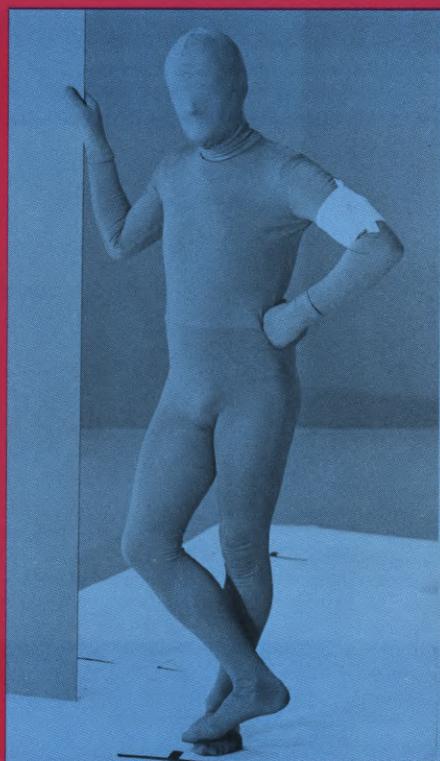
(LEFT) Actors play drinking scene in front of blue screen. **(RIGHT)** An approximation of how the action looks in composite form, when electronically joined with image of the real set. However, this composite was photographed off a monitor tube using incorrect color emulsion and has not been color corrected. The same scene correctly rendered on tape and carefully transferred to film by Image Transform looks completely realistic and sharp, with true color values.

niques as the widely used Chroma-key and the quite new Magicam (See *American Cinematographer*, January 1975), before deciding upon a technique combining Compact Video and Image Transform technologies.

The system was tried out on all the most difficult effects called for in the script, such as the sequence where David McCallum starts out with blue makeup on his face and his doctor friend paints his features with a flesh-colored liquid makeup to make them visible. The results on tape were terrific, and the tape-to-film transfer was excellent. When I viewed it in the projection room I could not fault the quality. Everyone said: "That's it! We've got it now."

Whereas these initial tests had been made with static cameras, tied down to be rock-steady, we knew that in order to have camera flexibility that would permit panning, tilting and dollying, synchronous gearheads for the pairs of camera involved would have to be developed. This was done and the new, refined system was tested on one of the most spectacular effects indicated in the script. There is a sequence in which an invisible McCallum, barefoot and dripping wet, runs down a sidewalk, leaving only a trail of bare footprints to show where he had trod. We had originally planned to make the footprints appear by means of a conventional "wipe" effect. I suggested shooting a plain sidewalk, then running somebody through with wet bare feet, then "wiping" the footprints onto the sidewalk. But they were unable to come up with a satisfactory wipe; you could see the bar traveling across the film — so that was cancelled out.

When it came to making a test on this scene with the proposed new system, what they did, in effect, was the same thing: a "wipe". We shot the straight sidewalk, then put the footprints in, and covered it with a piece of blue cloth.



(LEFT) David McCallum wearing the blue body stocking which renders him completely invisible, except for the bandage on his arm. The only lighting problem was occasionally caused by wrinkles in the body stocking creating shadows that showed — easily remedied by pouring on a bit more light. **(RIGHT)** With his blue makeup and white sweater, only the sweater will show on the screen — provided that he keeps his eyes and mouth shut. **(BELOW)** Lighting equipment and blue props on the blue set where the trick action was shot.





Transferring positions of the actors, furniture and props from the "real" set to the "blue" set required considerable "surveying" to insure proper alignment. As shown here, angles and distances from the Compact Video camera on the real set were precisely measured, then taken to the blue set and duplicated in relation to the second Compact Video camera located there. The two cameras were carefully matched for lens angle and height, and then were locked into synchronization for any camera movement, such as panning or dollying, that might take place.

Next, we slid the blue cloth off, exposing the footprints one by one and making them appear to be walking down the sidewalk. We were able to pan with the edge of the blue cloth as it was slid back to expose the footprints, making it seem as though we were panning the invisible feet of the main character as he walked down the sidewalk leaving wet footprints.

The test involving this particular scene was so satisfactory that it was actually used as one of the cuts in the film. Other tests with the two completed synchronous gear heads were only partially successful. Some electrical (magnetic) backlash occurred when panning or changing direction. However, it was promising enough for the producer to give the go-ahead to start shooting with this system.

Filming the special effects scenes with the video technique described

involved the use of two sets, each of which was shot with its own separate video camera. One was the *actual set*, which was designed and constructed like any conventional set, with very real furniture, props, etc. Then there was the *blue set*, which was backed by a large monochromatic-blue cyclorama and duplicate (in size and general shape) furniture and props, also painted in the same light monochromatic blue.

When the system was properly balanced by the video engineers, anything on the blue set that was blue would remain invisible, while anything that was *not* blue appeared as visible. The signal from the video camera viewing the blue set would insert anything that was not blue into the signal from the second video camera, which was framed on the actual set. Thus, an object, face or body that was *not*

painted blue could be made to appear realistically in the actual set, provided that positioning, aligning and panning of the separate cameras were matched and synchronized precisely.

By using monochromatic blue makeup, blue body stockings, etc., *parts* of a body could be made to move around the actual set. Thus, a sweater or trousers that the "invisible man" was wearing to make himself partially visible, could be made to walk and move in the set, play the scene, etc. This composite picture was first recorded on video tape and later transferred to film.

Since the blue set was like a "blue ocean", with its large curved backing and floor in front, all painted blue, transferring positions of the actors, furniture and props from the real set to the blue set required considerable "surveying" for proper alignment. Distances and angles from the actual set video camera were precisely measured, then taken to the blue set and duplicated in relation to the second video camera, located there. The two cameras were carefully matched for lens angle and height and then locked into synchronization for any camera movement, such as panning or dollying, that might take place.

Since the video requirements for matching weren't as strict as ours usually are in working with film cameras, the video people were able to match by merely viewing through their finders. They could rather loosely match one video camera to another, and this was reasonable enough for them. But when it came to matching action to be transferred from the blue set to the actual set, I would call for much more accurate alignment. We had to match lens heights precisely; we had to get the fields of the respective lenses properly matched and locate the blue mockups of furniture accurately against the blue cyclorama. We had no point of reference, so we had to start at one corner and lay out everything in proper relationship to match what was shown in the actual set. By using little black cards and pieces of tape we were able to align important pieces of furniture, important "corners" of the set, the centers of chairs (for sitting down and standing up purposes) and footmarks for the actors. This made it possible to rehearse the action in the actual set and then transfer it over to the blue set — either putting both actors in the blue set or one man in the blue set and the other in the actual set.

The sets for the film — the real sets, that is — were dressed long in advance. Then they made plywood boxes to match the furniture in size and general

form and painted them blue, so that the transferring of action involving the real furniture to the blue set was merely a matter of moving these blue boxes and placing them properly in relation to the camera. That's all there was to it. The people walked around these boxes and parts of their bodies were blocked off by them, just as they should be. In fact, one of these boxes would act as a matte. If you walked around in back of it, the box would matte you off, just as a true chair or desk would.

Makeup played a very important part in successfully producing the illusions necessary for "THE INVISIBLE MAN". According to the story line, the scientist, played by David McCallum, is initially made invisible by exposing himself to the rays of a large laser-like ray machine — and regains his "visibility" by injecting himself with an antidote serum.

After trying this act once (both disappearing and reappearing), he finds that the invisibility comes on spontaneously and that the antidote no longer overrides the effect. On top of that, he destroys his original machine to keep it from falling into the hands of the military. So now he's stuck with what seems like permanent invisibility.

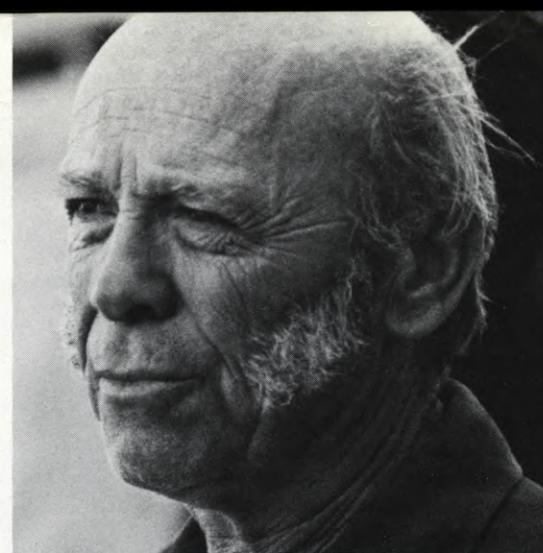
He appeals for help to a doctor friend of his who, being a plastic surgeon, just happens to have developed a liquid

rubber kind of substance which he can paint on McCallum's features (in a big-head closeup) to make them visible and life-like. He supposedly adds a wig to complete the illusion. Later on, McCallum tears this mask and wig off in order to become invisible again; that's a continuing gag throughout the film. The main problem was what to do about the eyes, and here McCallum himself came up with a brilliant idea. He suggested that they fake putting in so-called contact lenses that would make his eyes visible, when desired, but could be popped out when he wanted to become invisible.

In shooting the scene, he faked putting these contact lenses in one at a time, simply by being in blue makeup and opening first one eye and then the other, after which his doctor friend starts painting on the liquid that makes the rest of the head become visible.

It is at the beginning of the picture that we first encounter the invisible man, and it's there that most of the special effects gags take place. Our invisible man has been wounded by a blind man who thinks he intends to rob him, so now he seeks aid from his doctor friend. He goes to the hospital (which is where we see his wet footprints) and watches his friend, operating on someone.

It is late at night and he remains



Veteran Director of Photography Enzo Martinelli, ASC felt that he had photographed just about everything — until called upon to photograph "The Man Who Wasn't There."

completely invisible, following his friend out to his car. They have a little scene in the parking lot, which is the only way his friend knows he's there. He feels him as he falls against his body. The invisible man is wounded and weak from the loss of blood. Of course, when anything comes out of his body, it becomes visible, so we see drops of blood falling here and there.

The doctor takes him to his home and brings him into his little

Sketches by Art Director Frank Smith, relating to the sequence in which the invisible man goes to his doctor friend, a plastic surgeon, for help in making him temporarily visible. The doctor paints his face with flesh-colored liquid latex, which solidifies into a flexible mask and which, with the aid of a hair piece and contact lenses, makes him appear normal — when he wants to. When he doesn't, he simply removes the mask, hair and contact lenses.



180 NICK IS SMEARING LIQUID LATEX ON MIKE'S FACE
NICK: THIS STUFF JUST MIGHT DO IT ETC.
MUSIC IN



180 A MIKE'S VOICE: MUFFLED IT FEEL WEIRD



KOB NICK: IT'S GONNA LOOK WEIRD TOO UNTIL I START TO WORK WITH IT... AT



180 C MIKE: MUFFLED VOICE
WHAT WILL MY SWEAT DO TO IT... -KT

TAPE-TO-FILM "TRANSFORMING" FOR "THE INVISIBLE MAN"

The objective was to effect a transfer from video tape to film of such high quality and resolution that it could be readily intercut with original 35mm film—and they did it!

By L. JAMES SHEPHERD

Background

In recent years, the techniques for producing motion picture film from recorded television material have been advanced to such a degree that it is now possible to intercut selective TV scenes directly with film footage. While film is a very capable medium in the hands of a skilled director and crew, there are instances when the new techniques available with a television

approach can materially improve the speed and quality of a production. One such example is the creation of special effects.

Image 655 and the "Invisible Man"

In November of 1974, Image Transform Inc. was approached by the production company for "THE INVISIBLE MAN" in the interest of determining if TV techniques would be

advantageous in their contemporary version of H. G. Wells' basic theme. A series of evaluation tests were performed by Image in technical association with Compact Video Systems using "Image 655", a special television format developed by Image Transform for theatrical film transform use. When shooting TV for film intercutting purposes, it is necessary to employ the most rigorous of technical



Going!, Going!, Gone! One of the more startling effects from "THE INVISIBLE MAN". (LEFT) David McCallum, playing the title role, has made himself invisible with a laser machine and reversed the effect by injecting a serum. Hiding out in a motel room, he begins to feel strange. (RIGHT) As he looks in the mirror, he realizes, to his horror, that his flesh is starting to fade out, becoming translucent as it gradually disappears.

(LEFT) Now his flesh has completely disappeared and only his clothes remain visible. This effect was made possible by dressing him in a green sweater and keying the electronic system to a yellow spectrum close to a flesh tone, so that only that color would be affected. (RIGHT) Shooting on the blue stage, which is what makes the whole thing possible. The box-like shapes are used to accurately duplicate the size and shape of real pieces of furniture in the real set.





(LEFT) The actors play their scene on the blue set, against the blue backing. (RIGHT) The electronic camera #2 is picking up the real set, and the two are electronically fused, as in this photograph taken off the monitor tube. This new technique, a combination of Compact Video and Image Transform technologies, makes possible a vast array of effects that can be produced easily on tape and transferred to film, but which would be expensive, time-consuming and/or impossible to achieve if originally shot on film.

standards for the television equipment. From a subjective point of view, the very best quality TV will intercut very well as a transform with closeups and medium two-shots, but as the field of view widens the resolution deteriorates and intercuttability suffers. Since television cameras do not have the contrast handling capability of the film medium, it is necessary to employ a smaller lighting ratio in order to retain a film look. Television cameras typically employ built-in image enhancers for improving apparent resolution; these devices must be used minimally when film transform is to be employed, as they produce exaggerated, unnatural, sharply defined, heavy edges when transformed to film and projected. Problems like these require that care be exercised in choosing a responsive facilities company which is willing to produce samples of test material prior to the actual shoot. An adequate pre-shoot test period is perhaps the single most important insurance against serious last-minute quality problems. In this case, the subjective evaluation tests for the TV effects in "THE INVISIBLE MAN" also served to identify equipment problems.

TV Special Effects

Once the cameras had been examined and found to be acceptable during the testing, the main effort was devoted to problems dealing with the electronic special effects. In "THE INVISIBLE MAN" the basic technique employed is a high-resolution version of the familiar blue-matte or "chroma-key" approach, with a foreground scene in a blue background set being matted into a conventional back-

ground (non-blue) set. The technique of matting in television is implemented in a way similar to that accomplished with film techniques, in that very careful attention must be devoted to the matter of creating a lighting scheme that minimizes shadows in the blue areas, yet will permit interaction between moving objects in the foreground or background set. A tele-

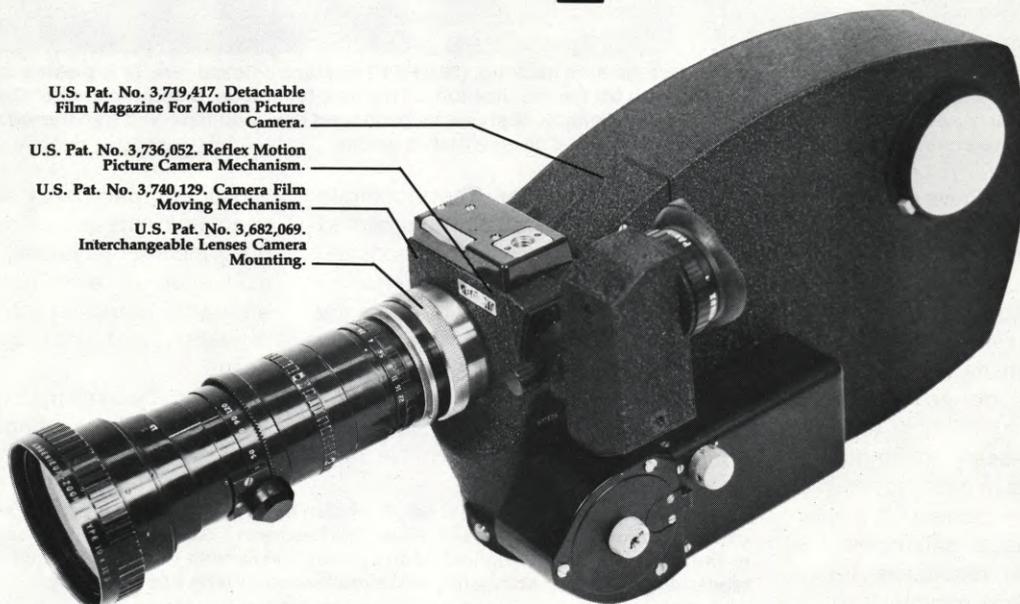
vision approach was an obvious advantage for these blue-matte scenes, in that instant technical or directorial evaluation of a complex scene was easily accomplished, both during rehearsal and after completion of a scene.

Image Transform has developed a high-resolution matting device having
Continued on Page 846

The camera working in the real set, as shown here, must be very precisely aligned with the #1 camera working on the blue set. When this has been accomplished, the #2 camera is "slaved" to the #1 camera by being locked in synchronously with it, after which all pan, tilt and dolly movement will occur accurately and simultaneously with both cameras.



The people who develop the ideas hold the patents.



Anyone can claim to have exclusive features and new ideas.

But we have the patents to prove it.

In fact, the French Eclair ACL is protected by four separate U.S. and International patents held by Eclair International of France.

There is one patent on the reflex mechanism and another on the film pull-down claw. These two features make the ACL quieter and simpler. And the simplicity makes the ACL reliable, quick to service and lightweight.

There is also a patent on the interchangeable lens mount. This feature allows you to use lenses with any of the well-known professional mounts. Including, of course, the heavy-duty Eclair bayonet mount. Since the bayonet mount is both precise and rugged, you can use zooms and other long or heavy lenses without any other lens support. There is also the added versatility of a "C" mount. So, instead of mere adaptors, the ACL has a true universal lens mount.

Finally, there is a patent on

the instant snap-on, co-axial magazine. This design makes it simpler, quieter and more reliable. And it can be changed in less than five seconds, without touching the film.

We believe all these features support our claim that the French Eclair ACL is the finest 16mm professional camera of its kind in the world.

And in case there's any question about who developed these features, or who has the exclusive rights to them, just remember who holds the patents.

The French Eclair ACL

E-Cam Company

Exclusive U.S. Importers and Distributors of French Eclair Cameras

P.O. Box 3955 • N. Hollywood, Calif. 91609 • (213) 466-3700

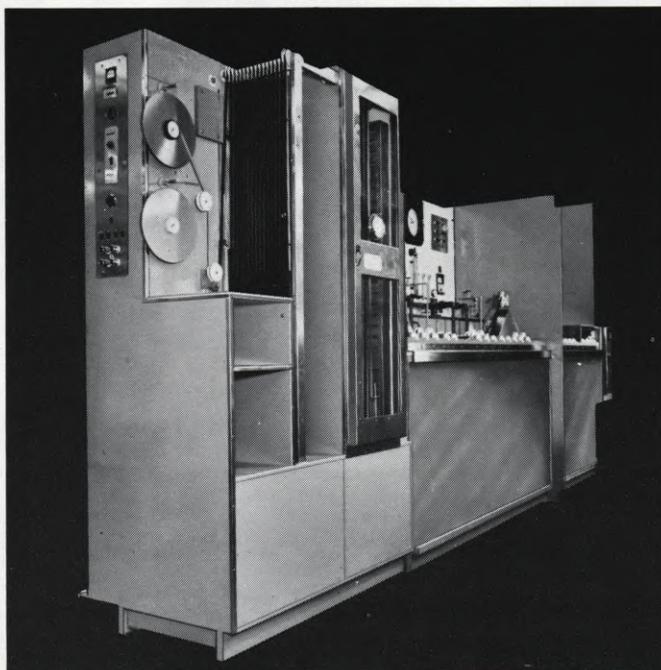
High speed/High temps demand high precision.

Houston delivers full potential of ECN 2 and ECP

The far higher speed in processing ECN 2 5247/7247 and ECP 5283/7283 films requires higher solution temperatures, too. And this demands extremely rigid controls every step of the way.

This is where Houston processors shine. Through a system of sensitive sensors and responsive heat exchangers, temperatures are constantly held within the critical range set forth by the film manufacturer. Film transport speed is also precisely controlled. The film manufacturers' rigid specifications are strictly adhered to in every respect.

Another important feature of Houston processors is that they baby the film. The unique demand drive system holds film ten-



sion down to an absolute minimum. It is the finest drive system made and is found only on Houston machines.

Engineering and building these precision machines was no simple job. It required full utilization of our vast experience and knowhow gained in 45 years of pro-

ducing the world's finest film processing equipment.

Houston builds machines to process ECN 2 and ECP in 16mm, 35mm and 70mm models. We also make processors for every other type and size of color and b&w film. Write or phone: Houston Photo Products, Inc., 655 E. 20th St., Yuma, Ariz. 85364. (602) 782-3677. Telex: 669-450.

HOUSTON
PHOTO PRODUCTS, INC.
YUMA, ARIZONA

CREATING THE ELECTRONIC SPECIAL EFFECTS FOR "THE INVISIBLE MAN"

By LANNY SHER

The unusual demands of the project were met by means of Compact Video's Image 655-line resolution system of high-quality images for tape-to-film transfer

When Universal produced its TV Movie Of The Week, "THE INVISIBLE MAN", starring David McCallum, producers Harve Bennett and Steve Bochco, director Bob Lewis and cinematographer Enzo Martinelli were faced with the problem of how to create special visual effects that would normally be achieved on film, but because of television's tight shooting schedules, filming these segments became impossible.

The production called for Invisible Man David McCallum's head and hands to appear and disappear when his veins were injected with a magical juice. Only his clothes were to remain visible to establish his whereabouts. Film was initially tested but proved to be impractical. The show had to be shot in 18 days and the lag between filming, viewing the results and making any alterations or corrections was far too time-consuming. A faster method was required. Videotape and its electronic matting capabilities appeared to offer a practical solution.

The project was taken to Compact Video Systems, Inc., a supplier of

videotape production and post-production facilities. Universal's desired objective was to be able to intercut videotaped special effects segments with 35mm film without creating discernible quality differences. Because of the problems associated with intercutting film and tape — resolution, color matching and picture contrast — Compact's president, Bob Seidenglanz, suggested employment of the company's Studio Pak system integrating their three PCP-70 cameras (because they are highest-resolution camera systems), a 90-minute AVR-2 recording machine, special effects units and, the key to quality tape-to-film transferring, Compact's Image 655-line resolution system.

The 655 system makes it possible to produce electronically-generated, high-quality taped images to be transferred to 35mm motion picture film. With optimum 35mm resolution severely curtailed by the limited input possible with the existing 525-line/30-frame NTSC standard for North American television, most 35mm tape-to-film transfer product has been

barely adequate to achieve quality results. The 655 employs a modified sync generator and modifications in the electronic videotape recorders and other associated equipment which produce a 655-line television system at 24 frames per second which equals the film standard. The 655 lines of information produce a substantially better picture than even the European PAL standard and markedly improved color resolution. With 655, videotape can be produced as the input to the Image Transform transfer system, at 24 frames per second, thereby eliminating the need for frame conversion. Every line of every frame is recorded on film.

There are four major improvements achieved by the 655 system over 525-line standard television. First, motion discontinuity, created by the usual 30 television frame conversion to 24 film frames, is removed from the 35mm transfer because of the precise frame-for-frame conversion. Second, there is a 28% improvement of vertical resolution and a corresponding 28% reduction of line structure effects because the lines are much closer together. Also, there is greater picture-noise reduction because of the closer line structure and, finally, there is marked improvement in color resolution. The end result is a sharper picture with brighter, cleaner color rendition and improved noise and grain characteristics.

Employing the Studio Pak, a technical crew supplied by Compact Video (not including audio personnel who were provided by Universal), and, in conjunction with Image Transform consultant Ken Holland, Universal tested segments from the script not only to determine intercutability of the video-effects sequences with film, but also to familiarize themselves with the handling of the Compact Video equipment and the workings of the Imagematt process. Two tests were undertaken separated by a six-week evaluation period. Entire scenes were taped including sequences just prior to and after the special effects segments to aid in the elimination of as much transitional "choppiness" as possible. The tests were successful and showed that even in close-up shots picture resolution was high enough to facilitate visually-smooth intercutting.

The test sequences not only proved

Part of Compact Video's Studio Pak system is the video control unit which controls the video levels on three PCP-70 camera systems. The studio Pak provided for Universal's "THE INVISIBLE MAN" also contained a 90-minute AVR-2 recording machine, a 20-minute VR-3000 recorder, two Imagematt chroma-key systems, special effects units and a 655-line resolution system.



the viability of the tape-to-film concept and its integration with 35mm footage, but they also gave the crew solid working knowledge before the actual shoot began. Shooting was handled as if it were a normal film production. Thus familiarization was required by the video camera operator (who is usually a film camera operator) of what he saw through the camera's viewfinder monitor and how that related to the scene as he usually viewed it through a reflex camera viewfinder. Lens calibrations were of particular importance and, therefore, external controls were attached to the lenses so that the operator could change focus as the camera moved, panned and tilted.

Another important function of the tests was to try out two modified interlock pan and tilt whirl camera heads designed by Universal's camera machine-shop to follow motion in the background set with the motion in the "chroma key" master foreground set.

The special effects — the fading-in and fading-out of McCallum's head and hands, the creation of footprints made by his invisible man character and other variations — were achieved by video chroma key techniques as performed by the Imagematts. McCallum was outfitted with a blue head stocking and gloves for scenes in which those parts of his body were to disappear. Working in a chroma key foreground set, McCallum could move about while the camera shooting the background set followed motion.

The resultant realism and technically flawless combined-picture on the master monitor was achieved by the Imagematt system which is a state-of-the-art chroma key process designed to eliminate previous problems found in older standard chroma key systems.

Standard chroma key generated a keying waveform by matrixing red, green and blue from a foreground video camera and then feeding this keying waveform to an effects amplifier in a studio switcher. The keying signal causes the effects amplifier to switch between the foreground camera and



When the foreground chroma-key set (lower left monitor) is combined with background set (lower right monitor), the composite picture (top monitor) provides desired special effect. Here David McCallum is shown being outfitted with a blue head stocking which is not "seen" by the camera (top monitor) when the actor is photographed in blue foreground set (lower left).

the background video camera. Imagematt combines both picture sources by taking the red, green and blue from the foreground camera and, rather than switching from one to the other, mixes them with a high speed dissolve that eliminates tearing.

Chroma key has many other inadequacies. Blue halos appear around matted objects. Silver and white objects take on a blue cast and sometimes tear severely because of this. All edges between foreground and background are hard because an effects-amplifier only allows a switch between one picture and the other. Out-of-focus objects also have hard edges. Translucent and transparent objects, "areas of indecision" — shadows, a thin negligee, smoke, hair — produce a tearing effect. Imagematt

not only eliminates tearing, it also removes hard edges, blue edges and blue reflections and makes it possible to retain the realistic appearance of transparent and translucent objects.

A chroma-keyed picture always looks like a matted picture because standard chroma key does not retain reflections. Because chroma key switching takes place after the picture is encoded, frequently there is sub-carrier crawl for feathered edges between foreground and background. As Imagematt combines the cameras prior to encoding, sub-carrier crawl is either removed or is as it would be in a normal picture.

The system is intended for doing quality mattes with broadcast-quality red-green-blue cameras. After set-up it is simple to use, with only three main operating controls. These operating controls can be removed to the video operator or switcher position. In addition to the regular operating controls there are two edge controls, one to control the timing of the left-hand edge and one to control the timing of the right-hand edge of foreground objects. Consequently with Imagematt, it is possible to virtually remove matte lines.

Once the special effects portions were recorded on tape, Image Transform took over to make the film transfer. Compact Video provided a

Continued on Page 852

IMAGEMATT — Appearance-disappearance special effects for "THE INVISIBLE MAN" were achieved through the use of two Imagematt units working in tandem. The Imagematt system is a state-of-the-art chroma-key process which supercedes older, less effective technology. Among its other advantages, it eliminates the "feathered edges" between foreground and background, so often characteristic of standard chroma-key.



WHAT'S NEW

Continued from Page 744

catalog, this assistance can generally be provided, no matter what kind or type of processor is under consideration.

Included in the catalog are such features as a film speed comparison chart, film roller specification guide, squeegee combination chart for various applications, etc.

The new catalog comes in a convenient "short-form" size for easy handling and reference use. Readers interested in securing a free copy may do so by writing to Treise Engineering, Inc., 1941 First Street, San Fernando, California 91340.



NEW ANGENIEUX 10-150mm ZOOM LENS (WITH "BCP" MOUNT) IMMEDIATELY AVAILABLE FROM CINEMA PRODUCTS

Cinema Products Corporation announces the immediate availability of the new Angenieux 10-150mm T2.3-T3.2 zoom lens, with BCP mount, for use with all CP-16R reflex 16mm cameras. The new lens offers both a long zoom range and the highest magnification of any 16mm zoom lens now on the market, regardless of close-focusing distance.

About 7mm shorter in length than the Angenieux 12-120mm (and approximately the same weight), the new 15X10 offers a wide angle at a minimum focal length of 10mm with a 15X zoom range to provide a maximum focal length of 150mm.

Of special interest is the ability of this lens to focus down to 32" (80cm) from the image plane while still retaining zoom capability. Now, for the first time, a cameraman can zoom down to cover a field size as small as 1" X 1-3/8" (26 X 36mm) while leaving a reasonable working distance of 24" (60cm) between the front lens and the object for proper lighting and camera manipulation.

The Angenieux 10-150mm zoom lens with BCP mount (supplied with T-stop markings only) is priced at \$2850.00. (A special Cinema Products camera/lens package price is available for lenses ordered at the same time as a new CP-16R camera.)

Cinema Products also supplies a full range of accessories for the Angenieux 10-150mm zoom lens, among which are a rubber sunshade, a data ring set, bracketry for the J-5 zoom control, etc.

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

NEW FEATURES ADDED TO SATELLITE SOUND READER

The Satellite 16mm Magnetic Sound Reader was first introduced in 1971. Some new features have been added to the reader over the years. The unit is battery-operated. A new battery replacement compartment is now provided. Thus the removal of one screw on the bottom of the reader allows the battery to drop out for easy replacement. A/C units are also available.

The Satellite reader is self-contained with its own sound-head, amplifier and speaker all in one case which fits beneath the Moviscop viewer. This allows an editor to be in dead sync when editing workprint and track together. Simply thread the workprint and track through the viewer and reader and then through a synchronizer. The relationship of the track to the picture is dead sync at both the reader and viewer, and at the synchronizer. This completely eliminates the problem of having a displaced track when editing. Cost for the entire unit is only \$99.50. The A/C model sells for \$114.50.

More information is available by writing the manufacturer at Satellite Manufacturing P. O. Box 650512, Miami, Florida 33165.

KODAK VIDEOPLAYER VP-1 NOW AVAILABLE

Super8 Sound, Inc. of Cambridge, Mass., has available stock of the new Kodak Videoplayer VP-1, ready to ship anywhere in the U.S., according to Robert O. Doyle, company president.

"About half of our Videoplayer customers are schools who are augmenting their sync sound Super-8 instructional equipment with an inexpensive color video transfer capability," said Dr. Doyle. "Small television stations are

also purchasing the Videoplayer in order to use Super-8 as their original production medium."

The Kodak Videoplayer uses Super-8 movie film, rather than magnetic tape, to produce a fully-interlaced NTSC composite video signal. Audio is derived from the film's magnetic edge-stripe. An integrated RF converter provides outputs on channel 2 or 3, for direct connection to the antennas of a normal color-television receiver. Cost of the film videoplayer is \$1095, about \$200 less than typical 3/4" video cassette players. Super8 Sound modifies the Videoplayers to include a once-per-frame (1/F) sync pulse output for high-fidelity double-system sync sound transfers.

Super8 Sound and Kodak maintain a "hot line" service telephone number to assist users, and Kodak will provide a nationwide service network by late Spring.

For further information, write or call Julie Mamolen, National Sales Manager: Super8 Sound, Inc.; 95 Harvey Street; Cambridge, MA 02140; (617) 876-5876.



CINE FILTER POUCHES ANNOUNCED BY TIFFEN

Tiffen Manufacturing Corp. has announced that the firm has designed a new cine filter pouch series. The new storage pouch incorporates several important protection elements.

Wear-resistant Naugahyde with a stitched Naugahyde binding gives the pouch excellent external wearability. The interior is foam padded and lined with 100% woven Nylon for maximum protection and freedom from lint. Another important convenience is the handy, long-life Velcro closure which closes with fingertip touch — eliminating the problem of hard pressure on a snap closure.

The Tiffen filter pouches are available in three sizes: 3 x 3 square and series 9, 4 x 4 square and 4 1/2" round, 5 x 5 square and 138mm round. The new cine filter pouches will be available at all professional cine dealers or by contacting Tiffen Manufacturing Corp., 71 Jane Street, Roslyn Heights, L.I., New York 11577.

Continued on Page 844

"EMMY" AWARDS FOR CINEMATOGRAPHY

By sheer coincidence, two Directors of Photography who started out as animation cameramen for Walt Disney win this year's top Cinematography awards presented by the National Academy of Television Arts and Sciences

During the annual "EMMY" Awards Presentation, held on May 19th, the awards announced for Cinematography were as follows:

Outstanding achievement in Cinematography, Entertainment Programming, for a Series (for a single episode): Richard Glouner, ASC. The "Playback" episode of the "COLUMBO" series, NBC.

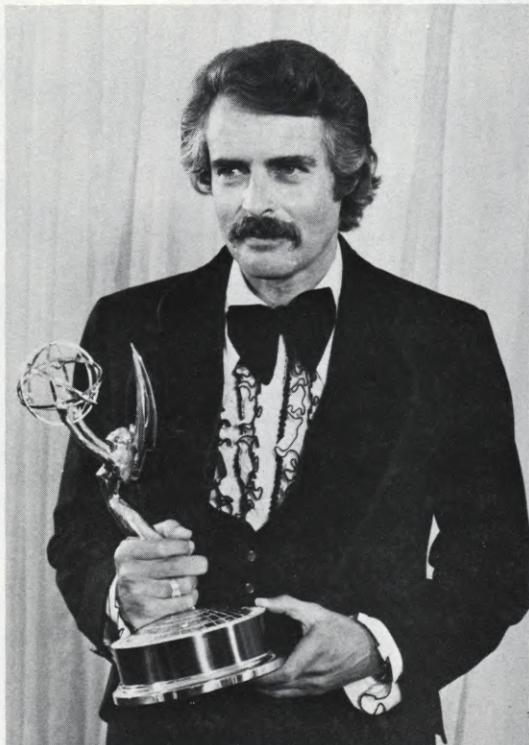
Outstanding Achievement in Cinematography, Entertainment Programming for a Special (a special or feature-length program made for television): David M. Walsh. "QUEEN OF THE STARDUST BALLROOM", CBS.

Coincidentally, both of the Emmy-honored cameramen this year started their respective careers in the Animation Department of the Walt Disney Studios.

Richard Glouner, ASC then became a film loader at Columbia Studios, after which he worked in the Optical Department at 20th Century-Fox. During the next fifteen years he moved through the progressive positions on the camera crew, becoming a First Cameraman, or "Director of Photography", in 1968. From that time to the present, he has functioned in that capacity on several theatrical features and many "Movie of the Week" television features. His theatrical features include: "SUMMERTREE", "PAY DAY", "THE PRESIDENT'S PLANE IS MISSING" and "REMEMBER WHEN".

David Walsh, after his stint with Disney, eventually worked on several features as Operator for William Fraker, ASC. When Fraker turned Director for "MONTE WALSH", he made David his First Cameraman. "I WALK THE LINE" was his second picture in that capacity. He also brought with him Joe Smith, the gaffer with whom he had worked on "MONTE WALSH", as well as "BULLITT", "PAINT YOUR WAGON" and "ROSEMARY'S BABY".

Walsh was Director of Photography on the Woody Allen features, "SLEEPER" and "EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT SEX". His most recent assignments have included "THE OTHER SIDE OF THE MOUNTAIN" and "SUNSHINE BOYS". He is currently at work photographing the Rod Steiger feature based on the life of the late W.C. Fields.



(LEFT) Director of Photography Richard Glouner, ASC, shown holding "EMMY" awarded him for Outstanding Achievement in Cinematography, Entertainment Programming, for a Series (single episode), for the "Playback" episode of the "COLUMBO" series, NBC. (RIGHT) A scene from the winning film, with star Peter Falk and guest artist Oscar Werner.



(LEFT) Director of Photography David M. Walsh, shown here on location, could not be present at "EMMY" Awards ceremony, where he was honored with statuette for Outstanding Achievement in Cinematography, Entertainment Programming, for a Special (a special or feature-length program made for television), "QUEEN OF THE STARDUST BALLROOM", CBS. (RIGHT) Famed stage star Maureen Stapleton enacts a scene from her title role in the winning film.



Are you afraid to shoot in the dark?

Don't be. Movielab's "LIFELIKE" computerized preflashing takes the risk out of low-light filming.



"The Taking of Pelham One Two Three." First fully-customized preflashed motion picture. Produced by Palomar Palladium, Edgar J. Scherick, and Gabriel Katzka. Director of Photography—Owen Roizman. A United Artists Release.

Filmmakers have been pushing exposure indexes for years. Often with surprisingly good results. But seldom without headaches.

Until now there's always been some doubt. Would it work perfectly? Or just passably? How's the contrast? And the shadow detail? What about color shifts? And grain? Can you rely on what you've shot? Or must you keep expensive talent and technicians on the set until you've checked the rushes?

With Movielab's "LIFELIKE" preflashed processing, customized for the effects you want, you can be confident that you'll get the results you want every time! Without any risks!

- Eastman Kodak recommended chemistry
- 5247, 7247, 5254, 7254, 7241, 7242
- Sensitometric pretesting
- Flexible flashing percentages
- Contrast control—especially for TV opticals
- True values faithfully reproduced in CRI's
- Dollar savings
- Shorter shooting schedule
- Post-flashing also available.

 **Movielab**

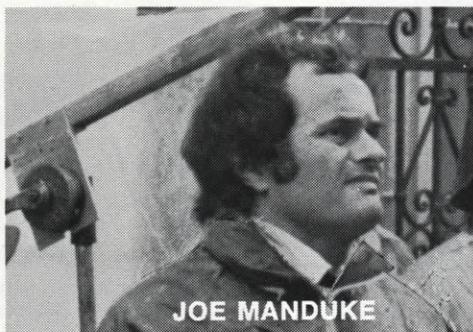
It's all the little things we do that make us big.

IN THE EAST: 619 WEST 54TH ST., NEW YORK, N.Y. 10019. (212) 586-0360 IN THE WEST: 6823 SANTA MONICA BLVD., HOLLYWOOD, CAL. 90038. (213) 469-5981

We said our Cecomobile was good.

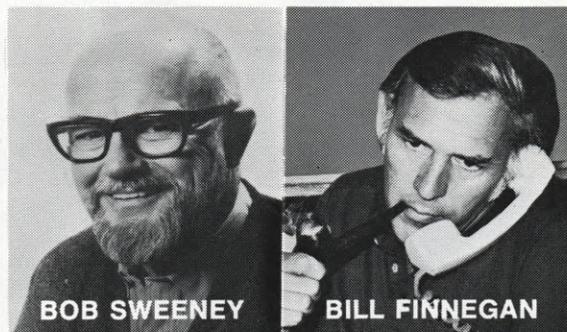


They say it's fantastic.



JOE MANDUKE

*"Cecomobile . . . a valuable asset."
JOE MANDUKE, Director of "Corn-
bread, Earl and Me."*



BOB SWEENEY

BILL FINNEGAN

*"Cecomobile was a hit on our pilot film."
BILL FINNEGAN, Sweeney/Finnegan Produc-
tions, Inc., Producers of "New Orleans Unit."*

It's one thing when we talk about the Cecomobile. But when filmmakers like yourself write to thank us for it, you know it's really something special.

Joe Manduke's letter raved about Cecomobile's total mobility. The way it adapts for interior as well as exterior shooting and for its facilities.

Bill Finnegan liked Cecomobile's versatility which allowed his crew to pre-rig at some locations while continuing to shoot at another. He also praised the unit's

trouble-free service and up-to-date equipment.

That's the word from the pros. They recognize Cecomobile as the finest unit of its kind. With storage facilities for just about everything you'd need for shooting. And because you're dealing with F&B/Ceco, you'll also have over \$6,000,000 worth of the best-maintained, professional gear available to you.

Phone John Babb or Walter Druker. They'll give you rates that can't be undercut.

We want you to come back.



SALES - SOS DIVISION

315 West 43 St., New York, N.Y. 10036 / (212) 586-1420
7051 Santa Monica Blvd., Hollywood, Calif. 90038 / (213) 466-9361
Phone Toll Free (800) 223-5829. In New York State Phone Collect (212) 586-1420

AN AMERICAN FILM INSTITUTE SEMINAR WITH JOSEPH RUTTENBERG, ASC

In his 86th year, a truly legendary cinematographer shares his vast store of know-how with a gathering of young film-makers in training

As perhaps the most important aspect of education for the Fellows in training as film-makers, historians and critics at its Center for Advanced Film Studies, located in Beverly Hills, California, The American Film Institute sponsors conferences and seminars with top technicians and talent of the Hollywood film industry. These men and women, outstanding professionals in their respective arts and crafts of the Cinema, donate generously of their time and expertise in order to pass on to the potential cinema profes-

sionals of tomorrow the benefits of their vast and valuable experience.

In keeping with this tradition, Cameraman's Local 659 (IATSE) sponsors a continuing series of seminars with ace cinematographers. These men — both contemporary working Directors of Photography and some of the now-retired "greats" of the past — meet informally with the Fellows at *Greystone*, the magnificent estate which is the headquarters of the AFI (West), to present valuable information on cinematographic techniques and

answer questions posed to them. Very efficiently introducing and moderating each of the individual seminars is "Emmy" Award-winning Director of Photography Howard Schwartz, ASC.

Through a special arrangement with The American Film Institute and Local 659, *American Cinematographer* will, from time to time, publish excerpted transcripts from these seminars, so that readers of this publication may also receive the benefits of the information conveyed.

The first in the series — the excerpted transcript that follows — represents the essence of the seminar featuring Hollywood's dean of cinematographers, the legendary Joseph Ruttenberg, ASC.

Mr. Ruttenberg, a top Director of Photography at MGM Studios for almost three decades during the "Golden Age of Hollywood" is one of the only two cinematographers ever to receive four Academy Awards for "Best Achievement in Cinematography" (the other being the late, equally legendary Leon Shamroy, ASC).

Now in his 86th year and, happily, in fine health, the very charming Mr. Ruttenberg has enjoyed a career very much in the Horatio Alger tradition — an almost classic example of the American Dream come true. Born in Russia and brought to America at the age of four by his family (which settled in Boston, Massachusetts), he was forced by economic circumstances to quit school at the age of 13 and go to work. His first job was that of "copy boy" on Boston's Hearst newspaper. He was trained in photography there, becoming a staff news-photographer. This led to the photography of news-

Joseph Ruttenberg, ASC, the only living cinematographer to hold four Academy Awards for best achievement in his field (and one of the only two ever to win that many "Oscars" for cinematography) is the honored guest at a seminar on his career held in the conference room of the American Film Institute (West) in Beverly Hills. Howard Schwartz, ASC, moderator of these cooperative seminars, listens and smiles in the background.



(LEFT) A select and youthful audience, made up mostly of potential directors, cinematographers, film historians and critics on fellowships at the AFI, applauds Mr. Ruttenberg as he is introduced. (RIGHT) After the informal seminar, the guest of honor, mingles with the crowd and answers the many extra questions which they pose. Ruttenberg, always eager to share his considerable expertise with young technicians, started his own career as a teenage news photographer on the Hearst newspaper in his home town of Boston.





A playful Ruttenberg serenades Ingrid Bergman with a mandolin solo on the set of "GASLIGHT", the film of his choice shown at the AFI seminar as an example of his work.

reels in Boston and New York and an eventual career as a theatrical feature cinematographer, which, in turn, led to Hollywood and the highest accolades which his peers in the professional film industry can bestow.

In the following excerpted seminar transcript, Mr. Ruttenberg very graciously and unselfishly passes on some of his vast pool of expertise to the young Fellows of the American Film Institute, several of whom may very well follow in his famous footsteps to become the legendary cinematographers of tomorrow:

HOWARD SCHWARTZ, ASC: I'm Howard Schwartz, a Director of Photography and member of the Executive Board of Local 659. I am also a member of the American Society of Cinematographers. I have been helping the Fellows in Cinematography here at the American Film Institute to arrange seminars with people like Mr. Ruttenberg, so that they may learn from such gentlemen. The ASC was willing to participate in the program and the AFI is helping to make it possible . . . One of the ideas was to bridge the communications gap between the students and the people in our local . . . The students will also, as part of this program, get an opportunity to learn something of the aesthetic side, as well as the mechanical aspect, of cinematography — something that is pretty hard to pick up when you're on the job. We feel that these seminars will be a great help in that respect . . . You'll have a chance to discuss with,

and ask questions of, various gentlemen who have enjoyed highly successful careers in cinematography . . . I was amazed to learn that Mr. Joseph Ruttenberg, the very fine gentleman here with us today, was under contract to MGM Studios for 28 years as a cinematographer. Today, if you stay four years in one place, it's a career. Mr. Ruttenberg was at MGM longer than Louis B. Mayer was. He did a number of tremendous pictures and won four Academy Awards for his photography of "THE GREAT WALTZ", "MRS. MINIVER", "SOMEBODY UP THERE LIKES ME" and "GIGI" . . .

You have just had the pleasure of viewing "GASLIGHT", photographed by Mr. Ruttenberg, and one of his own personal favorites. In the days when this film was made, the stars under contract to a studio — and especially the female stars — were very particular about how they looked on the screen. Some of them used to come onto the set and tell the cameraman how they should be lit and where the key should come from and what the ratio of key light-to-fill light should be. They would also let him know that they could be shot only from a certain angle and not after a certain time in the evening; you couldn't believe all the restrictions they would present.

At any rate, Mr. George Cukor, who directed "GASLIGHT", was expecting such problems from Ingrid Bergman, the female star of the film. So he went to her and asked what she desired in the way of lighting and if she had a "best side" that should be featured. She said: "You don't have to worry about a 'best side', because with Joe there isn't any best side — they're all good."

Incidentally, Mr. Cukor wanted me to tell you what a pleasure it was to work with Joe and also to tell you how sorry he is that he couldn't be with us here today. Without further ado, I'll turn the floor over to Joe Ruttenberg. He will talk to you about the photography of "GASLIGHT" and then answer any questions you may have. Mr. Ruttenberg . . .

JOSEPH RUTTENBERG, ASC: It is indeed a pleasure to be here and to be able to do this seminar. I've been in the photographic profession since 1907. My first job was at the age of 13, as a copy boy on a Hearst newspaper in Boston, Mass. I got my first training in photography there and eventually

Continued on Page 792



IF YOU WANT A SUPERB NEWS/DOCUMENTARY CAMERA, THIS IS YOUR CAMERA.

Whatever camera characteristics are most important to you, the CP-16 offers them. And more.

If you want light weight—and who doesn't—a fully-equipped CP-16 with 400' magazine, Angenieux 12-120mm zoom, record/playback heads and amplifier and battery weighs in at 17 lbs. (Other configurations are even lighter!) Maneuverability? CP-16's light-weight, compact size and human-engineered design help you go where the action is, and concentrate on filming, rather than struggling. Reliability? CP-16 has the lowest downtime in the industry.

Looking for versatility? Look no further. CP-16 works with a wide variety of lenses—automatic and non-automatic, zoom and prime. With 400' and 1200' magazines, including an advanced, lightweight Lexan® 400' model. Other accessories? You name it.

Happily, Cinema Products didn't stop there. With their customary thoughtfulness, they've made CP-16 available in both reflex and non-reflex versions. Giving you the opportunity of choosing the viewing system (and price range) that's best for you. By selecting their most advanced reflex system. Or opting to update your camera without obsoleting those expensive, reliable lenses with reflex viewfinders you've accumulated over the years.

More? Of course, when you talk CP-16 (or anything else, for that matter) to Camera Mart, you're talking to the people who take the trouble to help you choose the best package, at the right price. And back everything you purchase to the hilt. For more information about rental or purchase—give us a call or pay us a visit for a demonstration. Reflex. Or non.

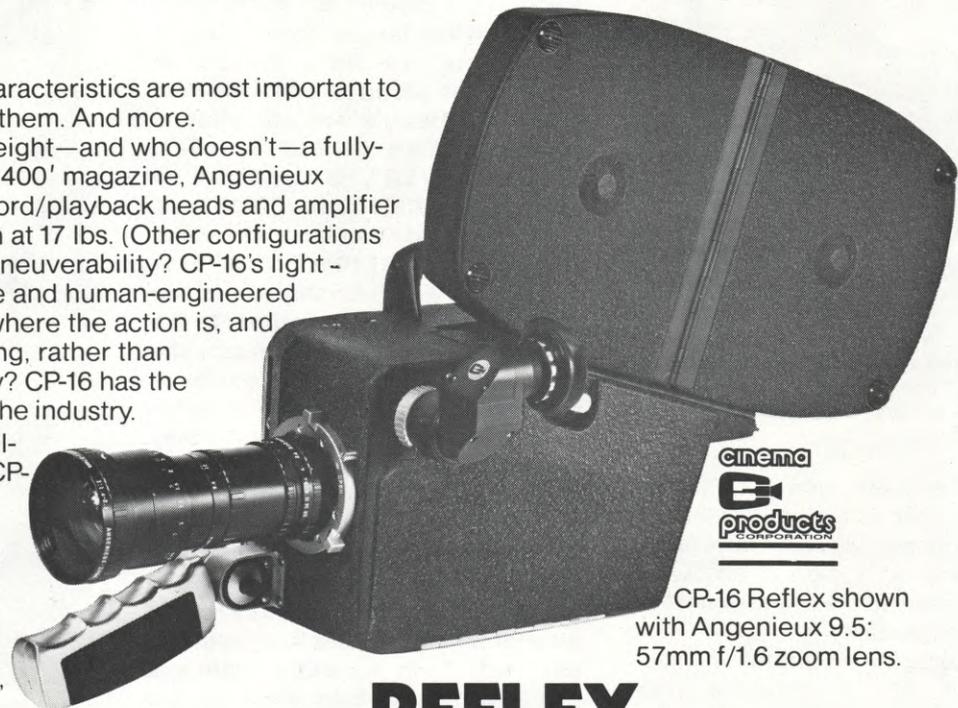
CAMERA MART 

THE CAMERA MART, INC.

456 W. 55th St., New York, 10019

(212) 757-6977

SALES·SERVICE·RENTAL



cinema
Products
CORPORATION

CP-16 Reflex shown with Angenieux 9.5: 57mm f/1.6 zoom lens.

REFLEX.



CP-16 shown with Angenieux 12: 120mm f/2.2 zoom lens.

OR NON.

"We take anything from anything to anything..."



Fred Scobey, Engineering Vice President, talks about visual communications technology.

"Probably most of our customers would agree that all color labs do a pretty decent job... there's a lot of good product being turned out today. But no other lab can offer the consistent quality and range of services maintained by DeLuxe.

"We have the finest optical engineers in the business—professionals who can take 70mm to 35 to 16 to Super-8, transfer video tape to film without the slightest

distortion because they know exactly what they're doing. Panning, scanning, squeezing, unsqueezing, reducing, enlarging, changing aspect ratios... everything you want done is accomplished with extreme care, artistry and speed.

"For example, our color correction system is the most sophisticated in the business. In evaluating the negative on the video color analyzer, we arrive at the specific exposure conditions necessary to go direct to the printer—exactly the way we want it... the way you want it. These calibrations are automatically fed onto a tape, cranked through the printer and the result is a new negative with flawless color correction.

"Our lab is an integrated system—computer controlled to avoid inconsistency of any sort. For example, every tenth print off each printer goes to the control room where it is analyzed and compared with the master test reel. Our quality control system is so precise you could not tell the difference between prints of the same film, same reel, made at any of our facilities around the world.

"We are a visual communications organization. Whatever form visual communication may take we must stay ahead of the technology. I guess that's why we turn out the best product this industry has to offer."

Let us improve your image—

de luxe laboratories
DIVISION OF **de luxe general** INCORPORATED



Hollywood, 1546 North Argyle Avenue, Hollywood, Ca. 90028 (213) 462-6171
New York, 630 Ninth Avenue, New York, New York, 10036 (212) 489-8800
Chicago, 2433 Delta Lane, Elk Grove Village, Ill. 60007 (312) 569-2250

RUTTENBERG SEMINAR
Continued from Page 789

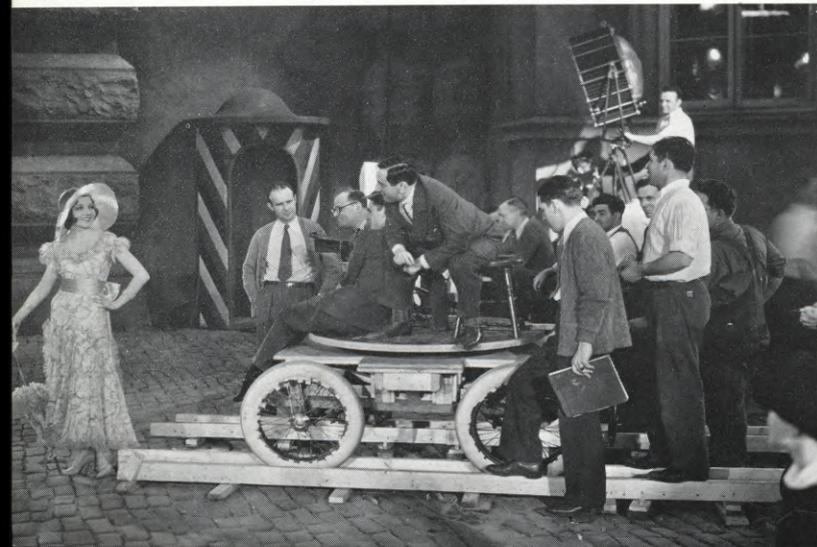
became a news cameraman on the photographic staff of that paper. I learned many important things — especially, how important pictures are when they appear with a printed story. They add tremendous impact to the story, because, as has been said, “one picture is worth ten thousand words.”

I always remembered that saying when I got into photographing motion pictures. I've always felt that movies, if

Making like Valentino, Ruttenberg trips what in 1921 was known as “the light fantastic” with the Queen of the Cliffhangers, the indestructible Pearl White.



(LEFT) Riding just below the camera on a really classic “Model T” dolly, Ruttenberg prepares to photograph the “best side” of Claudette Colbert’s face. Standing next to him (extreme left) is his longtime close friend and working colleague, George Folsey, ASC. The most recent collaborative effort of these two artists of the camera is the stunning photograph appearing on the cover of this issue of *American Cinematographer*. **(RIGHT)** Four-time Oscar-winner Ruttenberg greets three-time Oscar-winner Freddie Young, BSC.



photographed properly, should capture the mood of a story. I think we did that in “GASLIGHT”, and you may have noticed, in watching the picture, that the lighting and compositions created a variety of different moods.

In making a film, you are, after all, telling a story in a series of pictures. So every time I was assigned to a picture, I was interested enough to read the script thoroughly and to discuss it with the director and try to plan my photography in the mood of the scenes, as he and the writer had visualized them.

Another important thing I would like to mention is that an audience becomes excited by a picture and interested in it, just as if they were reading a book. Anything that distracts the audience’s attention works against that — such things as a sudden move with the camera (as often happens with the zoom lens), or a lamp behind an actor’s head in a closeup. The bright light from the lamp is often stronger than the light on the actor’s face and, in my opinion, the audience’s attention will be drawn to the lamp, causing them to miss moments of the action. This has spoiled many otherwise good pictures.

I feel that “GASLIGHT” was a picture that avoided all those distractions. You will notice that we were very careful to keep the lighting in a kind of mysterious mood. We had a meeting before production started and discussed whether we should do this picture in color. I was of the opinion that color might not really capture the dramatic feeling as well as black and white, because color would be too beautiful and might detract from the mysterious mood that we could achieve with black and white photography. The director, George Cukor, was of the same opinion.

All of my best pictures, and all the ones which won awards (except for “GIGI”) were shot in black and white. Sometimes color can be distracting,



(ABOVE) James Wong Howe, ASC presents Academy Oscar to Joseph Ruttenberg for his cinematography of “MRS. MINIVER” (1942). **(BELOW)** A youthful newsreel cameraman, Ruttenberg hand cranks the Pathé camera.



simply because it is too beautiful. Then, too, there is no trick to photographing in color. The color's already in the film — put there by the manufacturer. You can go out with any kind of Kodak or Brownie and, with color film, get beautiful photography.

But I'm getting away from my point. On the screen, everything has to have a meaning. You may have noticed that in "GASLIGHT" there wasn't a double shadow throughout. There wasn't a false light. I noticed a couple of places where there could have been a little more contrast, but I can't blame that on the lab. It wasn't the lab; it was me.

On this picture we worked in a very low key, using Kodak panchromatic film. There weren't any very low set-ups. Nowadays certain directors have a tendency to go for low set-ups for no good reason — angles which make the people on the screen look like they're leaning backwards. In "GASLIGHT" we didn't use any tricky set-ups. Yet, we were able to get a feeling of the richness of the rooms, the ceilings and everything, without distortion. This picture was made in 1943 — more than 30 years ago — and received an Academy nomination in 1944. Now, if you would like to ask questions about "GASLIGHT", I would be very happy to answer them.

QUESTION: I'm interested in what kind of diffusion material you were using on the lens in order to get that soft light on the faces. Nowadays when we shoot we're putting everything in front of the lens and we're getting down to about nothing in order to get that soft effect. The next thing would be to put brick walls in front of the lens . . .

RUTTENBERG: Well, for example, let's take the fog scenes in the picture. Most of the fog was created with a chemical that was invented at the studio, a sort of chemical vapor that stayed in the air for quite a while without settling. For most of the filming we did not use a fog filter, because, to be realistic with fog effects, when people or objects are closer to the lens they are clearer — a rich black silhouetted against the fog. Where we were too close to get the effect using the artificial fog, we put a fog filter in front of the lens. But most of the time we simply filled the whole stage with this artificial fog. If you walked in from the outside you would think it was a foggy day.

HOWARD SCHWARTZ: Joe, to get back to the diffusion for a second

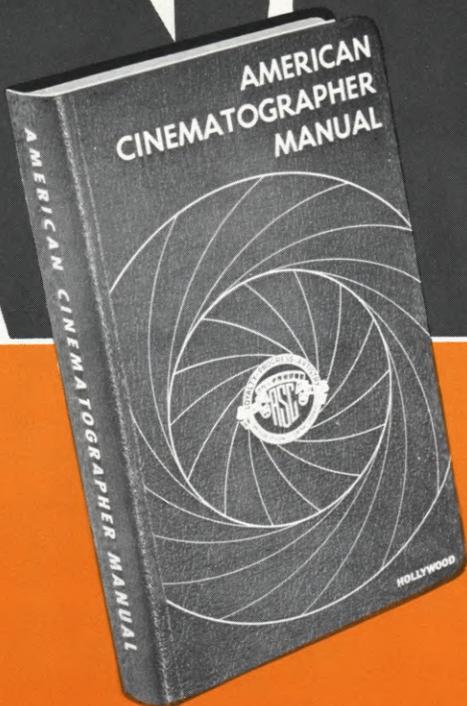
Continued on Page 808



(ABOVE) Although Ruttenberg is noted for his ethereally beautiful cinematography, he was awarded one of his four Oscars for his gutsy visual treatment of "SOMEBODY UP THERE LIKES ME", the story of boxer Rocky Graziano, which starred Paul Newman. He is shown here shooting a scene from that film on the sidewalks of New York's lower east side. (BELOW) Ruttenberg shows Cinex strips to the late, lovely Vivien Leigh on the set of "WATERLOO BRIDGE".



NEW!



FOURTH EDITION

AMERICAN CINEMATOGRAPHER MANUAL

COMPILED AND EDITED BY
TWO VETERAN CINEMATOGRAPHERS

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

**MOST COMPREHENSIVE
COMPILATION OF
CINEMATOGRAPHIC DATA
EVER PUBLISHED !**

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

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

Dealers are invited to write for
quantity discounts.

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

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

THE AMERICAN CINEMATOGRAPHER MANUAL

P.O. BOX 2230
HOLLYWOOD, CALIFORNIA 90028

4TH EDITION

Please send _____ copies of the AMERICAN CINEMATOGRAPHER MANUAL @ 18.50 each, postpaid. No C.O.D.'s

NAME.....

STREET.....

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

California residents please remit 6% Sales Tax (\$1.13 per Manual). Foreign Buyers please pay by International Money Order or U. S. Funds.

**The first
high-speed lenses
designed
specifically
for
motion-picture
use:**

New lenses— not still-camera conversions. All genuine T1.4s.

Floating and aspheric elements, multiple coatings—these are the most *advanced* lenses you can buy.



Every photographic lens ever made was designed originally for one purpose, one lens-to-film distance, one film format. If you adapt it for a *different* use, it'll work—but not as well.

Adaptation compromises

Every high-speed lens now available for motion picture use is an adapted still-camera design—*except ours*. The others are good lenses—but, used in this different way, they're compromised.

Remounting problems

For example: The typical 35mm SLR still camera has a back focal distance about $\frac{3}{4}$

inch shorter than one major studio camera. So to adapt it, you have to put the SLR lens into a new mount, or even a completely new barrel. *Or even move the glass elements!*

Critical back focus

And back focus is critical, of course. With a 50mm lens at f/2.8, the depth of focus behind the lens is plus or minus two thousandths of an inch. With a 25mm lens at f/1.4, *it's a quarter of that*.

Wasted trade-offs

Moreover, the SLR lens was designed to cover the Leica frame. To get even coverage over the bigger format, *with high speed*, the designer had to make certain trade-offs. On the SLR, they may have been worth it. For the motion-picture frame, they're wasted.

Doing it the hard way

To design a high-speed lens exclusively for motion picture use takes more time and costs more money, naturally.

But, given a good designer, you get a better lens.

\$350,000 investment

So we invested just over \$350,000—and Zeiss designed a brand-new, no-compromise set of lenses. Specifically for Arriflex cameras.

New design parameter: "Make the best lenses."

The Zeiss designers had the unique advantage of starting from the beginning. We said: "Don't just make the best high-speed lenses. Make the best *motion-picture* lenses in the world." So they did.



Made for the 35BL and 352C

Most modern technology

Zeiss used aspherical elements, a floating element, and multi-layer coatings on every



The fastest set of lenses on the market — all with the standard Arri bayonet mount. The 25mm focusses down to 10 inches, the 35mm to 15 inches, the 50mm to 27.5 inches and the 85mm to 40 inches.

Designed by Zeiss for Arriflex.

glass-to-air surface. Up to six separate layers, deposited in different orders.

New design parameter: "Every lens to be T1.4."

At the start, we specified that *each lens* be T1.4. With the SLR adaptations, it's the other way around. After the adapter is through, he then discovers what T stop he has ended up with.

Some lenses marked T1.4 really aren't.

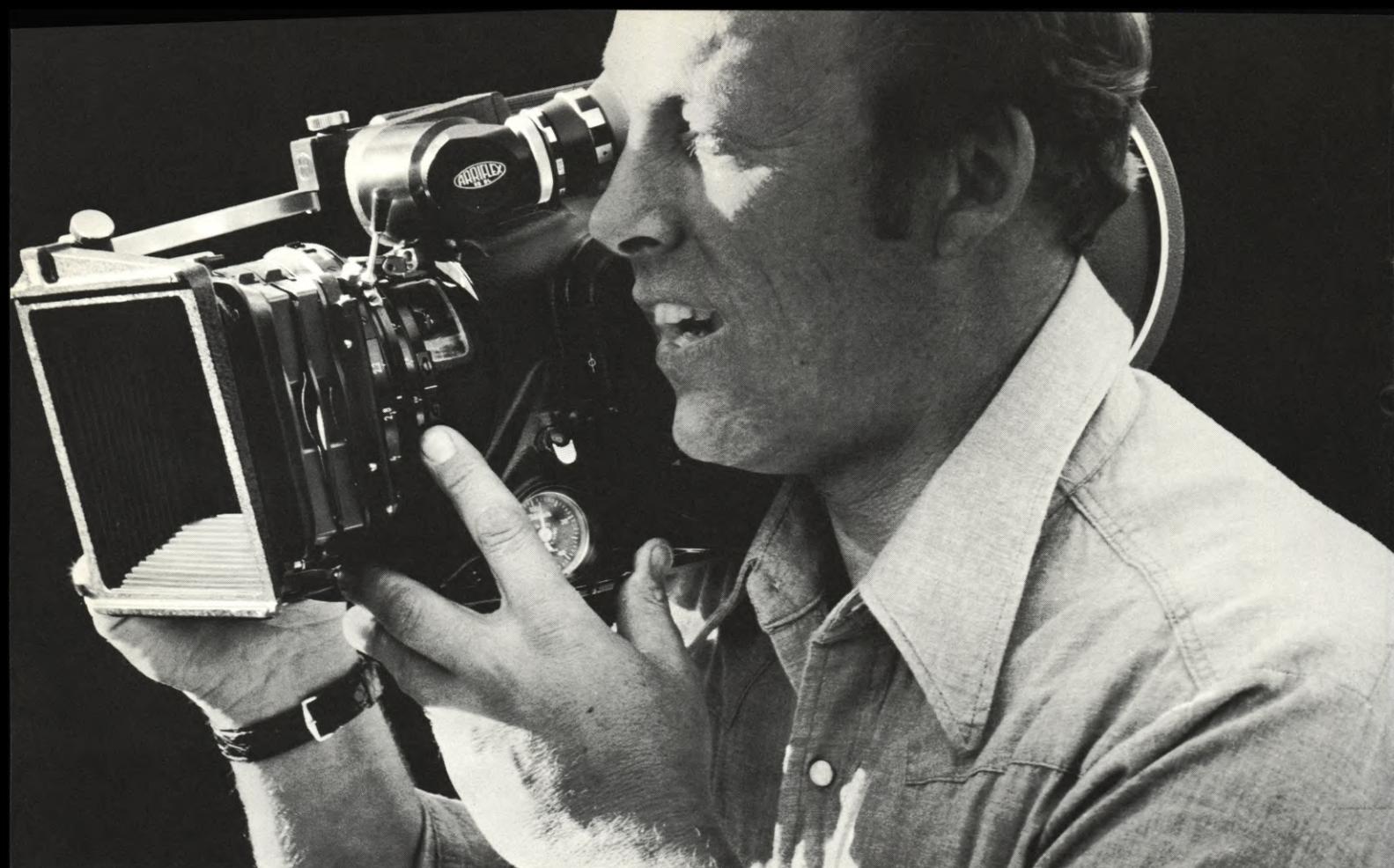
Nobody else has a set of lenses this fast. And when we tested some of the competition's high-speed lenses, we found that their marked maximum apertures were fictitious as f/stops, let alone T stops!

Inaccurate markings mean inaccurate exposures. So we *guarantee* all our T

stops. And a T stop, after all, is just an "honest" f/stop. It delivers in practice what the f/stop promises in theory.

What is an 'honest' f/stop?

The f/stop indicates what illumination at the film plane would be, assuming perfect light transmission. The T stop, of course, is a *measurement* of the light actually transmitted through the lens rear element.



New possibilities for realism and spontaneity: 35BL and 1.4 lenses.

These lenses are made for the new style of shooting encouraged by the 35BL. Because they're physically shorter than zooms, fixed lenses help you get a steadier hand-held shot — plus they're sharper. And these T1.4s will save many a low-lit scene.

Night-for-night: almost no flare; distant detail

We've seen night-for-night footage. Wide open, on New York City streets — car headlights, neon signs. Incredible. Almost *no flare* at all, and astonishing penetration. You

can see details on this block *and* for several blocks beyond — lit just by the signs and street lamps!

With good lighting, too: best lenses you can buy

Naturally, these lenses perform just as well in daylight and on the soundstage. They're made by Zeiss, after all — using the latest design techniques, and sparing no expense.

Run comparison tests

We hope you'll run some comparison tests. We're confident of the results.



ARRI

ARRIFLEX COMPANY OF AMERICA

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



POST EXPOSURE FLASHING IS JUST ONE OF OUR TALENTS. WE OFFER COMPLETE LAB FACILITIES-AND THE SERVICE IS BEAUTIFUL.

WRS

MOTION PICTURE LABORATORY
210 Semple Street,
Pittsburgh, Penna. 15213
Phone 412 687-3700

**color
tech**

FILM LABORATORIES, INC.
640 N. Broad Street,
Philadelphia, Penna. 19130
Phone 215 236-9100

TOMORROW'S TECHNOLOGY NOW!

A WORLD-WIDE ROUNDUP OF 1975 FILM FESTIVALS AND CONFERENCES

In response to numerous requests from readers for a comprehensive listing of film and television festivals and conferences throughout the world, we are pleased to present the following, reprinted by kind permission from the globally circulated journal, MOVIE/TV MARKETING:

FESTIVALS LISTED ABOVE BOLD RULE ARE RECOGNIZED BY INTERNATIONAL FEDERATION OF FILM PRODUCERS ASSOCIATIONS (IFFPA).

PRINCIPAL COMPETITIVE (features and shorts)

- 28TH CANNES INT'L FILM FESTIVAL (May 9-23, 1975), 71 rue du Faubourg St. Honore, 75008 Paris, France. Cable: Festinterfilm. Delegate General: Maurice Bessy.
- 25TH BERLIN INT'L FILM FESTIVAL (June 27-July 8, 1975), 1-12 Bundesallee, D-1 Berlin 15 (West). Cable: Filmfestspiele. Director: Dr. Alfred Bauer.
- 9TH MOSCOW INT'L FILM FESTIVAL (July 10-23, 1975), 13 Vassilievskaya St., Moscow, USSR. Cable: Kinofestival. Director: G. Marianov. (Alternates with Karlovy Vary)
- 23RD SAN SEBASTIAN INT'L FILM FESTIVAL (Sept. 13-24, 1975), Apartado Correos 397, San Sebastian, Spain. Cable: Festinci. Director: Miguel de Echarri.
- 4TH TEHRAN INT'L FILM FESTIVAL (Nov. 26-Dec. 7, 1975), Ministry of Culture and Arts, Bldg. No. 3, Ave. Takhte Jamshid 30, Tehran, Iran. Cable: Interfilmfest. Secretary General: Hagir Daryoush.
- 5th INT'L FILM FESTIVAL IN INDIA (Dec. 30, 1974-Jan. 12, 1975), Directorate of Film Festival, Vigyan Bhavan Annex, Maulana Azad Road, New Delhi 110011, India. Cable: Filmotsav. Director: Jagat Murari.

SPECIALIZED

(competitive for features and shorts unless marked with*)

- 20TH INT'L WEEK OF CINEMA IN VALLADOLID (April 20-27, 1975), Paseo de Zorrilla 48, Apartado de Correos 79, Valladolid, Spain. Cable: Seminici. Director: C. Romero de Andres. (Stressing films with religious and human values)
- *18TH ADELAIDE INT'L FILM FESTIVAL (July 14-26, 1975), G.P.O. Box 2019, Adelaide, South Australia 5001, Australia. Cable: Adfest. Director: Eric Williams. (New Cinema)
- 20TH CORK FILM INTERNATIONAL (June 7-14, 1975), 15 Bridge St., Cork, Ireland. Cable: Corkfest. Director: Dermot Breen. (Outstanding technical collaboration)
- 6TH INT'L FESTIVAL OF RED CROSS AND HEALTH FILMS (June 16-25, 1975 in Varna, Bulgaria), Central Committee of the Bulgarian Red Cross, 1 Biruzov Blvd., Sofia, Bulgaria. Cable: Bulgaredcross. Director: Alexander Marinov. (Alternate years)
- 13TH INT'L FESTIVAL OF SCIENCE FICTION FILMS (July 5-12, 1975), Castello DiS. Giusto, 34121 Trieste, Italy. Director: Flavia Paulon.
- 8TH INT'L FESTIVAL OF FANTASTIC AND HORROR CINEMA (Oct. 4-10, 1975), San Isidro 12, Sitges (Barcelona), Spain. Cable: Fantasfilm. Director: Antonio Rafales Gil.
- *17TH INT'L WEEK OF CINEMA IN COLOR (Oct. 10-18, 1975), Palacio No. 1, Av. Maria Cristina, Barcelona 4, Spain. Cable: Sonimag. Director: Jose Maria Otero. (Competitive for shorts only)
- *13TH INT'L CINEMA MEETINGS (Sept. 28-Oct. 4, 1975 in Sorrento and Naples), Via Partenopoe 10/A, Naples, Italy. Cable: Enturismo. Permanent office: Viale Asia 9, 00144 Rome, Italy. Director: Dr. Gian Luigi Rondi. (Films of one country; this year: Yugoslavia)

COMPETITIVE (for shorts only)

- 12TH INT'L FESTIVAL OF SHORT FILMS (June 3-8, 1975 in Cracow), 6/8 Mazowiecka, P.O. Box 61, Warsaw, Poland. Cable: Imexfilm. Director: Henryk Olszewski. (Domestic Festival: May 31-June 3, 1975)
- *10TH INT'L ANIMATED FILM FESTIVAL (June 17-21, 1975 in Annecy), 21 rue de la Tour d'Auvergne, 75009 Paris, France. Cable: Jourcine. Director: Raymond Maillet. (Alternate years)

Of special interest to film-makers and cinema buffs is this comprehensive listing of major film events around the world

- 4TH INT'L SHORT FILM AND DOCUMENTARY FESTIVAL (June 24-29, 1975 in Grenoble, France), 5 rue Labie, 75017 Paris, France. Cable: Grenofest. Director: Jacques Barraut.

NON-COMPETITIVE (unless marked with *)

- BRUSSELS FILM FESTIVAL (Jan. 10-19, 1975), 32-ave. de l'Astronomie, 1030 Brussels, Belgium. Director General: L. Lambotte.
- 5th BELGRADE INT'L FILM FESTIVAL (Feb. 7-15, 1975), Knez Mihajlova 19/3, Belgrade, Yugoslavia. Cable: Jugofestival. Director: Milutin Colic.
- 15TH CARTAGENA INT'L FILM FESTIVAL (March 7-13, 1975), Apartado Aereo 1834, Cartagena, Colombia. Cable: Festivalcine. Director: Victor Nieto.
- VIENNALE 75 — VIENNA FILM FEST WEEK (March 13-20, 1975), Rathausstrasse 9, Postfach 35, 1082 Vienna, Austria. Cable: Filmviennale. Director: Edwin Zbonek.
- 4TH LOS ANGELES INT'L FILM EXPOSITION — Filmex (March 13-26, 1975), 1424 Beachwood Drive, Hollywood, Calif. 90028, USA. Cable: Rosebud. Director: Gary Essert.
- 22ND SYDNEY FILM FESTIVAL (June 1-16, 1975), G.P.O. Box 4934, Sydney, N.S.W. 2001, Australia. Cable: Sydfest. Director: David J. Stratton.
- *24TH MELBOURNE FILM FESTIVAL (June 6-21, 1975), P.O. Box 357, Carlton, Victoria 3053, Australia. Cable: Melbfest. Director: Erwin Rado. (Competitive for shorts)
- 7TH AUCKLAND FILM FESTIVAL (June 20-July 3, 1975), P.O. Box 1411, Auckland 1, New Zealand. Cable: Festivauck. Director: A Thomas.
- 4TH THESSALONIKI INT'L FILM FESTIVAL (June 23-29, 1975), Thessaloniki 36, Greece. Cable: Foirint. Director: Rigas D. Tzeleplou. (Competitive for shorts; domestic festival: Sept. 1975)
- 13TH NEW YORK FILM FESTIVAL (Sept. 27-Oct. 16, 1975 at Avery Fisher Hall), Lincoln Center for Performing Arts, 1865 Broadway, New York, N.Y. 10023, USA. Cable: Licenarts. Director: Richard Roud.
- 19TH SAN FRANCISCO INT'L FILM FESTIVAL (Oct. 12-26, 1975), 1409 Bush St., San Francisco, Calif. 94109, USA. Cable: Filmfest. Chairman: George Gund.
- 19TH LONDON FILM FESTIVAL (Nov. 18-Dec. 3, 1975), National Film Theatre, South Bank; Waterloo, London SE 1, England. Cable: Brillinst. Director: Ken Wlaschin.

OTHER COMPETITIVE

- 21ST INT'L FESTIVAL OF SHORT FILMS IN OBERHAUSEN (May 5-10, 1975), Westdeutsche Kurzfilmtage, Grillostrasse 34, D-4200 Oberhausen, FRG. Vice Director: Walter Seider. Cable: Filmtage. (7th Information Days of FRG and West Berlin Films: May 3-4, 1975)
- 28TH LOCARNO INT'L FILM FESTIVAL (July 31-Aug. 10, 1975), P.O. Box 186, CH-6600 Locarno, Switzerland. Cable: Filmfestival. Director: Moritz de Hadeln. (New tendencies in film expression)
- 29TH EDINBURGH INT'L FILM FESTIVAL (Aug. 24-Sept. 6, 1975), Film House, 3 Randolph Crescent, Edinburgh EH3 7TJ, Scotland. Cable: Filmfest. Director: Lynda Myles. (Films by young independent filmmakers and new directions in cinema)
- 24TH MANNHEIM INT'L FILM WEEK (Oct. 6-12, 1975), Rathaus E5, 6800 Mannheim, FRG. Cable: Filmweek. Director: Hanns Maier.
- 11TH CHICAGO INT'L FILM FESTIVAL (Nov. 7-21, 1975), 12 East Grand Ave., Chicago, Illinois 60611, USA. Cable: Cinefest. Director: Michael J. Kutza Jr.
- 13TH INT'L FILM FESTIVAL IN PANAMA (Nov. 15-22, 1975), Apartado 6858, Panama 5, Panama. Cable: Festivalcine. Director: Roberto A. Morgan.
- VIRGIN ISLANDS FILM FESTIVAL (Nov. 7-16, 1975). U.S. Virgin Islands 00801. Cable: Paradise USVI. Director: J. Hunter Todd.

OTHER SPECIALIZED (competitive unless marked with*)

- 15TH INT'L AGRICULTURE FILM COMPETITION (Jan. 1976), Bundesallee 216-218, 1 Berlin 15. Cable: Agrafilm. Chairman: Dr. Hans-Jochen Richnow. (Alternate years)

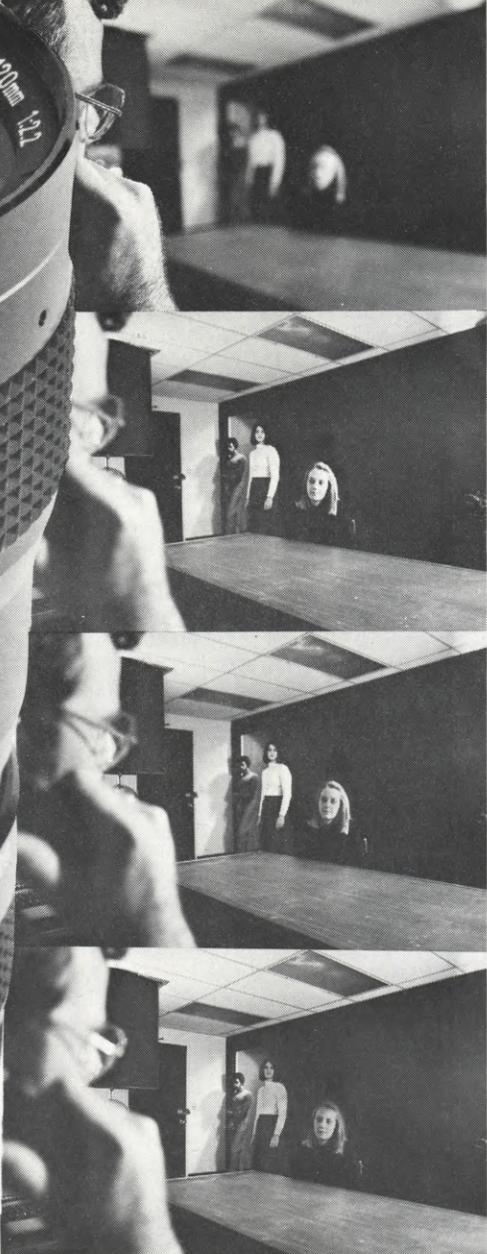
- 3RD INT'L FESTIVAL OF FANTASTIC FILMS (Jan. 24-25, 1975), Maison d'Avoriaz, 74110 Avoriaz, France.
- *CINEMANIFESTATIE 1976 (end of Jan. 1976), Oudegracht 156, Utrecht, Netherlands. (Alternate years)
- 5TH TAMPERE SHORT FILM FESTIVAL (Feb. 20-23, 1975), P.O. Box 305, 33101 Tampere 10, Finland. President, Organizing Committee: Ilkka Kalliomaki.
- 18TH INT'L COMPETITION OF AUTHOR FILMS (March 17-23, 1975 in San Remo), Rotonda dei Mille 1, 24100 Bergamo, Italy. Cable: Cinemastra. Director: Prof. Nino Zucchini.
- *1ST CONFERENCE ON CULTURE & COMMUNICATION (March 13-15, 1975), c/o Dept. of Anthropology, Temple University, Philadelphia, Penna. 19122, USA.
- 14TH NATIONAL REVIEW OF TOURIST FILMS (March 14-17, 1975 in Como, Italy), Comitato Nazionale per il Turismo, c/o Confederazione General dell'Industria Italiana, Viale dell'Astronomia 30, 00144 Rome, Italy. Director: Prof. Mario Verdone.
- 5TH U.S.A. FILM FESTIVAL (March 17-23, 1975), Bob Hope Theater, Southern Methodist University, P.O. Box 3105, Dallas, Texas 75275, USA. Director: Dr. G. William Jones (Domestic films only)
- 7TH BRUSSELS INT'L SCIENTIFIC AND TECHNICAL FILM FESTIVAL (March 1976), Centre Universitaire du Film Scientifique, Universite Libre de Bruxelles, 50 ave. Franklin Roosevelt, B-1050 Brussels, Belgium. (Every third year)
- CINESTUD 76 — 6th Int'l Festival of Student-Made Films (March 1976), Roetersstr. 34, Amsterdam, Netherlands. Director: Charles Haffmans. (Every third year)
- 4TH INT'L FESTIVAL OF SCIENCE-FICTION & FANTASY FILMS (April 6-13, 1975 at the Palais des Congres/Centre Int'l de Paris), L'Ecran Fantastique, 9 rue du Midi, 92200 Neuilly, France. Director: Alain Schlockoff.
- 8TH U.S. INDUSTRIAL FILM FESTIVAL (April 24, 1975), 1008 Bellwood Ave., Bellwood, Illinois, USA. Cable: Filmfest. Chairman: J.W. Anderson. (Deadline: March 1)
- 23RD INT'L COMPETITION FOR MOUNTAIN AND EXPLORATION FILMS (April 27-May 3, 1975), Via Belenzani 3, 38100 Trento, Italy. Cable: Filmfestival. Director: G. Grassi.
- 8TH ANNUAL INT'L FILM FESTIVAL (May 8-11, 1975), c/o John Heckle, Theatre Arts Dept., Humboldt State University, Arcata, Calif. 95521, USA. Co-ordinator: Gary Dowling.
- 3RD INT'L FESTIVAL OF FILMS ON ART & BIOGRAPHIES OF ARTISTS (May 31-June 5, 1975), Palazzo della Provincia, Treviso, Asolo, Italy. Director: Flavia Paulon. (Organized by the tourism depts. of the city and province with the collaboration of UNESCO)
- *WOMEN AND FILM (June through Sept., Information Van Tours in 10 provinces and the Yukon Territory of Canada), Central Office, 4 Maitland St., Toronto, Ont., Canada.
- 1ST FESTIVAL OF FILMS ON THE DANCE (June 2-7, 1975), Dance Museum, Box 27 109, S-102 53 Stockholm 27, Sweden.
- 9TH INT'L FESTIVAL OF TOURIST FILMS (June 4-13, 1975), 2 Place Ferre, 65000 Tarbes, Hautes-Pyrenees, France.
- *10TH BRISBANE FILM FESTIVAL (June 7-13, 1975), G.P.O. Box 1655, Brisbane 4001, Queensland, Australia. Cable: Brisfest. Director: L.E. Thurecht.
- 21ST FILM FESTIVAL IN ASIA (June 12-15, 1975), 10 Jalan Cut Nyak Diem, Jakarta, Indonesia. Executive Committee Chairman: Turino Junaidy. (Alternately in member countries of the Federation of Motion Picture Producers in Asia)
- 22ND INT'L ADVERTISING FILM FESTIVAL (June 23-28, 1975 in Venice, Italy). Permanent headquarters: 35 Piccadilly, London W1V 9PB, England. Cable: Festfilm. Director: Simon Dalgleish.
- 13TH INT'L CONTEST OF CHILDREN'S FILMS (June 22-28, 1975), Enrique Cangas 37, Gijon, Spain. Cable: Cerinter. Director: Isaac del Rivero de la Llama.
- FESTIVAL INT'L DU FILM DE L'ENSEMBLE FRANCOPHONE (July 5-12, 1975 in Dinard, France), 22 rue d'Artois, 75008 Paris, France.
- 7TH INT'L SCIENTIFIC FILM FESTIVAL (July 16-26, 1975), Travessa Euricles de Matos 17,ZC01, Rio de Janeiro, Brazil. Co-ordinator: Fernando Colin.
- 22ND FESTIVAL OF YUGOSLAV FEATURE FILMS (July 26-Aug. 1, 1975 in Pula), Knez Mihajlova 19, Belgrade, Yugoslavia. Cable: Yugofestival. Director: M. Novakovic.
- 28TH INT'L SALON OF HUMOR (July 26-31, 1975), Corso Italia 46, 18012 Bordighera, Italy. Dir.: Cesare Perfetto.
- 3RD ABU SHIRAZ FILM FESTIVAL OF YOUTH (Aug. 6-16, 1975), c/o NIRT, P.O. Box 33-200, Tehran, Iran. Cable: Telmel; Telex: 2797. Director: Cyrus Ramtin. (Participation by young filmmakers from member countries of ABU)
- 9TH INT'L FESTIVAL OF ARTS (Aug. 21-30, 1975 in Shiraz-Persepolis), P.O. Box 33-200, Tehran, Iran. Cable: Telmel. Director: Reza Ghotbi.
- 5TH ANNUAL FILM COMPETITION, MARIN COUNTY FAIR (Aug. 28-Sept. 1, 1975), Civic Center, San Rafael, Calif. 94903, USA. (For films not commercially subsidized)
- 12TH INT'L EDUCATIONAL FILM FESTIVAL (Sept. 1975 in Tehran and 14 other key cities of Iran), Audio-Visual Dept., Ministry of Education, Jaleh Ave., Tehran, Iran. Director: A.A. Mehrpour.
- 15TH INT'L INDUSTRIAL FILM FESTIVAL (Sept. 9-13, 1974 in Helsinki, Finland), Organization Committee, Bureau for Economic Information, P.O. Box 147, 00131 Helsinki 13, Finland. Director: Leif Fast. Permanent office: Confederazione Generale dell'Industria Italiana, Viale dell'Astronomia 30, 00144 Rome, 1 Italy. Director: G. Gozzi. (Alternately in western European countries)
- INT'L YOUNG CINEMA MEETINGS (Sept. 9-16, 1975 in Toulon, France), Domaine de la Ferme, 83410 Les Salins d'Hyeres, France.
- *11TH STRATFORD INT'L FILM FESTIVAL (Sept. 12-20, 1975), Box 520, Stratford, Ontario N5A 6V2, Canada. Director: Gerald Pratley.
- 2ND FESTIVAL OF MUSICAL & CHOREOGRAPHIC FILMS (Sept. 14-22, 1975), 2 ave. Carnot, 2500 Besancon, France. Commissioner General: P. Lagrange.
- *ARNHEM INT'L FILM WEEK, The Holland Festival (Sept. 25-Oct. 1, 1975 in Arnhem, Holland), Nederlandse Bioscoopbond, P.O. Box 5048, Amsterdam, Netherlands. Director: J. Th. van Taalingen. (Alternate years)
- INT'L DAYS OF ENVIRONMENTAL DOCUMENTARIES (Sept. 22-26, 1975), Hotel de Ville, 14150 Ouistzham, France. President: M. Ternisien.
- 14TH BULGARIAN FILM FESTIVAL (Sept. ??-?? 1975 in Varna), 96 Rakovsky St., Sofia, Bulgaria. Cable: Bulkin. Director: Marko Markov.
- 18TH INT'L GOLD MERCURY FILM PRIZE (Sept. 29, 1975), Chamber of Commerce, Industry, Crafts and Agriculture, Via XXII Marzo, Venice, Italy. Secretary General: Giorgio Buccari. (Films on Industrial and related subjects — 10 categories incl. tourism)
- YOUNG ACTORS CINEMA MEETINGS (Oct. 9-13, 1975), Centre d'Animation Culturelle, 29 av. Sarrail, 90000 Belfort, France. Director: Yves Michallet.
- 3RD INT'L FESTIVAL OF OCEANOGRAPHIC FILMS (Oct. 1978 in Bordeaux, France), 8 rue de la Nichodiere, 75002 Paris, France. Director: Francois Algoud. (Every fourth year)
- MASTER'S INVITATIONAL FILM FESTIVAL (Oct. 17, 1975 in Scottsdale, Arizona, USA), Suite 400, 3443 North Central Ave., Phoenix, Arizona 85012, USA. Director: Robert L. Bluemle.
- 7TH INT'L SHORT FILM FESTIVAL OF NYON (Oct. 20-26, 1975), P.O. Box 98, CH-1260 Nyon, Switzerland. Cable: Filmfestival. Director: Moritz de Hadeln.
- 5TH INT'L 16MM FILM FESTIVAL IN MONTREAL (Oct. 21-26, 1975), Festival Office, Independent Filmmakers Cooperative, 2026 Ontario St., Montreal 133, Quebec, Canada. Director: Dimitri Eipides.
- 4TH SPORTS FILM FESTIVAL IN OBERHAUSEN (Oct. 22-26, 1975), Schwarzstrasse 71, 42 Oberhausen 1, FRG. Cable: Filmtage. (Alternate years)
- 13TH YORKTON INT'L FILM FESTIVAL (Oct. 22-25, 1975), c/o Main Post Office, Yorkton, Saskatchewan, Canada.
- 9TH INT'L HOFER FILMDAYS (Oct. 30-Nov. 2, 1975 in Hof, FRG), Wolgemutstr. 10,8 Munich 90, FRG. Director: Heinz Badewitz.
- 10TH TEHRAN INT'L FESTIVAL OF FILMS FOR CHILDREN AND YOUNG ADULTS (Nov. 2-9, 1975), Takhte-Tavous Ave., 31 Jam St., Tehran, Iran. Cable: Kanoon. Managing Director: Mrs. Lilv Ariomand.
- 4TH INT'L WEEK OF NAUTICAL CINEMA (Nov. 3-8, 1975), Centro de Iniciativas y Turismo, Castellini 5 y 7, Cartagena, Spain. Cable: Secinval. Director: Rafael Rodriguez.
- 18TH INT'L FILM & TV FESTIVAL OF NEW YORK (Nov. 4-7, 1975), 251 W. 57 St., New York, N.Y. 10019, USA. Cable: Interfilm. Chairman: Herbert Rosen.
- 17TH INT'L WEEK OF AUTHOR FILMS (Nov. ??-?? 1975 in Benalmadena-Malaga, Costa del Sol, Spain), National Federation of Cineclubs, Capitan Haya 3, Madrid, Spain. Director: S.H. Guarnier.
- 18TH INT'L FESTIVAL OF SHORT AND DOCUMENTARY FILMS FOR CINEMA AND TELEVISION (Nov. 22-29, 1975), Postfach 940, 701 Leipzig, GDR. Permanent office: Otto-Nuschke-str. 27, 108 Berlin, GDR. Cable: Dokwoche. Director: Ronald Trisch.
- 20TH BILBAO INT'L CONTEST OF DOCUMENTARY & SHORT FILMS (Dec. ?-? 1975), Instituto Vascongado de Cultura

Continued on Page 804

PEOPLE SAID THIS WAS IMPOSSIBLE

"DOLLYING" WITH A ZOOM LENS—CHANGING FOCAL POINT WITH CONSTANT FIELD SIZE.

RACK FOCUSING FROM EXTRA CLOSE-UP TO NORMAL OR DISTANT SUBJECT.



Set zoom lever at wide-angle position, and focus on nearest location of subject with macro ring. Keeping in this position. Rotate zoom to maximum telephoto and focus normally on most distant location of subject. Use zoom control to "follow focus" subject, which will remain constant in size.

Focus normally on most distant subject (man in doorway) and zoom to desired focal length. Leaving controls in this position, rotate macro ring so closest subject (man on phone) is in focus. Shift focus from near to intermediate to far subjects by rotating macro ring to full off.

If the Canon F/2.2 C12-120 Macro Zoom did nothing more than focus as close as 1mm from its front surface, or reduce chromatic aberration to near-theoretical limits, it would be a remarkable lens. But it does more.

Far more. With the Canon 10 x 12 Macro, you can rack focus cleanly from extreme CU's to long shots; "dolly" alongside a subject, without moving at all; even alter the perspective between near subject and

distant background. For a demonstration of this remarkable lens, as well as the many other Canon optics, including the exclusive Macro 13.5—135 Canon Super-16, see your Canon dealer... or contact us for more information.

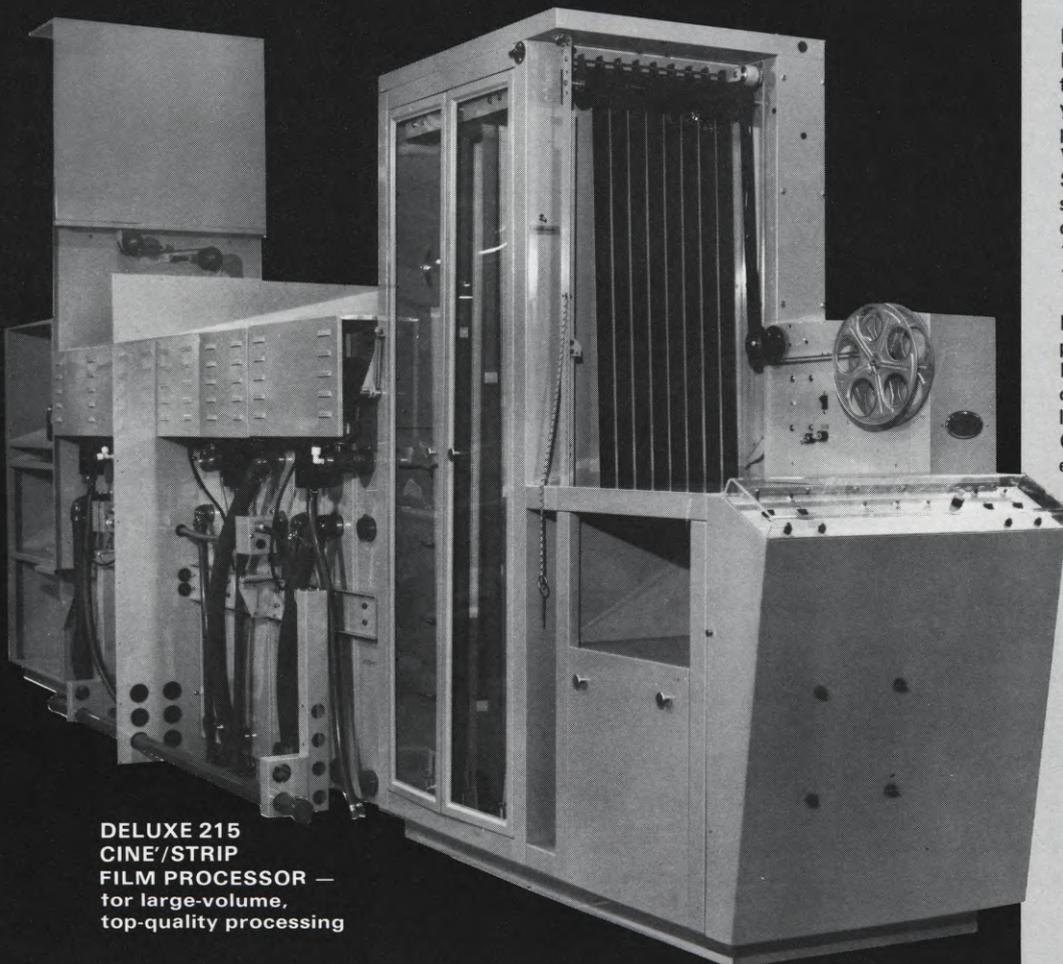


COMPACT 529
CINE'/STRIP
FILM PROCESSOR —
high-production processing in
only 20 sq. ft. floor space



When
everything
costs more
and your needs
are more
demanding

...it's good to
have a choice



DELUXE 215
CINE'/STRIP
FILM PROCESSOR —
for large-volume,
top-quality processing

PAKO LETS YOU CHOOSE
from a broad line of versatile,
high-quality film processors designed
to handle most film sizes and types,
and to fit your exact requirements
with unsurpassed efficiency.

CINE'/STRIP PROCESSING — The
film transport system is the heart of any
continuous film processing machine . . .
and Pako's *unique* Cradle Drive System
is an exclusive; and reason alone to
select a Pako Film Processor over any
of the others. Cradle Drive assures
minimum film tension; virtually eliminates
film breakage. And it permits handling
a variety of film widths on one machine
without mechanical changes, adjustments
or changeover procedures. Cradle Drive
is standard on all Pako Cine'/Strip Film
Processors. Users call it "the best
demand drive system available!"

MODEL 529 SERIES is Pako's full line
of *compact* Cine'/Strip Film Processors
for film sizes from 8mm through 70mm
and most film processes. Simple, yet
precise control of time, temperature,
turbulation, replenishment and wash
water flow rates assures high quality
results with minimum operator attention.

215 SERIES is a *big-capacity* continuous
system for efficient processing of a wide
range of film processes and sizes. The
modular stainless steel construction
makes the 215 Series Cine' System easy
to install, service and adapt to your
future needs.

**PAKO'S HANGER TRANSFER
FILM MACHINES** have been known as
the workhorses of the industry for many
years. The HT-41 is a *new* hanger-transfer
processor for all sizes of Kodacolor II and
Vericolor II films in the C-41 process.
Special variable speed electronic drive
system cuts time and increases reliability
of film transfer. Capacity in rolls per hour:
1420 for 110 film, 745 for 35mm and
126 films, 520 for 120 film.

PDQ SALES AND SERVICE is Pako's
program for fast, on-the-spot service.
Fully-equipped PDQ service vans operate
out of Pako service centers strategically-
located throughout the U. S. and Canada.
Certified distributors supplement this
extensive program in key areas. PDQ is an
important "feature" of every Pako
product . . . it helps keep you in
production, *profitably*.

PAKO®

PAKO CORPORATION
6300 Olson Memorial Highway
Minneapolis, Minnesota 55440

1975 FILM FESTIVALS AND CONFERENCES

Continued from Page 801

Hispanica, Gran Via 17, Bilbao 1, Spain. Cable: Documentalfilm. Director: Roberto Negro.

1ST VIRGIN ISLANDS INT'L FILM FESTIVAL (Nov. 7-16, 1975), c/o V.I. Film Promotion, P.O. Box 1692, St. Thomas, U.S. Virgin Islands 00801, USA. Director: J. Hunter Todd; Co-ordinator: Win deLugo. (in collaboration with the V.I. Film Society)

18TH INT'L FESTIVAL OF SCIENTIFIC & EDUCATIONAL FILMS (Nov. 10-16, 1975), Lungargine del Piovego 1, 35100 Padua, Italy. Director: Franco Flarer. (Alternate years)

10TH INDEPENDENT FILMMAKERS EXPOSITION (deadline: Dec. 1, 1975), 53 Hamilton Ave., Staten Island, N.Y. 10301, USA. Director: Robert Manning.

*16TH FESTIVAL OF THE PEOPLE — Int'l Review of Social Documentaries (Dec. 1-8, 1975), Via del Proconsolo 10, 50122 Florence, Italy. Cable: Festivalpopoli.

5TH INT'L EXPERIMENTAL FILM COMPETITION (Dec. 25, 1974-Jan. 2, 1975 in Knokke-Heist), Royal Film Archive of Belgium, Palais des Beaux-Arts, 23 Ravenstein, 1000 Brussels, Belgium. (Alternate years)

1ST INT'L FESTIVAL OF FILMS ON SNOW (Dec. 26-30, 1975 in Chamrousse, France), Maison du Dauphine, 87 rue du Cherche-Midi. 75006 Paris, France. Directors: Claude Cailroux & Bernard Tremege.

*12TH INT'L MEETINGS OF FILM AND YOUTH (Dec. 26, 1976-Jan. 2, 1977 in Cannes, France), B.P. 796, 38017 Grenoble, Cedex, France. Director: Yves Bes. (Alt. yrs.)

FAIRS — MARKETS — CONVENTIONS — CONFERENCES — AWARDS

1975 ANNUAL AUSTRALIAN FILM AWARDS (March 8, 1975), Australian Film Institute, 89-91 Cardigan St., Carlton, Victoria 3053, Australia. Cable: Filminstitute. Dir.: David Roe.

6TH INT'L FILM-PHOTO-OPTICS & AUDIOVISUAL EXHIBITION (March 15-23, 1975 on the Milan Fair Grounds), Via Tiziano 19, 20145 Milan, Italy. Secretary General: Roberto Pinna Berchet. (Alternate years)

53RD ANNUAL CONVENTION OF NATIONAL ASSOCIATION OF BROADCASTERS (April 6-9, 1975 at Convention Center, Las Vegas, Nevada, USA), NAB, 1771 N St., N. W., Washington, D.C. 20036, USA. Executive Vice President: James H. Hulbert; Convention Manager: Everett E. Revercomb.

47TH ANNUAL ACADEMY AWARDS (April 8, 1975 at Los Angeles Music Center), Academy of Motion Picture Arts & Sciences, 9038 Melrose Ave., Hollywood, Calif. 90069, USA. Cable: Ampasholly.

31ST MIFED (April 18-25, 1975) & 32ND MIFED (Oct. 21-31, 1975), Int'l Film, TV Film and Documentary Market, Largo Domodossola 1, 20145 Milan, Italy. Cable: Mifed. Commissioner General: Dr. M.G. Franci. (TV Pearl Prize winners awarded in Oct.; also: 2nd East-West Market, Oct. 23-25 and 4th Indian Summer Int'l Film Market, Oct. 26-31. Latter is organized in association with IFFPA)

11TH MIP/TV (April 21-26, 1975 in Cannes, France), Int'l TV Program Market, 3 rue Garnier, 92 Neuilly-sur-Seine, France. Cable: Miptv; Telex: 21550, ext. 171. Commissioner General: Bernard Chevry.

9TH INT'L TELEVISION SYMPOSIUM & TECHNICAL EXHIBITION (May 23-29, 1975), Box 97, 1820 Montreux, Switzerland. Chairman: Dr. Walter E. Gerber; Director: Raymond Jaussi. (Alternate years)

24TH ANNUAL CONVENTION OF THE NATIONAL CABLE TELEVISION ASSOCIATION (April 13-16, 1975 in New Orleans, Louisiana, USA), NCTA, 918 16th St., N.W., Washington, D.C. 20006, USA. Managing Director: Wally Briscoe.

VIDEO '75 — 2ND EBAV Conference and Cassette Competition (June 4-5, 1975), The Video Institute, P.O. Box 2144, S-103 14 Stockholm 2, Sweden. Co-ordinator: Mat Myren.

1ST INT'L FAIR FOR THEATRE, CONVENTION HALL & STUDIO EQUIPMENT — CISCO (June 13-18, 1975 at Palais de la Defense in Paris), 3 rue Garnier, 92200 Neuilly, France. Telex: 21550, ext. 171. Commissioner General: Bernard Chevry.

FILM '75 — 4th Int'l Technology Conference & Exhibition (June 23-27, 1975 at Royal Lancaster Hotel in London), British Kinematograph Sound and Television Society, 110-112 Victoria House, Vernon Place, Southampton Row, London WC1B 4DJ, England. Co-ordinator: William Pay. (Alternate years)

INTER NAVEX 75 — Int'l Audio-Visual Aide Conference & Exhibition (July 8-11, 1975), 33 Queen Anne St., London W1M 0AL, England. Director: G.C. Marchant.

1975 UNIVERSITY FILM ASSOCIATION CONFERENCE (Aug. 18-22, 1975), College of Graphic Arts and Photography, Rochester

Institute of Technology, 1 Lomb Memorial Drive, Rochester, N.Y. 14623, USA. General arrangements chairman: Reid Ray.

INT'L RADIO AND TV EXHIBITION (Aug. 29-Sept. 7, 1975), AMK, Messidamm 22, 1000 Berlin (West).

VIDCOM — Int'l Market for Video Communications (Sept. 24-29, 1976 in Cannes, France), 3 rue Garnier, 92200 Neuilly, France. Telex: 21550 Systelex Ext. 171. Commissioner General: Bernard Chevry.

117TH SMPTE CONFERENCE (Sept. 28-Oct. 3, 1975 at the Century Plaza Hotel in Los Angeles), SMPTE, 862 Scarsdale Ave., Scarsdale, N.Y. 10583, USA. Conference v-p: Harry Teitelbaum.

TELECOM 75 — 2nd World Exhibition on Telecommunications (Oct. 2-8, 1975), Int'l Telecommunications Union, 1211 Geneva 20, Switzerland. Cable: Burinterna. Secretary General: M. Mili. (Every fourth year. The Golden Antenna Competition is held concurrently.)

14TH PHOTOKINA, A WORLD'S FAIR OF PHOTOGRAPHY (Oct. 10-16, 1975), Messeund Ausstellungsges. m.b.H., P.O. Box 210760, D5 Cologne, FRG. Cable: Intermesse. (Alternate years)

VIDEO EXPO '75 (Oct. 7-9, 1975 at Madison Square Garden, New York City). Inquiries: Dantia Quirk, Knowledge Industry Pub. Inc., P.O. Box 429, Tiffany Towers, White Plains, N.Y. 10602, USA. (Non-broadcast tv show)

9TH INT'L TELEFORUM OF INTERVISION (Oct. ?-? 1975), 12 Akademik Korolyov St., Moscow, USSR. Cable: Teleforum 75 c/o Soviet Television.

INT'L EXHIBITION OF AMATEUR & PROFESSIONAL PHOTOGRAPHIC, CINEMATIC & OPTICAL MATERIALS (Nov. 8-16, 1975 at Parc des Expositions), Salon Int'l de la photographie, du cinema substandard et de l'optique, 5 bis, rue Jacquemont, 75017 Paris, France. Director: Marcel Rondeau. (Alternate years)

13TH EBU INT'L SEMINAR FOR EDUCATIONAL TELEVISION (Dec. 11-17, 1975 in Basel, Switzerland), Swiss Broadcasting Corp., Giacomettistrasse 1, CH-3000 Bern 16 Switzerland. Telex: 33161. Director: Frank R. Tappolet.

TELEVISION (competitive unless marked with*)

15TH INT'L TELEVISION FESTIVAL OF MONTE CARLO (Feb. 14-23, 1975), Palais des Congres, av. d'Ostende, Monte Carlo, Monaco. Cable: Servicongres. President: Pierre Blanchy.

10TH JAPAN PRIZE INTERNATIONAL EDUCATIONAL PROGRAM CONTEST (March 19-April 1, 1975), NHK, NHK Bldg., 2-2-1 Jinnan, Shibuya-ku, Tokyo, 150 Japan. Cable: Radionhk. Director: Kichiro Ono.

8TH PRIX FUTURA (March 16-22, 1975), Sender Freies Berlin, Masurenallee 8-14, 1000 Berlin 19. Cable: Freisender. Sec'y: Dr. Ulrich Bergfried. (Alternate years)

15TH CONTEST FOR THE GOLDEN ROSE OF MONTREUX (May 23-29, 1975), P.O. Box 97, 1820 Montreux, Switzerland. Cable: Festimont. Director: Raymond Jaussi. Headquarters: Swiss Broadcasting Corp., Giacomettistr. 1, 3000 Bern 16, Switzerland. Cable: Radif. Secretary General: Frank R. Tappolet.

9TH GOLDEN HARP TV FESTIVAL (May 19-23, 1975), Radio Telefis Eireann, Donnybrook, Dublin 4, Ireland. Telex: 5268. Secretary General: Niall Sheridan.

7TH PRIX JEUNESSE INT'L (June 1976), Rundfunkplatz 1, 8000 Munich 2, FRG. Cable: Prix Jeunesse. General Secretary: Dr. Ernst Emrich. (Alternate years)

'75 INT'L CLIO AWARDS/15TH AMERICAN FESTIVAL OF TELEVISION & RADIO COMMERCIALS/INT'L TV-CINEMA, PRINT & RADIO COMPETITION (entry deadline: Feb. 1; all awards announced in June), 30 East 60 St., New York, N.Y. 10022, USA. Cable: Cliofest. Director: Bill Evans.

12TH INT'L TV FESTIVAL (June 11-18, 1975), Gorkeho nam. 29-30, 11150 Prague 1, Czechoslovakia. Cable: Televize; Telex: 12 18 00 tvpg c. Director: Dr. Gennadij Codr.

5TH NATIONAL TELE-MEETING (June 23-28, 1975 in Veszprem, Hungary), Hungarian Television, Szabadsag ter 17, 1810 Budapest, Hungary. Cable: Mtv. Director: Endre Gellert.

27TH ITALIA PRIZE (Sept. 17-29, 1975 in Florence, Italy), c/o RAI, Viale Mazzini 14, 00195 Rome, Italy. Cable: Raidirro. Secretary General: Mario Motta.

3RD FESTIVAL OF TELEVISION PROGRAMS FOR CHILDREN & YOUTH — Int'l Danube Prize (Sept. 24-Oct. 1, 1975), Czechoslovak Television, nam., SNP 38, Bratislava, Czechoslovakia. Cable: Televizia; Telex: 093 280. Director: Jaroslav Hlinicky. (Alternate years)

5TH ANNUAL US & CANADIAN AWARDS COMPETITION FOR TELEVISION COMMERCIALS (deadline for entries Oct. 1, 1975; awards presented in Chicago Nov. 20, 1975), sponsored by the US Festival For Television Commercials, 1008 Bellwood Ave., Bellwood, Illinois, USA. Cable: Filmfest. Director: J.W. Anderson.

8TH ANNUAL INT'L COMPETITION OF TV COMMERCIALS (deadline for entries: July 20, 1975; prizes awarded Oct. 23 at New Otani Hotel in Tokyo; public screenings of winners Oct. 24 at Hibiya Hall, Tokyo), All Japan Radio & Television Commercial Council (ACC), Bunshun Bldg., 3 Kioicho, Chiyoda-ku, Tokyo, 102 Japan. Cable: Alljapcc. Director: C. Iba.

11TH HOLLYWOOD FESTIVAL OF WORLD TELEVISION (Nov. 1975 at Los Angeles World Trade Center), P.O. Box 2430, Hollywood, Calif. 90028, USA. Cable: Hollyfestv. Director: Al Preiss.

AMATEUR FILM FESTIVALS/COMPETITIONS

17TH ROCHESTER INT'L AMATEUR FILM FESTIVAL — Movies on a Shoestring (May 3, 1975), Box 3360, Rochester, N.Y. 14614, USA. Publicity Director: Bernie Michaels.

MELBOURNE INT'L AMATEUR FILM FESTIVAL (closing date for entries: May 23, 1975), 5 Tolls Ave., Mentone, 3194 Victoria, Australia. Secretary: John C. Smith.

INT'L FESTIVAL OF COTE D'AZUR (June 16-22, 1975 in Menton, France), Secretariat, c/o 14 rue d'Alsace-Lorraine, 06000 Nice, France. Presidents: Jean Ducoeur & Yves Monier. (Alternate years)

28TH CANNES INT'L AMATEUR FILM FESTIVAL (Aug. 30-Sept. 7,

1975), Palais des Festivals, La Croisette, P.O. Box 279, 06403 Cannes, France. President: Dr. Jacques Debay.

CHRISTCHURCH INT'L AMATEUR FILM FESTIVAL (closing date for entries: Sept. 30, 1975), Box 2006, Christchurch, New Zealand. Secretary: Mrs. Rosemary Kent.

7TH INT'L AMATEUR FILM FESTIVAL (Oct. 17-19, 1975), Georg-Voigt-Str. 37, D-355 Marburg/Lahn, FRG. Director: Dr. Hermann Shreiner.

45TH PSA-MPD INT'L FILM FESTIVAL (Aug. 19-23, 1975 in Dallas, Texas, USA), c/o P.O. Box 1009, Alameda, Calif. 94501, USA. Chairman: Cecil Paget.

20TH ANNUAL TEN BEST OF THE WEST AMATEUR FILM FESTIVAL (Oct. 31-Nov. 3, 1975), 5657 Beach Drive S.W., Seattle, Washington 98136, USA. Director: Jack Moran.

14TH GOLDEN KNIGHT INT'L AMATEUR FILM FESTIVAL (Nov. 5-7, 1975), Malta Amateur Cine Circle, P.O. Box 450, Valletta, Malta. Chairman: W.A. Sultana, M.D.

BULLETIN:

4TH PERTH FILM FESTIVAL (Aug. 8-21, 1975), P.O. Box 149, South Perth, Western Australia, Australia. Cable: Perthfest. Director: David Roe. ■

PHOTOGRAPHING "INVISIBLE" Continued from Page 777

examination room, where he puts a bandage on him first and then gives him an injection.

During all this time our invisible man is completely covered from head to toe by a blue body stocking and he's actually handling the various props, because any amount of wire work would have looked very ragged and sloppy. We have actual hands moving these things. Special effects rigged a very clever hypodermic syringe which had the liquid leaving through a blue tube, so that you couldn't see it leaving. It looked like it was going into his arm. They also wound a bandage around a blue stick to simulate his arm, so that now all we had was a bandage walking around the room.

The doctor brings him into his den and says, "I've got to put some clothes on you, because I can't tell where you are." Now our man puts on some clothes — a pair of pants, a turtleneck sweater and a pair of shoes. So now there is this headless body walking around the room, sitting down in a chair and playing a little scene around the fireplace. Then they play another scene by the bar, which ends the first sequence.

I don't know of any other method that could have achieved such effects so well and so realistically. The lighting throughout this sequence was low-key, because it was late at night, and I wanted the figures to be lighted in a way that was compatible with firelight and a few little desk lamps. Of course, in the blue scene, we had to make sure there was enough light on the body stocking, so that it remained invisible and no shadows appeared.

One slight disadvantage of using a

video system, as compared to film, is that it is extra sensitive to shiny metals, and if a light is just a little too bright it seems to come off the tube and they are not able to handle it. Such a thing wrecks the whole electronics set-up, overbalances it somehow. You have to either spray such a hot spot, or take some of the light off of it in order to reduce the highlight to within a certain set of values. If you do something like that, there's no problem.

As far as my own transition to working with video cameras in the special effects sequences was concerned, I must say that the video cameras took a bit of getting used to. The vidicon lenses, I'm sure, are very good, but one of the engineers told me that the springs inside the zoom lenses are very much heavier set than film zooms (in order to eliminate any slop inside), so the lens is very hard to move. Because of this, they use a mechanical means to turn the zoom.

Also, the viewing aperture in these cameras is a little tube that they view through and it's very difficult to get them so that they match precisely. They allow themselves a little bit of latitude in that respect, but for those of us who work in film and who are used to precise apertures and calibrated lenses and f-stops, it's a little hard to get used to this error in camera viewing. As a result, I had to select a means of matching cameras. When we would get a new set-up, we'd set one camera and then proceed to transfer the optical measurements of the field lens to the second camera — in other words, match them visually instead of by calibration, since there is quite a bit of error there. The viewing aperture in the TV camera can be tilted so that it looks like it is running uphill or downhill. This is called the "gate" and they

have to angle the gate again and resweep it and rescan it and do all these little things which are fun things for video, but gave us film types a headache.

The biggest problem encountered in reference to lighting had to do with the blue body stocking that the actor sometimes wore in the blue set. If wrinkles developed in the thing, you would have to put light into those particular areas of shadow. Otherwise they would show up in the composite. But all you had to do was iron the shadows out with a little bit of light here and there and a pair of pants or a pair of shoes could travel through the real set, with the person invisible.

As far as other lighting challenges were concerned, there was really no great problem. You light in the conventional way, according to the lighting mood that the scene calls for — whether it's low-key or high-key or whatever. But the thing to bear in mind is that your lights must be set for the situation in the "real" set. Then, if there is action also in the blue set, a lot of times you will transfer two or three props to the blue set, so that both the principals are playing in front of the blue screen. Now you'll have to match the lighting of people on the blue set to be compatible with that of the real set. Aside from the people in the blue set, you have to light the blue background and furniture forms so that there will be no shadows to give away their invisibility. In essence, you have three separate types of lighting to take care of: the real set, the people in the blue set, and the blue set itself.

We were fortunate on "THE INVISIBLE MAN" in that our Art Director, Frank Smith, built us a very large semi-circular backing with plenty of room, so
Continued on Page 814

Speak softly

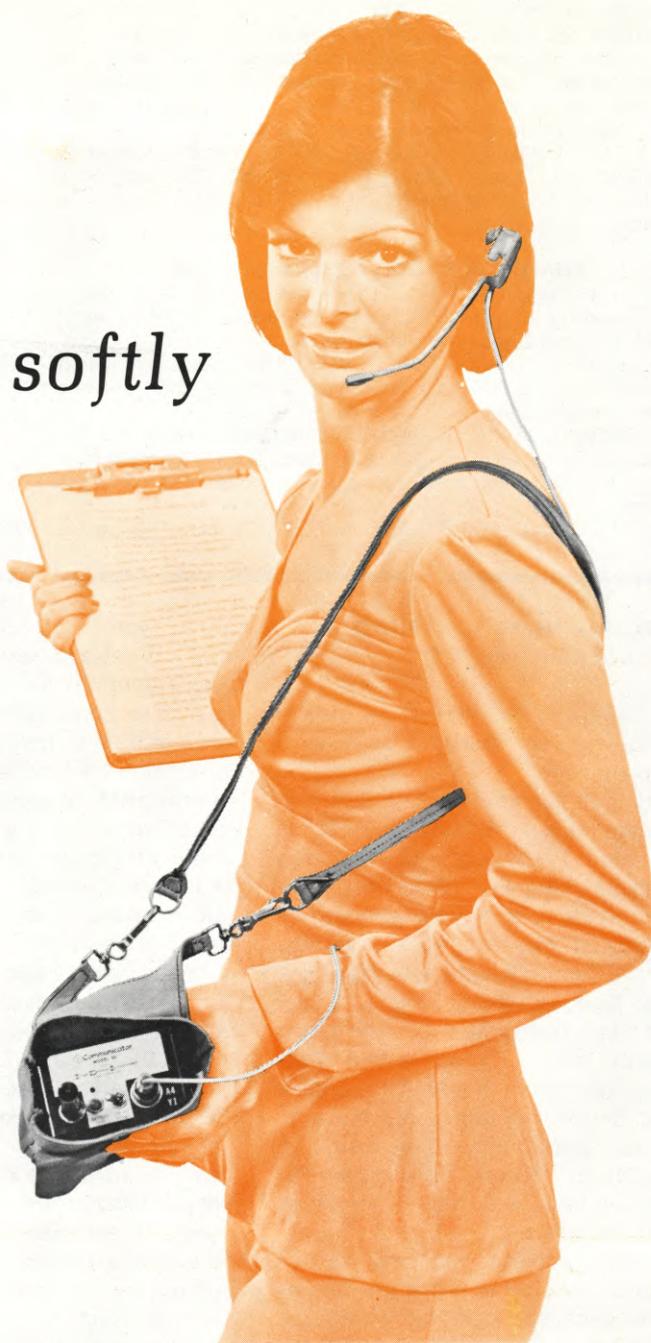
but carry a
small, lightweight



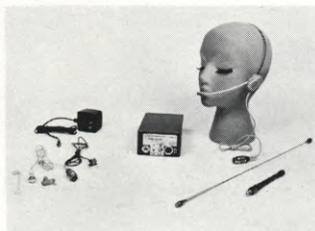
Communicator[®]

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

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



Immediately available for rental and sale



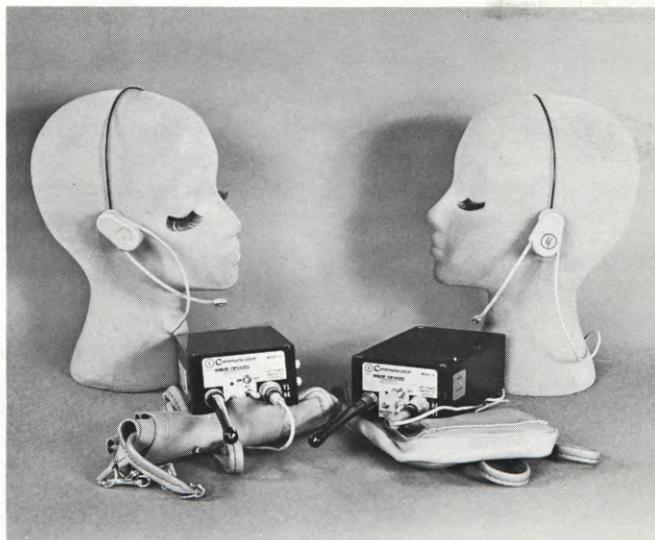
Send for full details now. Contact Image Devices Incorporated; 811 NW 111 Street, Miami, Florida 33168; Telex 51-9348, Cable IMAGEMIAMI, TWX 810/848-9999, PHONE 305/751-1818.

Light and Sound the World Around

IMAGE



DEVICES INCORPORATED





NAME _____ COMPANY _____
 ADDRESS _____ TELEPHONE _____
 CITY _____ STATE _____ COUNTRY _____ ZIP _____

FOR ENTRY KIT AND POSTER, TEAR OUT THIS AD AND AIR MAIL TO:
 THE VIRGIN ISLANDS INTERNATIONAL FILM FESTIVAL,
 U.S. VIRGIN ISLANDS 00801 TELEPHONE (809) 774-7708, TELEX/TWX 347-0086



THE VIRGIN ISLANDS INTERNATIONAL FILM FESTIVAL

"THE FESTIVAL OF THE AMERICAS"
 NOV. 7-16, 1975
 U.S. VIRGIN ISLANDS

For its 8th annual international event the Atlanta Film Festival has moved to the U.S. Virgin Islands. The competition, the Film Market, the hospitality of the world's largest film festival are now all yours in the spectacular setting of the U.S. V.I. Ten days in paradise—luxury hotels, crystal blue waters, sparkling beaches, an international freepport all at special off season tour rates. Enter now, categories range from shorts to features, documentaries to experimental films, TV commercials to TV specials, Super 8 to 70mm, making this truly the ultimate film makers festival and film market. Then plan to escape November with us in the Virgins.



RUTTENBERG SEMINAR

Continued from Page 793

... what type of diffusion did you use? Did you use Mitchell diffusion or nets or ... ?

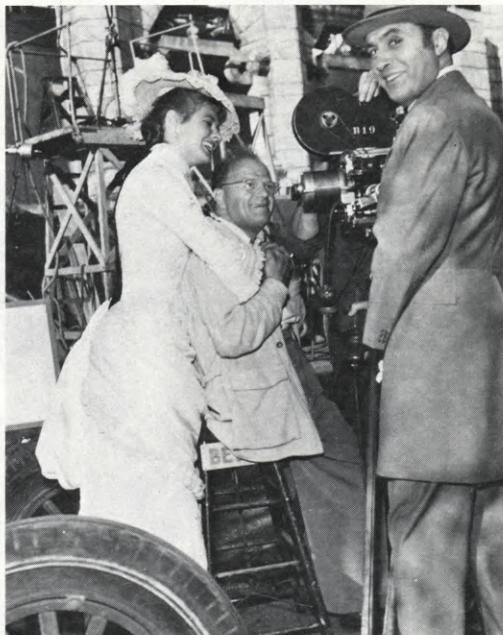
RUTTENBERG: We used O.B. We used gauze nets in places, and sometimes Mitchell diffusion — but I favored the O.B. mostly.

SCHWARTZ: (To student asking question) They used the diffusion on the lights, not in front of the lens, like you were talking about . . .

RUTTENBERG: Lights? I never diffused the lights to soften faces. I diffused the lights because we wanted to get an overall softness. If you use diffused light you flatten out everything.

QUESTION: At one point in the picture, when the glass door of the cabinet was moving, there was a bright highlight . . .

Ingrid Bergman and Charles Boyer play an intimate scene "alone together", surrounded by the crew, on an "exterior" set inside an MGM sound stage, during the filming of "GAS-LIGHT". Director of Photography Ruttenberg sits next to the camera, while Director George Cukor stands at the top of the stairs. Although he did much location shooting during his career, Ruttenberg, when questioned recently, said he preferred studio shooting because of the control it offered.



During his career, Ruttenberg built a towering reputation as a "woman's cameraman" — a phrase which takes on new meaning in photographs like these. (LEFT) He receives a hug from Ingrid Bergman (while Charles Boyer mugs) on the set of "GASLIGHT". (RIGHT) He cuddles with Barbara Stanwyck. Seriously speaking, Ruttenberg has been married to the same lady for 58 years — which may well be the track record for Hollywood matrimony.



RUTTENBERG: You mean that when they opened the cabinet, there was the reflection of a light . . . ?

SCHWARTZ: Sometimes that was interesting, too. This picture was made more than 30 years ago, but there was such a big thing in the papers and among the critics a few years ago when, in a picture called "ROSEMARY'S BABY", they did it more than in anything else I've seen. But in this picture of Joe's, you saw it when the doors opened. It was all there.

RUTTENBERG: Yes, we tried to be as realistic as we could. George Cukor, in my opinion, is a great director and, besides that, he has wonderful taste. You'll notice this in the way the sets are built, the furnishings, etc. And the photography had to be in the same good taste. All of this helped further the mood of the story, too. I think nowadays we miss all of that. The audience doesn't know just what it is, but it affects them in such a way as to jar them when they see such movies. I think the photography has a great deal to do with this and that it's very, very important. I feel that when you're doing an important production and telling a story, it's not wise to use any tricks, unless they have to do with telling that story. Take this business of shooting into the sun. Why shoot into the sun and get all those sun spots all over your film? They tend to make the audience watching the film miss what is going on in the story. I don't know how you





At the peak of his career during the "Golden Age of Hollywood", Rutenberg often had to light and photograph huge sets of the type that would "separate the men from the boys" these days. (LEFT) Preparing to shoot a crane shot for "MADAME CURIE". (RIGHT) Meandering tracks are laid for a tricky dolly shot on the streets of Paris during the filming of "GIGI". Most of the exteriors for that Academy Award-winning picture were actually shot in the "City of Light". This visually magnificent film demonstrates Rutenberg's inspired artistry in color, although he always preferred the greater challenge of black and white.

gentlemen feel about it, but those are my thoughts on the subject.

QUESTION: Isn't it true that the things we are speaking about right now were cardinal sins years ago, from a photographic viewpoint?

RUTTENBERG: Yes, shooting into the sun or into very hot lights . . . But take, for example, the picture "CABARET". I don't know how many of you have seen it — a wonderfully photographed picture. They shot into hot spotlights, but that's part of the story, part of visualizing the exciting floorshow. It was beautifully done. Shooting into hot lights — which added tremendous excitement — was all part of that story. But when you're doing it just to be smart and want to show off — that's something quite different.

QUESTION: You mentioned that you didn't use any extreme low angles on "GASLIGHT". What kind of angles did you use?

RUTTENBERG: Well, we didn't lay the camera head on the floor. The camera wasn't too low. We went back just far enough to maintain a good view of the room and still be able to cut to a close-up. If you had a very low set-up in the longer shot and then cut to a closeup that matched the angle, the faces would be distorted, thrown backwards.

Speaking of closeups, I've known directors who go to Europe to get European locales and then shoot mostly closeups. We had an experience on a

picture we shot in New York, which later needed retakes. Meanwhile, the star had gone to Hollywood and she wouldn't come back to New York to shoot the retakes. They were discussing the budget — talking about how expensive it would be to come out to Hollywood and build the sets all over again out there. Since there were only a few closeups needed, just to cut in, I said: "Why do you have to do that? Why not shoot some still slides of a corner of the set we used in New York, project the slides on a background screen in Hollywood and make the closeups? The background doesn't have to be

sharp and it will serve the purpose." They did it that way and saved themselves a lot of money.

QUESTION: I was curious about your backgrounds. You had some shots of the Tower of London. Did you have a second unit go to London to shoot those?

RUTTENBERG: No. Nobody went to London. Those shots were done with parts of the sets being built and the tops painted in.

Continued on Page 828

On the set of "THE PHILADELPHIA STORY", Rutenberg enters into a discussion of film lighting with the picture's highly intelligent star, Katherine Hepburn, a lady who is interested in, and can talk knowledgeably about, every phase of production. Rutenberg used to follow her around with a light on a high pole to provide a flattering shadow for her neckline.



AVEX-I . . . A NEW CONCEPT IN FILM SOUND PRODUCTION

TRANSFER, PREVIEW, EDIT, AND MIX WITH THIS UNIQUE 4 1/2' CONSOLE



WRITE OR CALL FOR FULL INFORMATION

The AVEX-I is a self contained, complete film sound production facility. It is a conceptual breakthrough for TV and film producers, educators, advertising agencies and others.

The tool of tomorrow here today, it will reduce costs and enhance creativity considerably. The unit's modular architecture makes the system highly flexible to meet your particular audio and visual needs.

The console features direct tape to mag transferring (16 or 35) • work track preparation • fingertip control pick-up recording (Rock & Roll) • premixing with picture • synchronous (24fps) and high shuttle speed in forward and reverse • built in mixing board to your specs (max. 8 inputs - 4 outputs) • individually equalized inputs with push button assignment • complete patching and monitoring • moves smoothly on casters • Reverb, echo, noise suppression and other accessories available. Standard model available with 1, 3 and 4 Track Master Recorder, 16 or 35. The AVEX I can be interfaced with standard interlock systems, SMPTE time lock, and TV & Video Servo Systems.

We also manufacture a complete line of professional film sound recorders and supporting systems of unequalled reliability and sensible innovation.

MULTI-TRACK MAGNETICS, INC.

BRAUN ELECTRIC CANADA, LTD., 3269 American Drive, Mississauga, Ontario, Canada 416-678-9200
 MTM FILM RECORDERS, INC., 6253 Hollywood Blvd. #203, Los Angeles, Calif. 90028 213-461-4144

MATTH-U-GRAM

2405 EMPIRE AVENUE
 BURBANK, CALIFORNIA 91504
 (213) 843-6715 TELEX 691599 (MATTHEW) (213) 849-6812

Memo: Matthews Studio Equipment is now available in the midwest exclusively through

VICTOR DUNCAN, INC.
 THE CHECK AND DOUBLE CHECK PEOPLE

676 No. ST. CLAIR CHICAGO, IL 60611 ■ 11043 GRATIOT DETROIT, MI 48213 ■ 2659 FONDREN DALLAS, TX 75206

FILMING IN . . . **EUROPE?**

AFRICA?

ASIA?

AUSTRALASIA?

SAMUELSONS are there to make **YOUR** shoot go smoothly
**CAMERAS, LIGHTING, GRIP EQUIPMENT, SOUND,
PROJECTION, MOBILES, AIR FREIGHT, PRODUCTION
OFFICES, TRANSPORT, CARNETS, PRACTICAL
CONSULTATION, LOCAL KNOWLEDGE . . .**

In the first five months of this year Samuelsons have serviced productions and/or post production of films in:

**AUSTRALIA, AUSTRIA, BELGIUM, BRAZIL, BRUNEI, CZECHOSLOVAKIA, EGYPT, FIJI, FINLAND
FRANCE, GUERNSEY, GERMANY, GUYANA, HUNGARY, INDIA, INDONESIA, ISRAEL, ITALY,
JAMAICA, LIBYA, MALAYSIA, MONACO, MOROCCO, THE NETHERLANDS, NEW ZEALAND,
NORWAY, PERU, PORTUGAL, THE PHILIPPINES, SIERRA LEONE, SOUTH AFRICA, SPAIN,
SWEDEN, THE UNITED KINGDOM, U.S.S.R. and VENEZUELA.**

36 different countries, and the year is yet young . . .



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



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



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



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



25 Sirius Road, Lane Cove,
Sydney 2066, N.S.W. AUSTRALIA.
Tel: 428 5300; Telex: 71 25 188
Cables: Samsmeal Sydney.



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



Room 65, Cargo Agent's Building,
London-Airport, ENGLAND.
Tel: (01) 897 2851; Telex: 22197
Cables: Samfreight London.



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



**SOUTHERN LIGHTING
ASSOCIATES LTD.**
112 Cricklewood Lane,
London NW2, ENGLAND.
Tel: (01) 452 5477/8/9; Telex: 21430
Cables: Samcine London.

EUROPEAN MANAGING ASSOCIATES FOR

PANAVISION[®]

THE INTERNATIONAL EQUIPMENT PEOPLE

UNIQUE NEW ASTROVISION INC. JET AERIAL FILMING SYSTEM

An ingenious system designed to fit into fast-flying executive jets bids fair to add a spectacular new dimension to aerial cinematography

To date, aerial cinematography has been generally achieved from piston engine aircraft such as B25's and similar aircraft that had front and rear gun turrets that were modified to accept various cameras. Apart from the obvious discomfort to the cameraman of cold, etc., the aircraft was not pressurized. So at high altitude, oxygen was needed. Its slow speed made it necessary for modern-day jets to slow down so that they could be photographed. With the advent of the modern-day business jet, such as the Lear 24 and the De Havilland 125, these aircraft were used as camera platforms because of their high-performance cruising speeds. But once again they were limited because of the restricted field of view through the windows on the side and on the flight deck.

Because of these disadvantages and because of the requests of various cameramen, Continental Camera

Systems of Van Nuys, CA, decided to investigate the problem. Bob Nettmann, President of Continental, designed a system that would eliminate the problems previously mentioned. Beginning in November 1973, drawings were started. A lens designer was hired on a contract basis to solve the lens design problem. This specialist had previously worked on the Apollo Space Program. A separate company was formed called Astrovision, Inc., with offices in Los Angeles and London, the London office being headed up by famed aerial-cameramen Peter Allwork and Robin Browne.

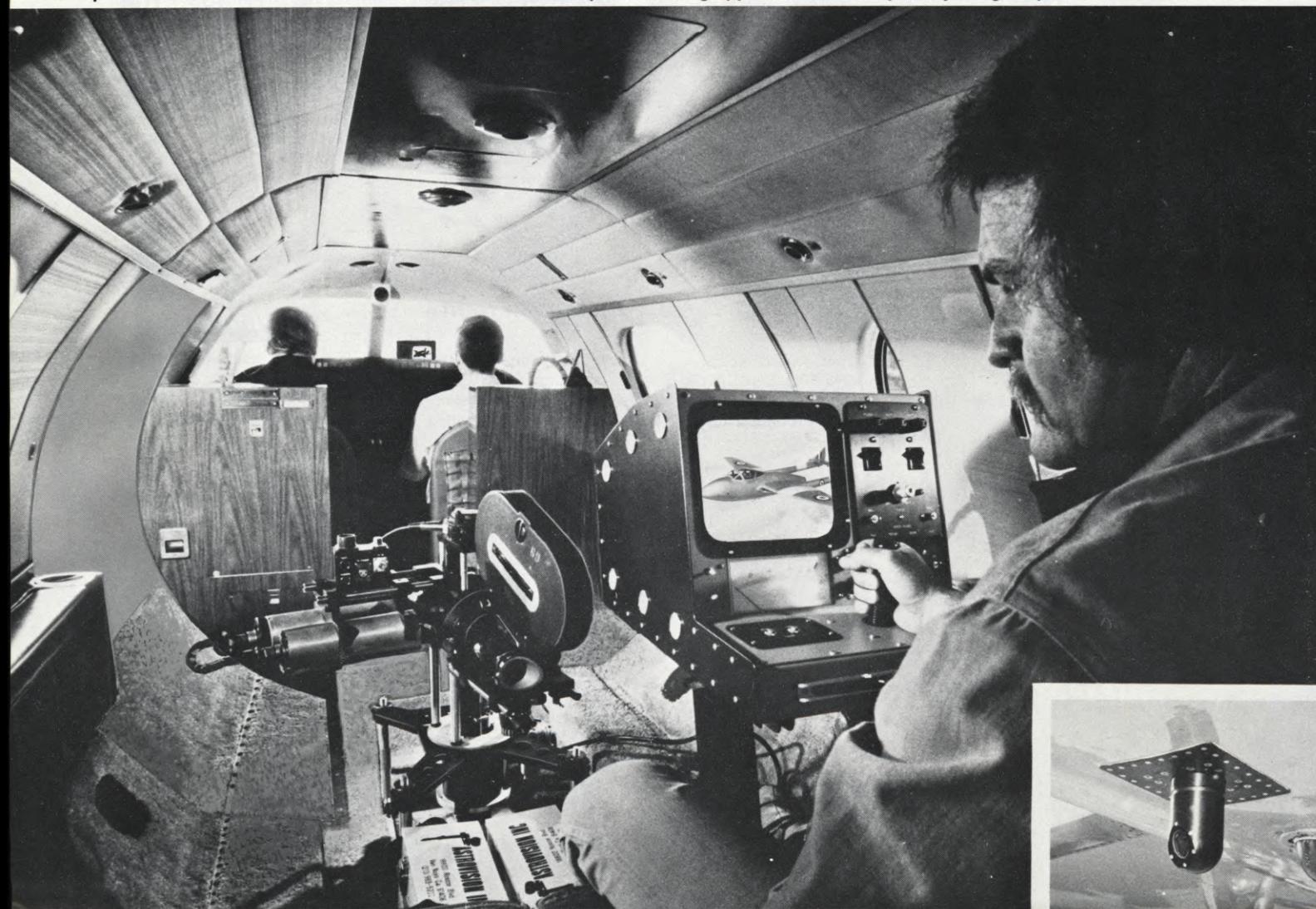
In August 1974 the first prototype was flown. It consisted of a 50mm/100mm relay lens system having an effective aperture of F/6.3. The whole system was encased in a pressurized heated tube that was operated manually from within the Lear Jet. The bottom 4" of the tube

protruded from specially designed ports, F.A.A.-approved, and modified to the Lear Jet.

The first system was designed only to accept an Arriflex IIC Camera with a 400' film load. The system can film 360° from below or above the aircraft and tilt up and down 46°. Prior to release, it was decided to update the system to operate electronically by means of a TV monitor system. This was accomplished in January 1975 utilizing a COHU TV camera and using 15 percent of the available light through the relay lens system. At the same time, modifications were made to accommodate Norelco P.C.P. 90 cameras, Nikon Still cameras, as well as Arriflex 35mm IIC cameras.

The whole system is controlled by a cameraman operating a joystick control, controlling pan, and tilt operations, watching a TV monitor. **Continued on Page 852**

Inside a Lear Jet, specially modified to accept the new Astrovision Inc. remote aerial filming system, the cameraman (right) operates a joystick that controls pan and tilt operations, while watching a monitor. Focus controls and a camera on/off switch are also located on the control console. The configuration shown here utilizes a 35mm Arriflex IIC camera, with a COHU TV camera using 15 percent of the available light to beam an identical picture onto the monitor. A 50mm/1000mm relay lens system, having an effective aperture of f/6.3 is encased in a pressurized heated tube. The bottom four inches of the tube (inset lower right) protrudes from a specially designed port.



**HOWARD A.
ANDERSON CO.**



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

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

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



MGM Laboratories
congratulates the
American Society of Cinematographers
for its many fine efforts
on behalf of the college cinematographer.



THE CINEMATOGRAPHERS' LAB

**THE PHOTOGRAPHY OF
"THE INVISIBLE MAN"**
Continued from Page 805

that we were able to keep the actors 20 or 30 feet away from the backing. This meant that we could always keep the lighting on the backing nice and even, while using modeled light on the actors and props in the foreground.

The video process used on "THE INVISIBLE MAN" was really unique, in that it afforded complete electronic control over the image. For example, there was a sequence in which our invisible man was shown hiding out in a motel room, when he started to become invisible again. He tried to give himself an injection, but it didn't work anymore. For a period of time on the screen he was shown with his face and hands having partially disappeared — translucent, so to speak. The boys in the video truck got very tricky with their controls and, by putting a green sweater on our man and keying their system to green, they were able to render his flesh translucent. It was a slick electronic trick attained by clever juggling in the video truck.

Another thing which I felt was terrific about this process was its latitude. You have so much latitude in being able to balance the people in your set as against the blue screen. Ideally, the blue would be lit very flat, but that wouldn't be compatible if you had a nice low-key set lighted for mood. You'd want your people to have a certain amount of highlight and shadow and not be flatly lit. Therefore, I tried to light the portions of the body or objects that would be visible in such a way that they would be compatible with the low-key set, and then I would put just enough light on the blue parts of the

A headless sweater appears in front of the slate marker used to identify scenes for "THE INVISIBLE MAN". Its technical excellence on the screen signifies an important step forward in the "marriage" of film and tape. In the course of shooting the new TV series that has evolved from the pilot film, it is expected that many more valuable effects will be developed.



A weird effect, photographed off the monitor, in which only the man's eyes and teeth are visible. The electronic technique utilized in achieving such effects is similar in some aspects to the familiar Chroma-key system used in television, but far superior in several ways — mainly because it does away with the annoying fringing phenomenon.

body (the head or the arms, perhaps) so that the shadows would be ironed out and they would become invisible. The balance between that and the backing seemed to be very, very loose. There was a lot of tolerance in the degree of light that was needed between the body stocking and the blue backing. Generally, just throwing a gob of light on the backing proved adequate. At least, I never heard any complaints from the video boys.

What is really remarkable is how well the film transfers from the video tape intercut with the original 35mm film. The video engineers were very skeptical about this at first, and I said to them, "You fellows aren't very kind to your own product, but I think it's a terrific product and I know it will intercut."

Actually, there was a slight yellow

cast to the raw transfers, but when the scenes were carefully timed and color-corrected, they intercut just fine. Maybe the result wouldn't hold up on a 60-foot screen, but when viewed on a home television tube nobody can tell the difference.

I should point out that this video process that we used is quite expensive. I'm told it's something like \$5.00 per foot, which is high for a television budget, where everyone is watching the pennies. For this reason, we tried to do as many little tricks as we could on Eastman film right in the camera. For example, the first time the man became invisible, we simply dissolved him out, with a red lighting effect to make it interesting. We were able to do other little bits and pieces with mirrors, dissolves or split screens — making them right in the camera, without having to go to the optical department. I got a kick out of doing them and it saved the price of the opticals.

As we move into the filming of the TV series based on the World Premiere feature version of "THE INVISIBLE MAN", I find myself becoming quite excited by the project. All of the original technical "bugs" that made things a bit tricky on our first effort have been satisfactorily worked out. Most important of all, the system itself has been proved to be viable and dependable. That being the case, I am eagerly looking forward to discovering, along with my fellow technicians on the project, even more fascinating ways of using it to create rather spectacular and certainly interesting illusions for the series.

The sky — it would seem — is the limit! ■



THE FILMING OF "NEGATIVE IMAGE"

Continued from Page 773

procedure he is supposed to short out the capacitor after disconnecting the battery, resulting in a bright spark. This provided part of the transition back to reality for Dave. Our problem was finding some way to create a spark or flash that would be bright enough to overcome the base level of lighting. We tried shorting our various power sources, as well as charged capacitors, but failed to achieve the right look.

Fortunately, we stumbled on using a simple AG1 flashbulb hidden just behind the capacitor. It worked very well, giving us a flash that lasted about four frames.

Throughout "NEGATIVE IMAGE" we tried to maintain a mood appropriate to each scene. For the computer center, this meant using pools of light with wide areas of comparative darkness. For the night exteriors, low key lighting with long shadows seemed appropriate. And for those long hallways in the building housing the computer center, a harsher look seemed to work best.

In all aspects of the film — whether lighting, camera work, editing, sound recording, or writing — we all learned a great deal, and there are many things we would undoubtedly do differently if we had it to do over again. For all of us who worked on "NEGATIVE IMAGE" it was very much of a learning experience and, as such, gave us an opportunity to refine some of the production techniques we had studied earlier. Despite budget and equipment limitations, the production crew overcame these with an abundance of ingenuity and inventiveness. ■

(LEFT) A small but busy crew shoots a scene for "NEGATIVE IMAGE". Producer Bill Hall records sound. Roger Mills, who also doubled as an extra, operates the boom. Denis Mayer is on camera. **(CENTER)** Scenes just outside the elevator were relatively simple to light when the action was confined to a small area. **(CENTER)** However, lighting the elevator interior presented its own unique lighting problems, requiring the use of a battery-operated Colortran Mini-Pro light.



The long hallway sequences provided perhaps the greatest lighting challenges in the film. Several sequences involved actors walking 50 to 75 feet down these and other corridors. After quite a bit of experimentation, the crew hit upon the best placement of lighting units for both concealment and good lighting effect.



Half of the night building exterior shots involved actors. Others required lighting. For example, the exterior of the four-story Engineering Building with the ten 1K lights spaced down its length. The wide, static night exteriors usually required under-cranking to 12 f.p.s. Here, the value of using post-flashed EFB 7242 became very apparent.



THE FASCINATING CHALLENGES OF NATURAL HISTORY FILMING

By DAVID W. SAMUELSON

Few film production companies have ever won International awards or sold TV hour-long programmes throughout the world which did no more than show themselves at work. Such were the achievements of "Oxford Scientific Films Limited" when the BBC produced "THE MAKING OF A NATURAL HISTORY FILM", a fifty-minute documentary made up of excerpts of films which they had made over a period of time, together with specially-shot material illustrating some of the cine techniques employed.

The "stars" were the animals, the birds, the fish, the insects, the plants and just about everything else which inhabits "The World About Us" (the title

of another programme to which they regularly contribute) and have survived the trepidations of their fellow beings. ("Survival" is the name of yet another programme to which they regularly contribute).

The entire Production Unit combines a love and understanding of film-making with a love and understanding of nature, which alone makes their type of film-making possible.

Oxford Scientific Films is a unique group of professional Biologists who left their University posts to form themselves into a specialised film producing company and built a studio in the heart of the British countryside where film-making is as serious and creative a

process as it is in Pinewood or Hollywood or elsewhere.

Gerald Thompson, an Entomologist of note, started the enterprise in 1960 when he produced a serious nature film entitled "THE ALDER WOOD WASP AND ITS INSECT ENEMIES", photographed partly on location in the forests where he had worked for twenty years and partly in a makeshift studio, literally under a staircase, in one of the ancient buildings of Oxford University.

Peter Parks, a Zoologist, joined him at the formation of OSF and has since done much to develop the vibration-free optical benches which make possible the particular micro and macro cinematography of living species in which OSF specialises.

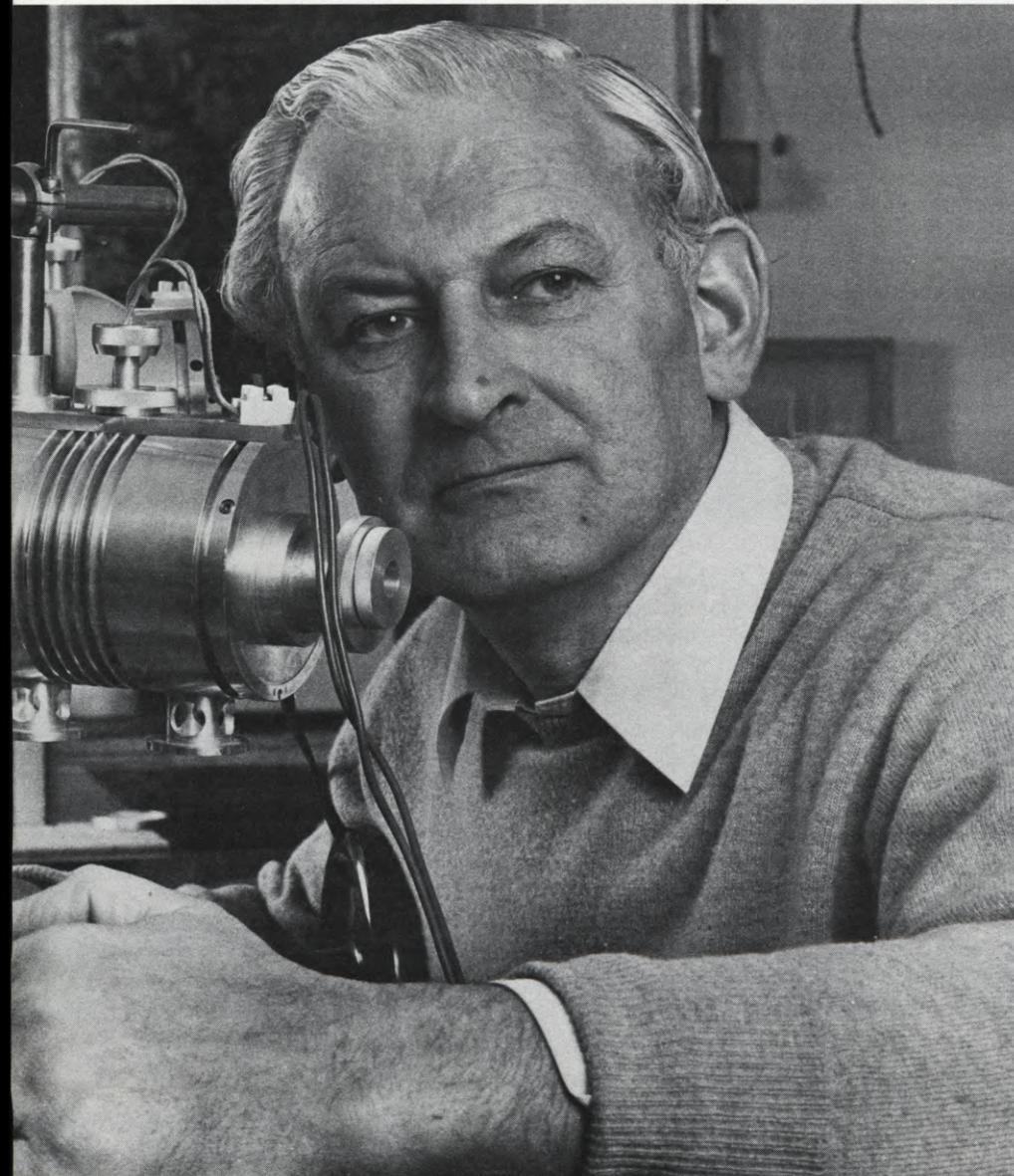
On their benches, the camera is fixed as firmly as a rock while the *subjects* can be panned and tilted, zoomed in and out, raised and lowered, tracked, dollied and rotated.

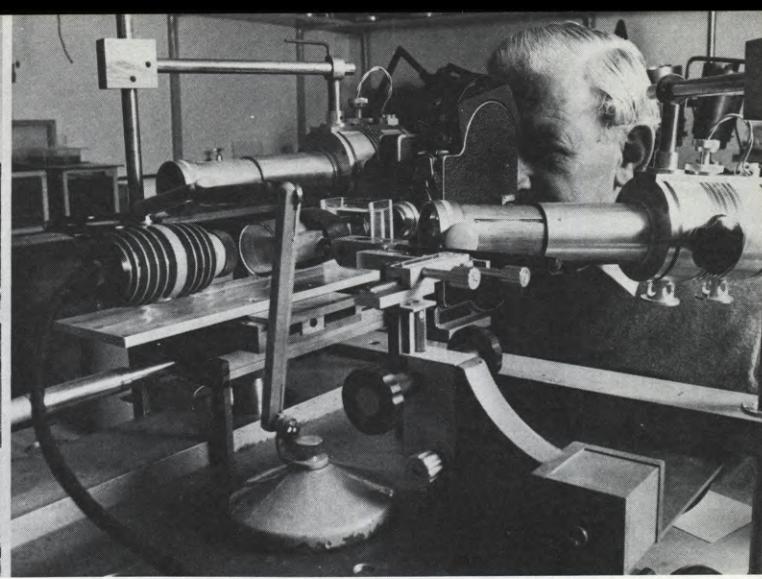
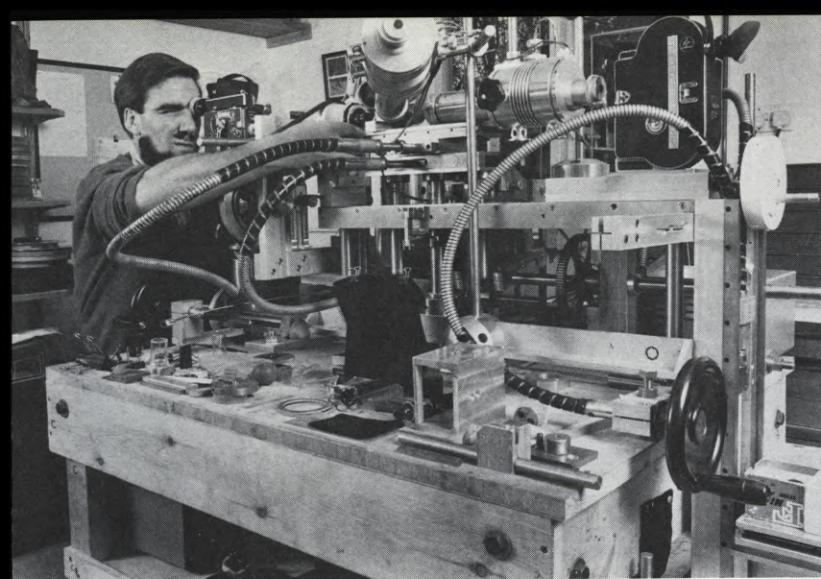
Dr. John Paling is a specialist fish Biologist who, in his search for new methods of aquatic cinematography, built, in the OSF studio, a fast-running river where the fish swim as fast as they can to keep up with the volume of water being pumped through a "closed-loop" system, and yet remain perfectly stationary for the benefit of the camera.

Sean Morris, although a Zoologist, has specialised in time-lapse botanical subjects, planting, rearing and photographing a subject over a period of months for showing in as many seconds or minutes. He also looks after OSF's high-speed cinematography of all types of subjects.

David Thompson, like his father, originally specialised in filming insects and in recent years has specialised in rearing and filming the most difficult animals under controlled studio-conditions. When it was desired to shoot a long tracking shot of a mole running along its tunnel, it was David who built an endless tunnel on the edge of a long wheel. Like the fish in the tank, the mole ran as fast as it could while still remaining alongside the camera. The rig is vaguely reminiscent of that used by the Keystone Cops in Hollywood a generation ago. Of course, to do a shot like this it was necessary to have one whole side of the mole run open. When the shot was conceived it was thought that the mole might fall out

Gerald Thompson, noted Entomologist, who started Oxford Scientific Films Limited in 1960 when he produced a serious nature-film entitled "THE ALDER WOOD WASP AND ITS INSECT ENEMIES", photographed partly on location in the forests where he had worked for twenty years, and partly in a makeshift studio, literally under a staircase in one of the ancient buildings of Oxford University.





(LEFT) Peter Parks filming plankton. Lights, subject and camera are all mounted on a single unit, so that independent vibration will not affect the filming. (RIGHT) Gerald Thompson filming insects on a brick and mortar set. The entire Oxford Scientific Films production unit combines a love and understanding of film-making with a love and understanding of nature, a fortuitous combination which makes this type of production possible. (Photographs by Dave Dawson for Survival Anglia Ltd.)

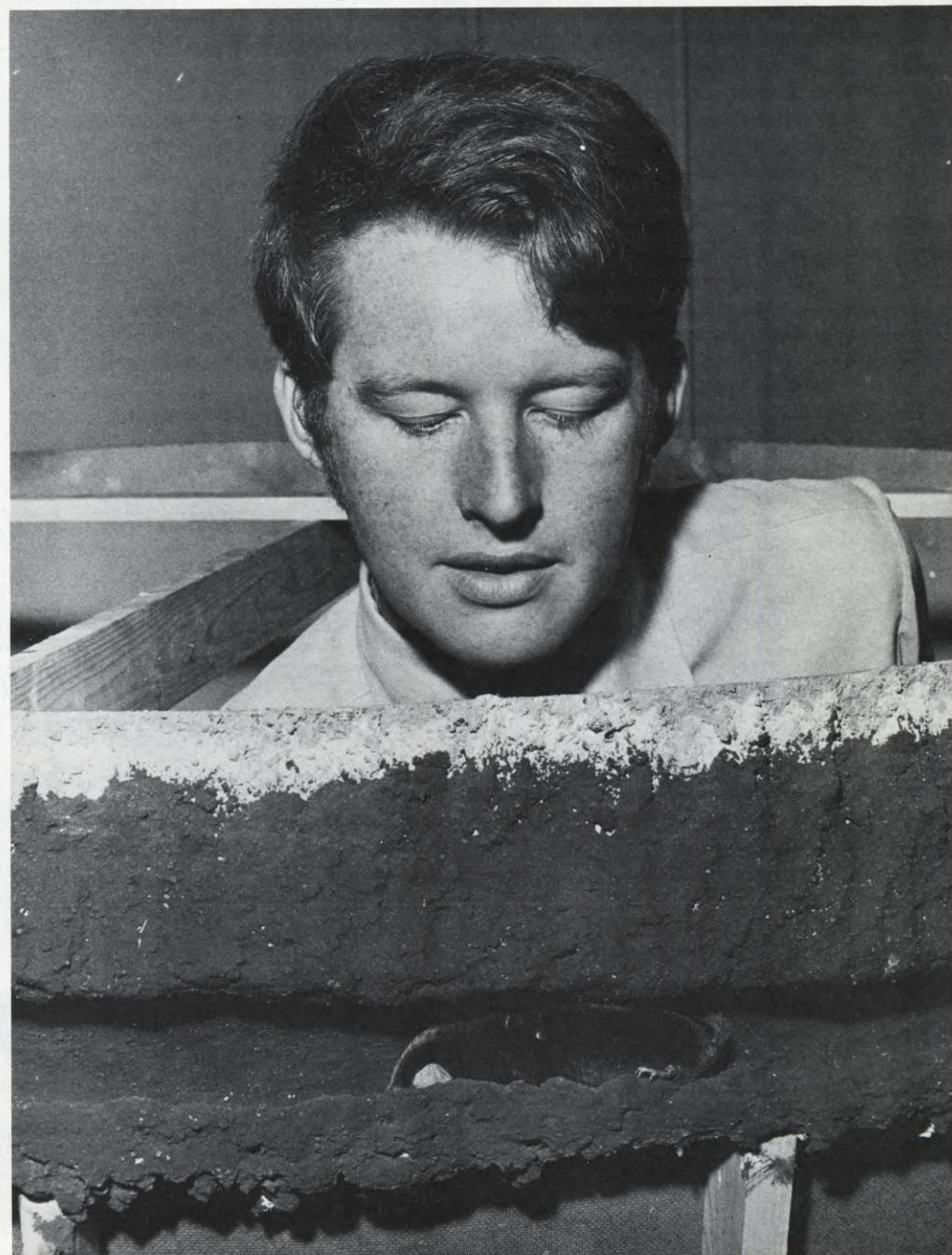
of the run but when they came to shoot the scene they discovered that moles sense their direction by rubbing their tails along the tunnel roof, so that, despite the fact that the mole may be treading on air on one side, he still kept in the endless slot.

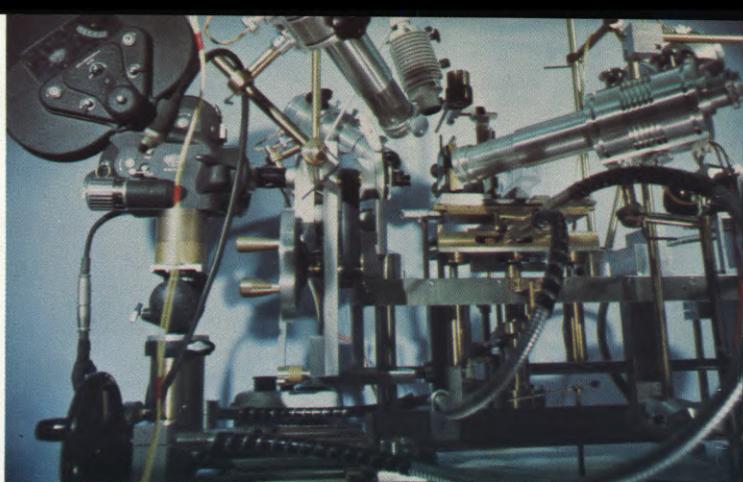
The case of the mole was typical of a problem which characteristically is encountered when an attempt is made to film a complete and continuous life-cycle of a particular animal — namely, the inability to get the animals to reproduce successfully enough to get all the stages on film in the course of a single breeding. In this instance, it became simply a matter of digging and digging through a vast number of mounds and molehills (more than 30 over a period of two years) in order to piece the story together. During that period, a camera had to be kept constantly at the ready in order to film one stage of the last cycle, which would ultimately appear for no more than 30 seconds on the screen as part of the overall sequence.

Under such conditions, obviously, it is often necessary to use many individual "look-alike" animals to depict on the screen what appears to be the same animal at different stages of development. As was explained to me, "It is common in our normal filming generally that (unless you are dealing with dogs or chimpanzees that have particular, distinguishing facial features) the public rarely recognizes one animal from the other. That being the case, most of our filming is done on several separate animals — particularly small creatures like spiders or butterflies. Many different animals are brought in and shots of them are put together in one final sequence that we think is biologically sound."

Occasionally OSF is called upon to

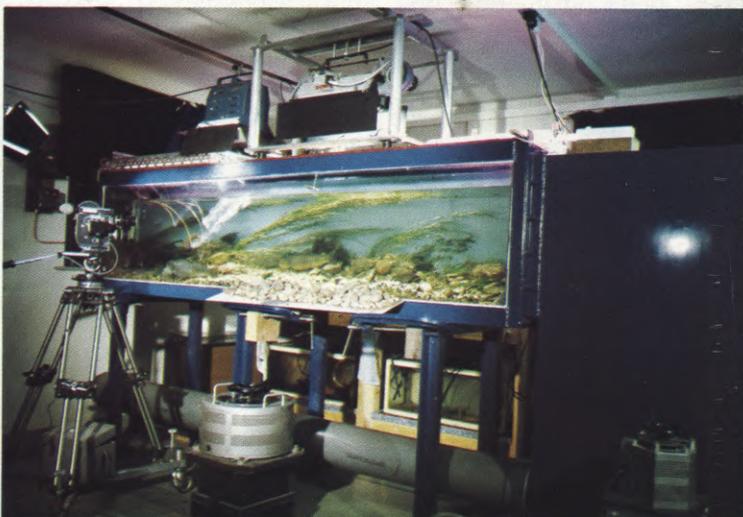
To film a long tracking shot of a mole running along its tunnel, an endless artificial tunnel on the edge of a wide wheel was built. The mole, shown here in the tunnel, ran as fast as it could while still remaining in front of the camera. To do the filming, it was necessary to have one side of the mole run open, and there were fears that the star mole might fall out, but it was discovered that moles sense their direction by rubbing their tails along the tunnel roof.





(LEFT) The headquarters and studio of Oxford Scientific Films, located in a beautiful area of the English countryside a few miles from Blenheim Palace, where Winston Churchill was born, and Bladon, where he lies buried. (RIGHT) The Mark III optical bench at OSF. On their benches, the camera is fixed as firmly as a rock, while the subjects can be panned and tilted, zoomed in and out, raised and lowered, tracked, dollyed and rotated.

(LEFT) The ambitious set-up rigged in order to film the point of view of a voyeuristic spider who, having been flushed down the plug hole by a terrified young lady, climbs up the waste pipe and watches her bathing, safely protected by darkness and the overflow grille. (RIGHT) A fish tank, in which the underwater conditions of a rushing river can be faithfully reproduced for purposes of filming.



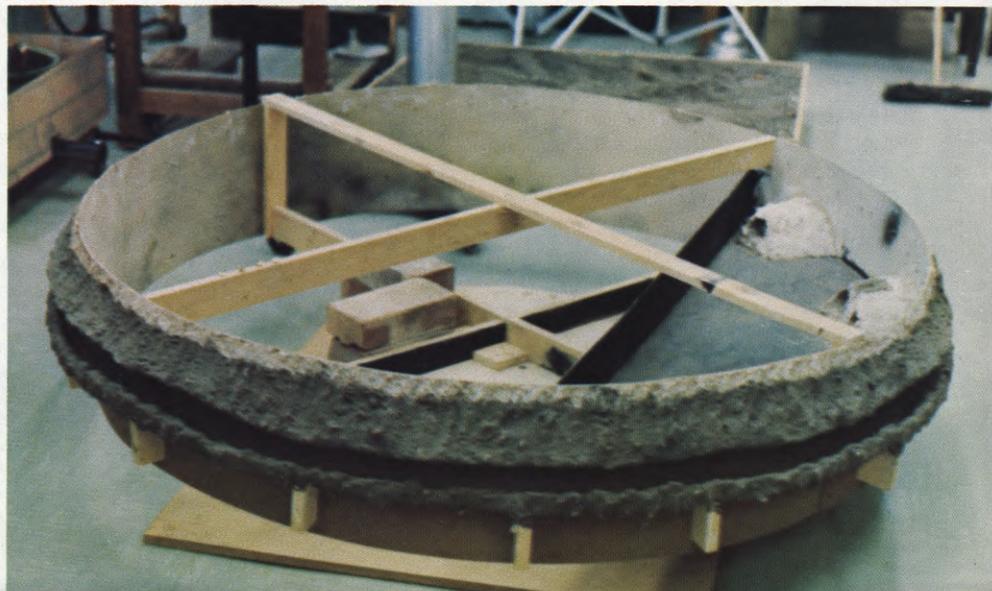
film material which is quite off the beaten track from its usual specialty. "We were given an assignment in which the sponsor wanted to capture all the clichés of black cats in dark alleys, silhouetted against the moon, and so on," relates David Thompson. "We tried initially to produce a film in actual alleys, with cats along the backs of buildings and decorating garbage cans. In the end, we constructed huge sets, in the way that a theatrical designer would, with the floor three feet off the ground. We would track along a dolly system at ground level, from a cat's point of view, with lights and the whole thing filmed day-for-night. We blue-filtered for the night on this occasion. It was not the type of filming we normally do. We had not done it before, nor have we since. At one stage we actually got involved in getting cats from a theatrical agency — which was *very much* atypical of Oxford Scientific Films at work — but for the bulk of the shooting, we used completely wild cats that had been taken from the streets

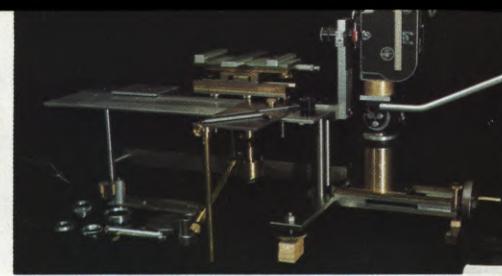
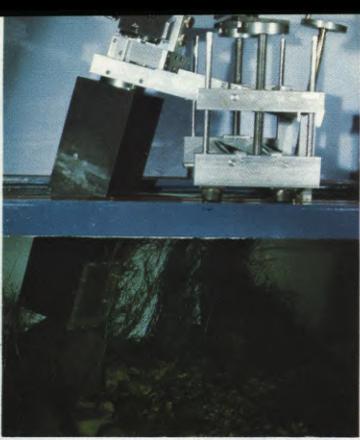
and preserved from being killed.

"The methods of filming on this assignment were really more analogous to a Hollywood-Disney type of film, than a traditional wildlife type of film. Here, again, we had to use three different black cats to depict a single

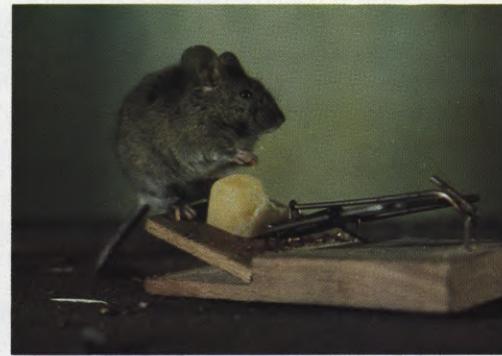
cat, because the sponsor required different sequences with varying action. For example, we tried to film the cat chasing cockroaches and later chasing a moth. We found that if you put down some bread with a cockroach feeding
Continued overleaf

An overall view of the endless mole tunnel, built on the edge of a wide wheel to film the mole running at full tilt, while remaining centered by the lens. While the rig is vaguely reminiscent of something used by the Keystone Cops in Hollywood, it served its purpose very well, and is shown here in storage, awaiting other moles.





(LEFT) A tracking periscope used to film fish in the rushing river tank. (CENTER) A time-lapse intervalometer set-up for single-frame filming of plant growth. (RIGHT) A simplified optical bench. Such equipment at OSF ranges from the most basic to the most complex, depending upon the demands of the particular filming project.



A few of the beautiful, diminutive and endlessly fascinating creatures which "star" in pictures made by Oxford Scientific Films. (LEFT) A colorful little Endemic Bromeliad Tree Frog (Trinidad) hops up to see what time it is. (CENTER) A delicately colored and magnificently plumed deep sea prawn poses gracefully for the camera. (RIGHT) This spunky little Disneyesque rodent obviously likes to live on the edge of doom.

(LEFT) Plankton net of 180 meshes per inch and the eye of a needle enclosing several plankton. (CENTER) A special set built on a raised platform to film a sequence on alley cats, shown here as lighted for day. (RIGHT) The same set lighted for night. This assignment was very atypical for OSF. At one point they actually got involved in getting cats from a theatrical agency!



(LEFT) Peter Parks using a periscope rig to do underwater filming in the waters of a Florida mangrove lagoon. (CENTER) Filming material for a 35mm feature at OSF. John Boorman's "ZARDOZ" was only one of such features which called upon the expertise of the Oxford technicians to provide most unusual dramatic footage.



on it, one of the cats would run up to it, knock away the cockroach, and eat the bread — whereas, we wanted him to leave the bread and eat the cockroach. One cat was really agile. It would knock the moths down with its paws as the moths fluttered toward the low light on the set. It didn't actually eat the moths. The only thing it ate was mice."

John Cooke is one of the world's leading authorities on spiders, as well as being an expert mountaineer and Scuba diver.

An "original research" spin-off of John's cinematography of tarantulas was his discovery, while filming them, that it is not a poisonous bite from the fangs of a tarantula which can incapacitate a human being but a cloud of irritant spear-like hairs which he fires into an attacker, releasing them by rubbing his hind legs against his backside.

Ian Moar is an Engineer and has the facilities for the in-plant manufacture of all the specialist devices which the others dream up: an optical bench that can be used on board ship and still be vibration-free, intense spotlights which produce light which has no heat, pneumatic camera-mountings and so on; all have come out of his machine shop.

Two of the group are Doctors of Science and most are University Lecturers and together they form a close-knit team for which the achievement of some original research or basic discovery that might be the endeavour of a lifetime for others, is merely a by-product of making movies that can be understood and enjoyed by the masses.

Not unnaturally, most of this work is shot on 16mm, but when the need arises they switch to 35mm and will also produce still transparencies if required.

In the main, they prefer the Paillard Bolex camera for normal work, use a Doiflex for stop-motion, an Eclair ACL where silence is golden, Arri 16 St's in the field, and a Photosonics IPD where high speeds are required.

Clients come from all over the world with projects as diverse as a television hour on the mating instincts and behavioural habits of some rare species of insect to a television commercial about plant growth or a background plate for a major feature film.

For the British television company, Anglia, they contribute many programmes and segments to the prestigious "Survival" series; for the BBC they make films for the "World About Us" and "Horizon" series, their



David Thompson at work filming a tawny owl, which he had reared from a week-old chick. Like his father, David originally specialized in filming insects, but in recent years has switched his interest to rearing and filming the most difficult animals under controlled studio conditions. It was David who built the endless mole tunnel.

films have been shown on both NBC and CBS; Time-Life syndicated them; German television companies are regular clients; for John Boorman they supplied background material for "ZARDOZ" and when another producer came along asking for film which could be said to look like UFO's they sent him away with footage of plankton dredged up from the depths of the ocean.

When I visited their studio, a few miles from Blenheim Palace where Winston Churchill was born and Bladon where he lies buried, one of the principal projects of the moment was a time-lapse shot of a soya bean plant

growing. Despite the fact that it was then February and very much out of season for soya bean plants, this shot was required for a commercial to be screened nationwide in May. The plant growth had not only to be accelerated beyond its natural growing speed and in the close season, but, in view of the intended use of the shot, was required also to look lush, healthy and vigorous, rather than weak and spindly. Furthermore, there was NO chance of a "Take 2".

Last year they shot a similar commercial, growing a sheaf of
Continued on Page 848

Dr. John Paling, a specialist fish Biologist, shown with the fast-running river tank in the OSF studio. In it, fish swim as fast as they can in order to keep up with the volume of water being pumped through a "closed-loop" system and yet remain stationary for the benefit of the camera. It takes endless patience and often a 24-hour vigil to capture just the right action.



Specializing in meeting impossible demands.



LIGHTING, GRIP EQUIPMENT,
LOCATION VANS, PROPS, GENERATORS,
RENTALS/SALES/SERVICE

Charles Ross INC.

333 WEST 52nd ST., N.Y., N.Y. 10019 (212) CI 6-5470

For more than fifty years Charles Ross has made the impossible possible for the thousands of motion picture producers who demand the finest and most modern lighting equipment. We are the East's only specialist. We have been around the longest. We have the largest lighting inventory. We even supply lighting suppliers.

For a replacement bulb or lighting for a complete motion picture or television set, call Ross first!

SOLE DISTRIBUTOR OF MOLE-RICHARDSON COMPANY PRODUCTS IN GREATER NEW YORK



Send for a rental rate schedule!

Charles Ross INC.

333 West 52nd Street
New York, N.Y. 10019

AC 775



Gentlemen: Please send me a free copy of your rental rates.

NAME _____

FIRM _____

STREET _____

CITY _____ STATE _____ ZIP _____

THERE IS NO SUBSTITUTE FOR EXPERIENCE

THAT'S WHY AMERICA'S LEADING FILM PRODUCERS ARE CHOOSING CENTURY FOR

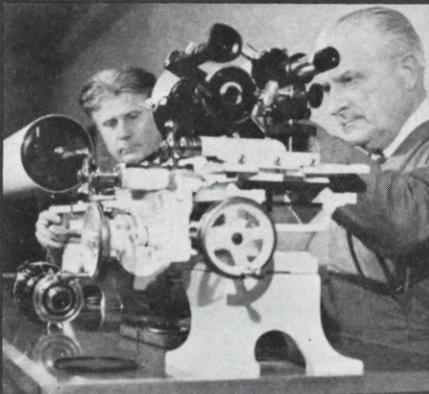
ZOOM LENS REPAIRS

SPECIALIZING IN ANGENIEUX

AND OTHER FINE LENSES SUCH AS PAN-
CINOR, CANON, ZEISS, SCHNEIDER, ETC.

FAST SERVICE IN AS LITTLE AS 8 HOURS!
AVERAGE RETURN TIME TO EAST COAST ONLY 72 HOURS!
EXPERT WORKMANSHIP • LARGE PARTS STOCK

OUR EFFICIENCY MEANS FASTER SERVICE FOR YOU AND
FAIR PRICES. ALL WORK GUARANTEED.
CALL OUR SERVICE MANAGER, BILL TURNER, TODAY!
(MENTION THIS AD AND GET A FREE LENS TEST CHART.)



OUR 28TH YEAR OF OPTICAL SERVICE
TO THE MOTION PICTURE INDUSTRY

Century Precision Cine/Optics

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

ATLANTA INTERNATIONAL FILM FESTIVAL TRANSFERS ITS TOTAL OPERATION TO THE U.S. VIRGIN ISLANDS

The first major international film competition to move lock, stock and barrel to a different locale will bring a "Festival of the Americas" to the Caribbean

For its Eighth Annual International Competitive event, The Atlanta Film Festival will move its *total* operation, competition, and Film Market to the *United States Virgin Islands*. This unprecedented development marks the first time in motion picture history that a major world film festival has moved to a new locale. Dates of November 7-16 have been selected for the 1975 event.

Citing reasons of remarkable support and backing, Feste President and Founder, J. Hunter Todd explained that, "Very intense negotiations have been going on for the past eight months with officials of the Virgin Islands' government, business and community leaders and prominent private citizens." The VI negotiation team, capably headed by Win DeLugo and Eric Mathews of The Virgin Islands Film Development Office, assembled a top committee of over 100 major backers and supporters of The Virgin Islands Film Festival, to capture the Atlanta event. The VI Feste, sub-titled, "*The Festival of The Americas*", gives North, South & Central America their first and only International Film Festival & Film Market.

Festival President and Founder Hunter Todd explained that though the Atlanta International Film Festival had grown into one of the largest film events in the world, it had done so totally without the support of the City of Atlanta and the State of Georgia. Todd stated that . . . "The Festival is moving for two major reasons: First, unprecedented backing, support and interest from all sectors of the U.S. Virgin Islands, including government, business, the private sector and con-

cerned individuals. And second, The Virgin Islands offer to the film-maker a fantastic and unique setting for an international festival and Film Market. The beauty and excitement of The United States Virgin Islands exceed that of the locale of any other world film-festival, including the Riviera.

"The new Virgin Islands Film Festival offers the film-maker the only event held in an *international Free Port*, allowing the purchase of cameras, jewelry, liquors, and fashions at less than one-fourth the USA stateside cost. The Antilles Island setting in The West Indies is located centrally between North, South and Central America, giving film producers, directors and international distributors throughout The Americas an important new market place and international film festival. During the next few months, Feste President Todd and staff will travel to the various South and Central American capitals to meet with leaders of the film communities to outline and describe the total festival and film market operations. Special luncheons will be held for this purpose, and leading film-makers in those countries will be appointed as "Festival of The Americas Ambassadors."

In addition to the support for the new festival, most major studios and independent productions are scheduled for a winter/Christmas release, and the former August dates frequently denied many top films to the festival. By occurring just prior to the major holiday release period, the VI Film Festival will be able to attract even more features and shorts, and in turn, will offer studios and film-makers maximum

press and publicity exposure during this important time-period. Todd and his staff will bring the largest film festival in the world in number of entries to The Virgin Islands. Last year the Atlanta competition attracted over 2,100 entries from 32 countries. It is expected that this total will increase with the better dates, location and support.

The new Virgin Islands Film Festival will be based in three major luxury hotels, with several more in very close proximity. Over five thousand rooms are available for The VI Feste, with two major screening centers for feature premieres, and over 20 film market theaters equipped with 35mm and 16mm projection. The main festival theaters seat over 1,400 people combined. Plans are being initiated for a VI Festival/Cultural Center with tremendously increased capacity within the near future. As in the past, the festival will publish a major International Festival & Film Market program, with over 250 pages, listing all award-winning films, all market entries and contacts. A special VIP shuttle operation will provide constant inter-festival transportation, at no charge, throughout the festival and film market.

In actuality, the Atlanta event will continue in that city on a very limited, reduced basis, following behind the Virgin Islands Film Festival as a *non-competitive, invitational* screening that will show winners of the VI Feste. The Atlanta operation will drop its competitive status, and will give winners of the VI Feste a second screening and local publicity in a major market. Local Atlanta film festival fans

(LEFT) A view of the harbor on St. Thomas, United States Virgin Islands, looking west from the mountains. This spectacular setting is expected to provide a Riviera-like atmosphere for the new Virgin Islands Film Festival, until very recently the Atlanta International Film Festival. (RIGHT) An amphibious aircraft of Antilles Air Boats, the largest seaplane airline in the world, lands on waters of the picturesque harbor. Only a few short hours from major North and South American cities by direct jet, the U.S. Virgin Islands offers a Free Port atmosphere of unexcelled beauty.



will see little change in their event, other than a date shift to the month of December and the new non-competitive, invitational status. The new Virgin Islands Film Festival will gain all major film market activities, the awards competition and film-maker participation during the ten-day November island event. The permanent late fall time frame of November offers distinct advantages to The Festival and film-maker alike. This period is pre-season in the Virgin Islands, affording visiting festival guests the best possible price advantages with the low rates still in effect, but to the city dweller in New York, Chicago, San Francisco, Rome, Paris and London, the lure of warm balmy Caribbean breezes in November is far more attractive than the winter chill and dreary rains that begin in the north around that time. In fact, the Virgin Islands warm Riviera-like atmosphere will attract as strongly as the films.

The Virgin Islands' aggressive acquisition of the Atlanta International Film Festival competition and Film Market marks the finale of many months of detailed negotiation and discussion. It must be regarded as a major coup of great significance for the Virgin Islands Film Development Office, as part of their activity to attract film production to the VI's. Win DeLugo and Eric Mathews, Co-Directors of the VI Film Office stated that . . . "Landing the Atlanta Festival for the islands is an exciting development of great magnitude for the Virgin Islands economy. The Festival, continuing in its eight-year heritage of tradition, excellence, integrity and creativity, will focus international attention, world press and PR coverage on the Virgin Islands.

"In addition, it will increase substantially the tourism aspect of the islands, as this is to be the first and only International Film Festival that will be actually promoted as a major tourist event. Of prime importance is the attendance of thousands of top international film-makers in the Virgin Islands, who can see first-hand the superb film production potential of the islands. Besides having these important film people in the Virgin Islands, The Festival, in effect, expands our promotion budget by millions of dollars."

The Virgin Islands Film Festival, working in close liaison and cooperation with the major international airlines and travel agents, will offer film-makers, producers, distributors, directors, press and personalities, along with the interested



Another view of the magnificent harbor at St. Thomas, U.S. Virgin Islands. The new festival will be based in three major luxury hotels, and there will be 5,000 rooms available for the event, with two major screening centers for feature premieres and over 20 film market theatres equipped with 35mm and 16mm projection. The main festival theatres seat over 1,400 people combined.

public, an opportunity to attend a major international film festival at special inclusive package rates. No other international film festival can offer the convenience of such an exciting international location coupled with great restaurants, deep sea fishing, scuba diving, snorkeling, sailing, Free Port shopping, island hopping on the unique seaplane airline, and just relaxing in the sun.

"An exciting and different Virgin Islands Film Festival entry, information and participation package is available from the Festival Operations Center," advises Todd. "Entries will officially open June 30th and *will close on September 15, 1975*. We will send out more than 30,000 Virgin Islands posters and entry kits, now in the process of being designed by our Art Director, Norm Kohn, who has worked with our old Atlanta Film Festival for eight years. Anyone interested in The VI Feste should contact us, but if you have written or entered Atlanta before, don't worry; you are on the VIP list."

The lush West Indies locale of this major new international film festival, recognized by The International Festival Association (IFA), offers the film-maker, distributor and interested public a unique and important annual event. Only a few short hours from major North and South American cities by direct jet, the U.S. Virgin Islands offer a Free Port atmosphere of unexcelled beauty. Home of the Antilles Air Boats, the largest seaplane airline in the world, the festival's new island setting offers so many diversions that film people will be hard-pressed to stay inside the air-conditioned theaters viewing films while outside lurk the

island charms of very friendly natives, speaking in their soft calypso tones, plus scuba diving and snorkeling in the world's clearest waters, deep sea fishing, sailing, tennis, golf, surfing (4-6-foot rollers), and enjoying delicious Virgin Islands Banana Daiquiris, where Rum is only \$1.50 a quart! Other Free Ports prices are just as low.

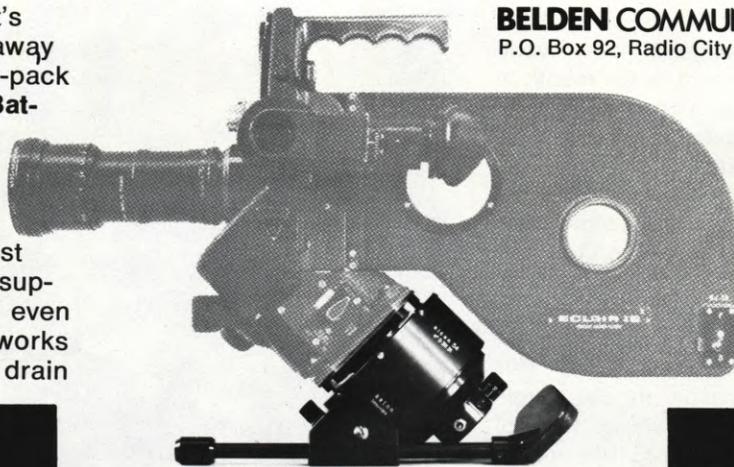
As in the old Atlanta Feste, the Virgin Islands Film Festival & Film Market will have six major categories: Shorts, Features, Documentaries, TVC's, Experimental, and TV Productions. Sub-categories in each major area detail all the types of film and tape production. As usual, there are special categories for students, Super-8, and independent films.

Feste Prexy Todd adds . . . "In dreary November, when its sleeting in Chicago, snowing in New York, raining in Paris, London and San Francisco, The Virgin Islands International Film Festival will become the only place to be. Boasting the best weather in the Caribbean, the U.S. Virgin Islands offer a feste setting of such beauty and charm, that 'The Festival of The Americas' will become 'The Ultimate Festival.' No other world film event offers so much, in such a perfect locale. I look forward to welcoming all our old friends, and film people from all over the world, to our festival in November."

To enter or attend the festival, and to receive the Feste VIP mailings and all subsequent information, you should Air Mail your name and address to: J. Hunter Todd, President & Founder; THE VIRGIN ISLANDS FILM FESTIVAL; U.S. VIRGIN ISLANDS, 00801; Cable: PARADISE USVI; Telephone: (809) 774-3050

This offer is more bait than rebate, but it's still a damned good deal. We're giving away absolutely **free**, an **Anton/Bauer** quick-pack package: the **Model QP-3 Quick Pack Battery**, the **QC-3 Quick Charger** and the **Uni-Pack Model UP-M with Zener Meter**. You get them all by purchasing the compact, lightweight crystal motor — **Alcan 54**. It's the lightest and smallest available for the Eclair NPR, its shoulder support rod keeps the camera horizontal even with zoom on and magazine off — and it works on a standard 12 volt power supply at a drain of 1.5 amps at 72F. Get your **Alcan 54** and **free Anton/Bauer** package while they last, at dealers listed below.

BELDEN COMMUNICATIONS
P.O. Box 92, Radio City Station, N.Y. 10019



reboot

Camera Mart, Inc. New York, N.Y. 10019 (212) 757-6977 • **FERCO** New York, N.Y. 10019 (212) 581-5474/San Francisco, Ca. 94107 (415) 957-1787 • **Mobius, Cine Ltd.** New York, N.Y. 10017 (212) 758-3770 • **Victor Duncan, Inc.** Dallas, Texas 75206 (214) 369-1165/Chicago, Ill. 60611 (312) 321-9406/Detroit, Mich. 48213 (313) 371-4920

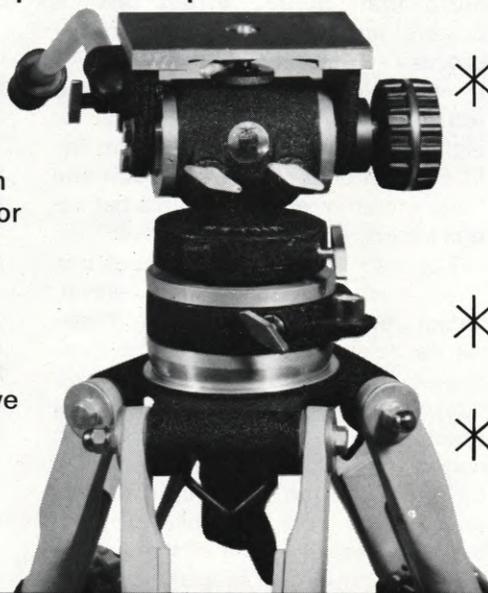
"MILLER".. ALWAYS ONE STEP AHEAD

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

FEATURES INCLUDE:

- * Pan Unit permits (full 360°) horizontal traverse between full fluid drag and free slip for filming fast moving objects or events.
- * Full fluid action tilt (full 90°) either way with more positive tilt control and Lock, in any traverse.

Model shown is LP-2
PROFESSIONAL FLUID HEAD



- * The "F" Head will support medium weight 16mm Cameras up to 15 lbs. and the LP-2 Professional Fluid Head will support up to 30 lbs. Both are available with or without the Slip Pan Unit.
- * Slip Pan Units are available to convert older "Miller" Fluid Head models for this use.
- * There is a Miller Tripod ideally suited to every Miller Head.

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

MILLER PROFESSIONAL EQUIPMENT

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

A 200,000-CANDLEPOWER LIGHT FROM A 2½-CUBIC-INCH SOURCE

A new microprojector that beams intense, uniform light from a compact, powerful xenon lamp appears to offer several interesting possibilities for motion picture and television application

A compact, powerful xenon lamp is the light source in an advanced microprojector developed by Kramer Scientific Corporation.

The lamp is the VIX-150, manufactured by the EIMAC Division of Varian Associates. It occupies only 2½ cubic inches, but it can deliver 200,000 candlepower at peak beam intensity.

The new projector is the Kramer Scientific Model 1125 microprojection system, which can cast images of microscopic specimens directly onto a remote viewing screen, enlarged to diameters as great as 8 feet. The instrument can be used in research laboratories, classrooms and conference halls, to display slide-mounted biological, metallurgical and geological specimens, textiles and textile fibers, microelectronic devices, particulate air-pollutants, and a host of other materials. It would also seem to offer several interesting possibilities for motion picture and television application.

The microprojector combines two functional units — an upper section containing its optical elements, and a lower unit that houses the VIX-150 lamp and its power supply. The entire projector is only 24 inches tall, and weighs about 75 pounds.

Hubert E. Baxter, vice president of Kramer Scientific, says that the VIX-150 was an important factor in the design of the projector. The Varian lamp consumes very little space; it provides intense, uniform light; it requires no external collectors or reflectors for its light; and it is economical both to buy and to operate.

Alternative sources of comparable light would demand at least five times as much space as the VIX-150, Baxter observes, and would consume at least three times as much electric power.

The VIX-150 is the first arc-type light source in which the electrodes, reflector and output window have been sealed into a single pressurized unit. Its features include long-lasting tungsten-alloy electrodes; a parabolic reflector that is cast into the ceramic body of the lamp; and an output window made from a single sapphire crystal that is thermally matched the mating metal parts of the lamp.

The VIX-150's unique integrated

construction gives the lamp great mechanical stability. Optical alignment is fixed during manufacture and requires no subsequent adjustment by the user. The lamp can be used in any position, unlike some earlier xenon illuminators. And it can withstand forces up to 1,000 G without damage or distortion.

By using a sapphire output window, EIMAC has done away with the devitrification problem that has limited the service life of other xenon arc lamps.

Varian markets the VIX-150 along with a compatible power supply and cooling fan. The company also offers complete high-intensity illumination systems built to customer specifications, including both near-field

and far-field optical components.

Applications for illumination systems based on the VIX-150 include electro-optical instruments such as spectrometers and pollution-monitoring devices; medical instruments, including sterilization and coagulation units; photographic systems, such as photocopiers and microfilm processors; and sun simulators, used by aerospace researchers and by testing laboratories that must duplicate the effects of sunlight on coatings, textiles and other materials.

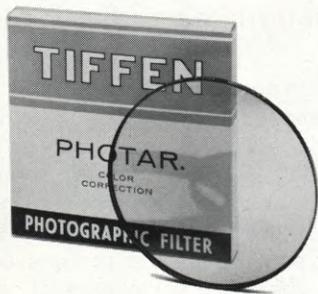
Product inquiries (literature available): Mr. David Wilson; Varian Associates; EIMAC Division; 301 Industrial Way; San Carlos, CA 94070; telephone: (415) 592-1221 ■

Laboratory technician shows an enlarged image of a microscopic biological specimen, using an advanced microprojection system developed by Kramer Scientific Corporation (New York). The microprojector's light source is a compact, powerful xenon lamp — the VIX-150 — manufactured by the EIMAC Division of Varian Associates. A VIX-150 lamp occupies only 2½ cubic inches of space, but it can deliver 200,000 candlepower at peak beam intensity.



TIFFEN

Available at Dealers throughout the World.



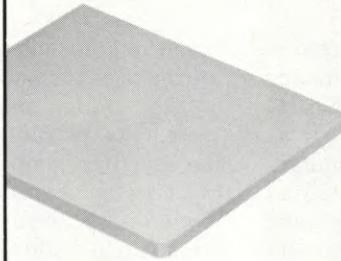
4½" DIAMETER ACCESSORIES

Tiffen 4½" filters are engineered to meet the exacting standards of large diameter professional lenses. The 4½" filter will fit numerous lenses, using Tiffen adapter rings, eliminating the need for various costly special-size filters. Available in all standard colors, combination colors, neutral densities, rotating polarizer; and diopters ½, 1, 2, and 3.



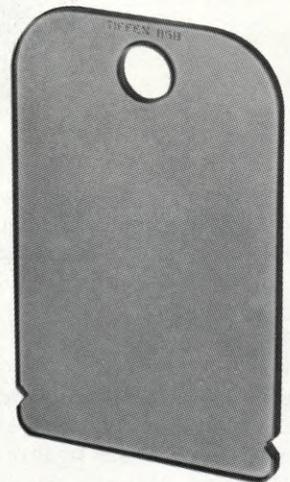
138mm FILTERS

for Angenieux 20-120 (6x20) F2.6 lens. Available in all standard colors, combination colors and neutral densities. Close-up lenses in +½, 1, 2, 3.



SQUARE FILTERS

Tiffen Photar® Filters in all colors are available for Tiffen and other square filter holders in sizes from 2x2-inches up to 15x15-inches.



RECTANGULAR FILTERS

for Arri 16 matte box. Available in all colors and neutral densities 0.1-1.0.

TIFFEN

71 Jane Street
Roslyn Heights, N.Y. 11577

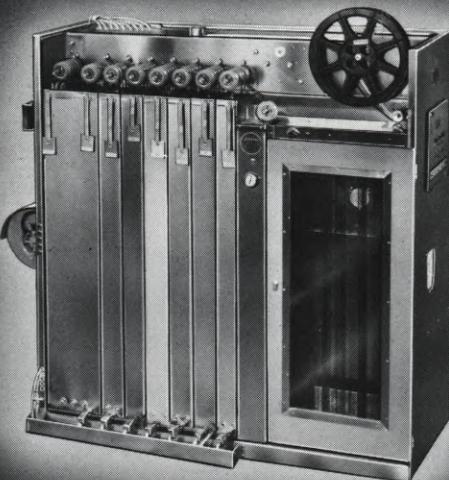
(516) 621-2700 Telex 96-7748

**YOU NEED A COMPACT, ECONOMICAL, VERSATILE,
EXPERTLY DESIGNED AND BUILT PROCESSOR-
BUT YOU WANT IT AT THE LOWEST PRICE-**

LOOK TO HILLS' mini-mat 70*

WHY NOT! We were the first to introduce a high-quality modular unit at a lower cost, so who knows better what you want than Hills! Go with the leader!

The Mini-Mat 70 is designed for Eastman Color Neg. II (7247 or 5247), Pos. II (7383 or 5383) for speeds of 16 fpm., and for Super 8 Ektachrome, 40 and 160 films for a speed of 50 fpm. To save money without sacrificing quality . . . buy



from Hills . . . the people who have been handcrafting quality processors since 1948.

Call or write for our free brochure. Hills Manufacturing Co., Inc., P.O. Box 125, Chalfont, Pa. 18914 (215) 345-1944

HILLS

. . . right for today,
ready for tomorrow.

*Smaller Mini-Mat models available

FIRST ANNUAL ASC AWARDS TO COLLEGE CINEMATOGRAPHERS
Continued from Page 771

Blaine Nicholson, our public relations people. Before I introduce the master-of-ceremonies, I would like to tell you a little bit about the voting procedures pertaining to this event. You may be interested to know that we extended invitations to 100 colleges and universities all across the country. We received approximately 65 responses, and the reason that more films were not accepted in the competition had to do with our ruling that they must be over 15 minutes in length. I happen to know that a local college here had more than 40 films which were reviewed by their committee, in order to send the one which they felt was best. I might add that this whole idea is based on the fact of each school sending to the Ameri-

home or at the studio and we have an enjoyable cocktail party. We all spout off and nobody listens, really, but we all talk and I enjoy a drink or two — or three or four. I never drink more than I can carry, although there have been a few times when I should have made two trips. I do think it's fun. The fellowship here is just great. I don't work an awful lot as a cameraman, but I enjoy cameras and I've had them and worked with them for many years . . ."

Mr. Bergen then launched into some of the sly dialogue that has established him, over the years, as one of the entertainment world's great comedians. His audience responded with non-stop laughs. At one point he made some marks on his fist with a black crayon, the result turning out to be the face of a droll little lady who served as his foil in the kind of ventriloquism act for which he is world-famous. It was a hugely appreciated performance.



Awards Committee Chairman Stanley Cortez, ASC describes how 100 colleges were invited to submit films for the competition, with 65 responding.

tension to his fingers," Cortez continued. "I sometimes wonder if, but for a simple toothpick, our Guest of Honor would be present tonight. In introducing him, I do so with a sense of pride and respect. Pride, because I personally played a minute part in his magnificent career — and respect, because of his world-recognized achievements, both as an actor and as a human being. Ladies and gentlemen, I am proud to present Mr. Gregory Peck."

Responding to the introduction, the

Continued on Page 842

Among honored guests at the banquet was Paul Beeson, BSC, Past President of the British Society of Cinematographers, who was in Hollywood as "Emmy" nominee for his photography of "QB VII".



Famed comedian (and longtime A.S.C. Associate Member) Edgar Bergen, serving as a marvelously witty Master of Ceremonies at the Banquet, at one point made some marks on his fist with a black crayon, the result turning out to be the face of a droll little lady who served as his foil in the kind of ventriloquism act for which he is world-famous. The audience responded to the hilarious performance with non-stop laughter.

can Society of Cinematographers the film they consider to be their best effort — and tonight you will see the winning film from among that group."

Mr. Cortez then went on to introduce the master-of-ceremonies for the evening, Edgar Bergen.

In his opening remarks, Mr. Bergen said: "I've been a member of the A.S.C. for 35 years and I always enjoy it here because we leave our problems at

In introducing Gregory Peck, Chairman of the Awards committee Stanley Cortez, ASC recounted the story of one time in New York when he was about to photograph the screen test of a very young and nervous Mr. Peck. He suggested that his subject relieve the tension by squeezing on both ends of a toothpick until it hurt.

"The object was to remove the signs of strain from his face by diverting the

THE NAGRA EXPERTS MAKE THE DIFFERENCE

Since the introduction of the Nagra Recorder to the United States, Our skilled technicians have been servicing, modifying, updating and developing new accessories for this sophisticated recording instrument.



AUDIO SERVICE COMPANY
565 FIFTH AVENUE
NEW YORK, NEW YORK 10017
(212) 972-0825

A SOUND IMPROVEMENT

AGE Inc. announces two new exclusive products designed to improve your sound recording.



Model Z815 Zeppelin Wind Screen with accessory pistol grip.

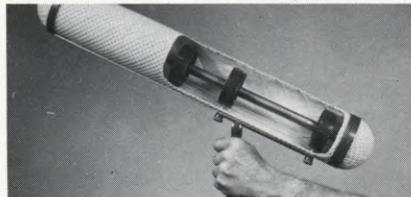
Zeppelin Wind Screen

Insures perfect sound recording in all conditions where wind or air movement is present. Aero-dynamic design screens microphone from wind but lets sound in. Weighs only 8 ounces but is virtually indestructible. Can be handheld or boom-mounted.

Model Z815 (for Sennheiser 815 and similar microphones) . . . \$100.00

Model Z415 (for Sennheiser 415, 435 and similar microphones) \$ 85.00

Available from your Dealer or:



Model M815 Cushion Mount Shock Absorber shown mounted in Zeppelin Wind Screen.

Cushion Mount Shock Absorber

Can be used within Zeppelin or as a separate unit. Eliminates noise caused by microphone movement. Polyester foam cushion "gives" easily on impact and returns equilibrium gently, eliminating overspring. Absorbancy maintained over 360°. Can be handheld or boom-mounted.

Model M815 (for Sennheiser 815 and similar microphones) . . . \$ 65.00

Model M415 (for Sennheiser 415, 435 and similar microphones) . . . \$ 45.00

SERVING THE WORLD

alan gordon enterprises inc.



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

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

TWX: 910-321-4526 · Cable: GORDENT

RUTTENBERG SEMINAR

Continued from Page 809

QUESTION: What about the crown jewels?

RUTTENBERG: At the time there was a company that sponsored a traveling exhibition of imitation crown jewels, and went all around the world lecturing with them. We borrowed their crown jewels.

QUESTION: What about that incredible scene near the end of the picture that takes place on the rooftop, with the clouds moving behind it?

RUTTENBERG: That was process. The rooftop set was built in front of a rear-projection background screen and the clouds were processed in.

QUESTION: When you are shooting such low-key photography, and you have so much blackness on the screen, that would tend to give you a thin negative. What do you do — shoot more normal and print down on the printer, or . . .

RUTTENBERG: No. You do not have to print down or up. I want to explain this to you. When shooting a low-key picture or doing a light effect scene, there is one very important thing to remember: Do not put too much light on your set. However, you must have enough illumination somewhere on the set so that you will be able to silhouette the actors against it. It's alright to side-light the actors, but do not try to balance the shadows. You must be sure that whatever illumination you do have on the set is strong enough, according to the foot-candle reading on your meter, to get the correct exposure for the effect. If you follow the above suggestion, you will have some very interesting photography and the lab can really make you some very rich prints. But you must have the full amount of light and not depend upon the lab to print it up. Because, if you don't have it on the film, the lab can't do anything about it.

QUESTION: From what I understand, that's rough on the negative. It's just practically clear. A clear negative, right?

RUTTENBERG: I'm sorry I didn't get up and point it out to you, but you may recall a scene in "GASLIGHT" that is played against a certain wall. In this scene, you want to keep the key low. Now you have a lighted side, but on the

opposite side you have a little glow of light, just enough so that you can have a silhouette. It doesn't matter if you see the face clearly or not. Sometimes you put in a little spot to give it softness, but it's important to have that one small amount of highlight definitely on the film.

QUESTION: What about source lighting?

RUTTENBERG: I try to get the source coming from a natural direction.

QUESTION: I was wondering how far ahead of time you are able to discuss the photography with the director.

RUTTENBERG: It varies. Sometimes you get a week to do it. Sometimes we had a week's rehearsal. But if you just got off an assignment, there sometimes wasn't much time to discuss the new picture.

QUESTION: But what about "GASLIGHT"?

RUTTENBERG: We had a lot of time on that film — plenty of time — probably a couple of weeks of preparation.

QUESTION: How long was the shooting schedule?

RUTTENBERG: I would say three or four months.

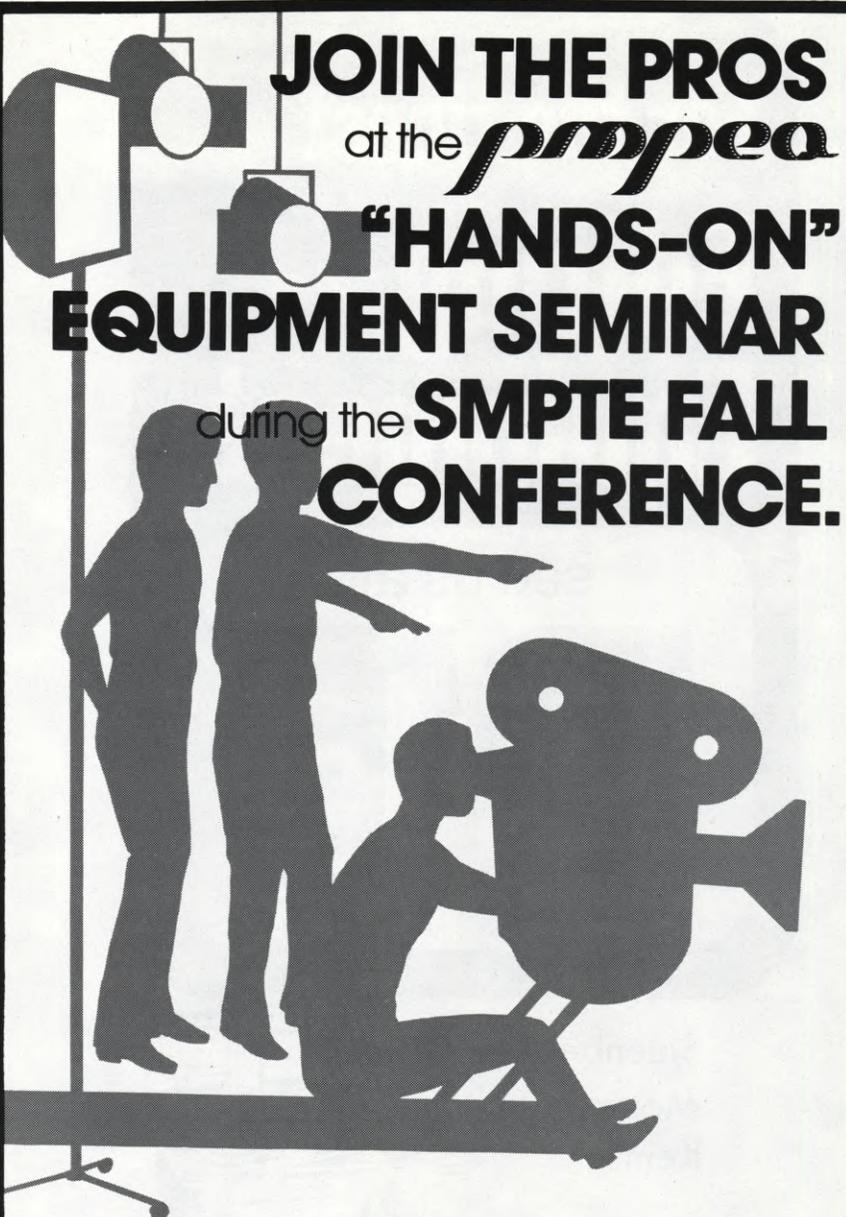
QUESTION: What was your ratio between the highlights and shadows?

RUTTENBERG: I never went for a specific ratio. I worked by eye. You see, in the early days, we didn't use meters. When I first came to Hollywood from New York I wanted to prove that I could shoot a picture without meters. So, that's the way I shot "DR. JEYKLL AND MR. HYDE". I don't know how many of you saw that picture, but we didn't use a meter on that at all — except for one reading to establish the number of foot-candles we wanted as a key.

Back east we didn't have any gaffers. We lit our own sets and the actors. There were only electricians — but no camera operators. We did everything ourselves. The training I got from that was priceless.

We used to work with the Pathé camera. Did you ever see a Pathé camera? I brought a picture of it with me (passing picture around).

COMMENT: No viewfinder . . .



JOIN THE PROS
at the *pmpea*
"HANDS-ON"
EQUIPMENT SEMINAR
during the **SMPTE FALL**
CONFERENCE.

Mark your calendar for Friday, October 3. On that date, from 10am to 2pm, you'll have the opportunity of your cinematic lifetime.

The Professional Motion Picture Equipment Association (PMPEA) has lined up some of the top professionals in cinematography, lighting and sound to lecture on and demonstrate the latest in motion picture equipment under actual film production conditions on one of 20th Century Fox's largest sound stages (adjacent to the Century Plaza Hotel).

You'll not only have a chance to enter into a dialog with them, but you'll be able to actually operate the equipment on the set.

Plan now to attend the entire SMPTE Conference from September 28 to October 3. And make your last day your most valuable by attending the PMPEA's "Hands-On" Equipment Seminar.

For further details, contact the PMPEA member in your area.

PROFESSIONAL MOTION PICTURE EQUIPMENT ASSOCIATION
pmpea

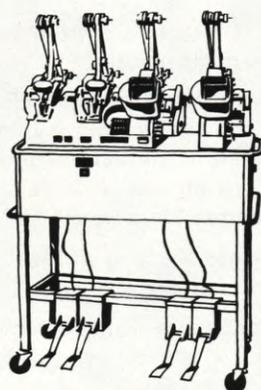
117th SMPTE Conference / September 28 — October 3
Century Plaza Hotel, Los Angeles
PMPEA Seminar / October 3 (10am-2pm) / 20th Century Fox Studios

For the finest Editing Equipment

see us at...

PT*

Steenbeck
Moviola
Kem



- Location and on premises availability
- Maintenance and Repair Service
- 4 Deluxe Screening Rooms

*

preview
theatre, INC.

1600 Broadway, New York, N. Y. 10019 • Tel.: (212) 246-0865

RUTTENBERG: See this old wooden box here. There is a little magnifying glass in back of the camera where the handle is. We'd open that and look through the film to judge our exposure. Now, if we looked long enough, the frame would fog. So we would turn up another frame, a fresh frame . . . and we got used to that. We had to grind the camera by hand at 16 frames to the second. It was like playing a violin. The cameramen used to have contests to see who could keep this up the longest — grinding at the same speed and maintaining a steady movement.

We didn't have optical printers in those days, but some of the directors liked lap dissolves, and we had to grind them by hand. There was a little gimmick on the left side of the Pathé camera which controlled the opening and closing of the shutter. We would operate that with one hand, while grinding the camera with the other. Sometimes the director would say: "I want this four-speed, or two-speed, or twenty-speed." We had to judge this, somehow, and count.

Now here's how we made lap dissolves. I don't know how many of you have any idea of how a lap dissolve is made in a camera — particularly a Pathé camera — but I will try to explain it to you. First you remove the lens so that you can see the film in the aperture. Then you make a pencil mark around the frame and write #1 on it. You then pull down another frame and mark #2 on it — and so on, until you have four or five frames marked. All of this is important, because when you come back to complete the dissolve, you must be able to put the film back exactly where you started. Otherwise, you will have frame lines across the middle of your picture, etc.

Now, after the film is back in place you put back the lens. If you are supposed to have about 50 feet of unexposed film for the first part of your dissolve, you close your shutter and grind off 50 feet of blank film. Now you are ready to shoot the second part of the dissolve. So you fade in and grind until the director says: "Cut!" Of course, all of this has to be done on counts, because when you come back to shoot the first part of the dissolve, you will be able to know on what number the dissolve starts. After you have completed the first part, you put the film in a can, making sure to put the information about the numbers in the can also. You keep a copy of the numbers for yourself and the script clerk should have a record of them in her book, as well. This can of film is put away without being processed, until you are ready to com-

plete the scene. Then you send the whole thing to the lab.

We were making a picture in Florida once and, during the shooting, the director got an idea for an effect he would like to have. The girl in the picture is walking on the beach. She stretches out her arms and imagines that she sees an island rising up out of the water. The director said: "Joe, this is what I would like. Is it possible?" I asked: "How much time do we have? He said: "We've got to do it today."

In those days you had to invent everything. So I thought about it for a little while and said: "It can be done." When we broke for lunch I went to an optical place and got a piece of optical glass. I placed the glass in front of my lens and cut a piece of black paper the size of the glass and made a little hole in the black paper.

Since this was a dissolve operation, we tied the Pathé camera down to be rock steady and marked our film the same way we would for an ordinary dissolve. We put the dot of black paper I had cut out on the glass right where the island was supposed to come up. Now all the glass was clear, except for the cut-out black dot. Next we photographed the girl coming down to the beach and stretching out her arms. Then we faded out. Now the black dot on the glass was replaced by the reverse cut-out of the black paper, so that only the little hole was clear. With the shutter closed, the film was wound back to the marked frames at the beginning. Now, when you shot, you were not photographing anything but what showed through the hole. How did we get the island appearing to come up out of the water? We went to a spot where there were some palm trees and, rehearsing on count, started just above the trees and tilted the camera down toward the water — so that you got the impression that the island was actually coming up out of the water. It was an illusion. It wasn't ethereal (an effect which we could have achieved with a simple double-exposure); it looked real. Of course, if this scene had stayed on the screen any length of time it would have looked ridiculous, but since it was kept very short, I must say that it was not bad.

It was things like this that a cameraman had to constantly figure out in those days, but nowadays it's simple. You have optical printers and you can do all kinds of tricks in the optical department. Also, in those days, we were using orthochromatic film — which was very slow.

QUESTION: How fast was the film

PLC-4 Magazine

The most advanced design in 16mm 400 ft. magazines.



FEATURES:

- The PLC-4 magazine is made of extremely lightweight, glass-filled Lexan®, a material with greater impact strength than magnesium.
- Hinged magazine doors provide quick access for fast loading and unloading.
- Two thumb-activated latches on each magazine door guarantee positive safe closure.
- Compartment-type magazine design permits the use of either 200 ft. or 400 ft. darkroom cores or daylight-loading spools.
- The relatively square configuration of the compartment makes it easy to remove a daylight-load spool.
- Magazine may be fastened to the camera by conventional screwdown methods or the unique Cinema Products snap-latch technique.
- The molded plastic PLC-4 magazine completely eliminates the problem of film spotting caused by particles of magnesium adhering to the emulsion and then reacting in the developing bath.
- The PLC-4 magazine is extremely silent in operation.



PLC-4 Magazine shown mounted on a CP-16R Reflex camera.



PLC-4 Magazine shown mounted on an Auricon CineVoice Camera (400 ft. Conversion model).

MAGAZINE COMPATIBILITY

PLC-4 MAGAZINES ARE COMPATIBLE WITH ALL 16MM CAMERA SYSTEMS WHICH ACCEPT STANDARD 400 FT. MITCHELL-TYPE MAGAZINES.

For further information, please write to:

cinema products
CORPORATION

Technology In The Service Of Creativity

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

Tiffen filters make the difference.



Victor Duncan agrees

Tiffen knows that sometimes one field of focus isn't enough, so they offer split/field lenses to give you sharp focus from a few inches to infinity. And for other superb effects, Tiffen makes filters that polarize, diffuse, fog, create star patterns, and aid in contrast and sky control.

In addition to combination and standard color filters, such accessories as adapter rings, lens caps, filter holders, and lens shades are available, too. They've even introduced a rugged Naugahyde professional case, designed to protect your Tiffen filter from unexpected bumps and jars.

If that's not enough, the people at Victor Duncan, Inc., can show you more. Tiffen manufactures the most complete line of filters and lens accessories—over 2000—and all with a lifetime guarantee. Tiffen makes the difference, and Victor Duncan knows it.

the check and double check people



VICTOR DUNCAN, INC.

Rentals, Sales, Service

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



— the ASA rating, I mean?

RUTTENBERG: We didn't have film speed ratings in 1918. But we did have rack and tank development. The negative was wound onto a large circular rack and the negative developer would submerge that rack into a large tank containing the developing solution and every now and then he would pick up the rack to examine the negative under a red light. If, in the judgment of the negative developer, the negative needed a little extra development he would place the rack back into the tank of developer and develop it a little longer. Now they call the same thing "pushing" development a stop or two. People have actually been pushing development, I believe, since the beginning of photography, but there are still those who think that pushing development a stop or two is something new. With all that, though, you must remember that if you haven't put an exposure on the film the lab can't put it there for you.

QUESTION: Did you say that you began your photographic career as a newspaper photographer?

RUTTENBERG: Yes — on the staff of the Hearst newspaper in Boston. Each photographer had to buy his own camera. The one we used was a little 4 x 5 reflex camera which had a focal-plane shutter, but didn't have any calibrations on it. There were two clamps — one on the top of the shutter and the other on the bottom part of the shutter. If you wanted a wider shutter opening you just pulled those clamps apart; if you wanted a very closed shutter, you would push the clamps together. So now, how did you judge the exposure? You'd take the plate holder off and flip the shutter down past your eye and say, "That'll do it."

I'll tell you one more interesting story and then I'll quit. In those days we didn't have flash bulbs like we have now. We used the old fashioned flash lamp, which required that you place a pistol cap under a little spring and then pour 16 ounces of magnesium powder onto the pan. When you were ready you pulled the chain attached to the spring in order to trigger the cap and ignite the powder.

After one of our photographers lost an eye when a cap exploded flash powder in his face, the order went out that no more flash pictures were to be taken. Several weeks later, on the Saturday before Christmas, people were shopping and going home at about 7 p.m. when there was a terrific train wreck — four or five trains tele-

scoped and hundreds of people killed. It was a horrible sight, but a big thing for a newspaper. "Get Joe down there!" they said. So I got ready and when the editor saw the flash lamp in my hand, he said, "No flash pictures!" I said, "I'll get you some pictures. Don't worry about it." I left the flash lamp at the office and went to the scene of the accident. It was dark and people were lying all over the ground, screaming. My colleagues, the photographers, were all over the place setting up to take flash pictures. So every time a guy set his flash lamp, I stood next to him and opened up my shutter and — boom! — I got a picture. Then I'd go over to the next guy and quickly do the same thing. I got a half dozen pictures and beat all the other papers the next morning. The managing editor came up to the dark-room as I was developing the plates and said, "How did you do it? How did you get those shots without flash?" I said, "Wait until I make the enlargements." Then I told him. I became the fair-haired boy of the paper for years. Incidentally, I got a \$3.00 raise.

QUESTION: How did you make the transition from still to motion picture photography?

RUTTENBERG: After I left the newspaper I decided that I wanted to learn about motion pictures, so I got an idea for a newsreel and sold it to Loew's for their theatres in Boston. They didn't have air conditioning in the summertime and they weren't getting enough customers, so they had to do something to increase attendance. I had a friend who was mechanically inclined. He knew how to build things, and we put together a laboratory. Instead of using wood for our tanks we used galvanized iron. We also had three-foot racks that we wound film around to put it in the developer. I knew nothing about movies at this time, but I knew photography, so I went to New York and bought a movie camera and there was a little book of instructions with it. We'd go out and shoot newsreel film and, since I had many friends on newspapers in Boston, they would call me up when there was a fire or something big. I was very friendly with Mayor Fitzgerald, who was Rose Kennedy's father. One time he called me up and said, "I'm going to make a speech at Faneuil Hall." I went there, but I arrived a little late, and he said, "Ladies and gentlemen, wait until my cameraman, Joe, gets here. He's sitting up in the balcony now."

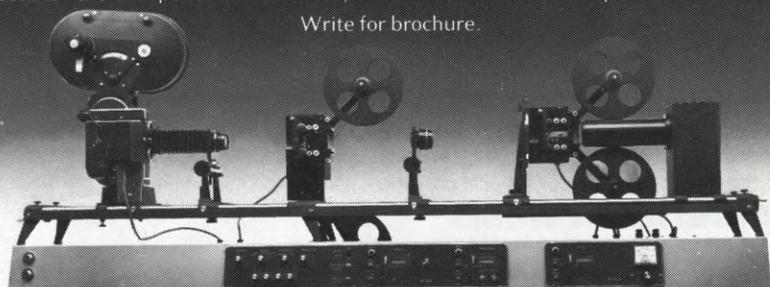
QUESTION: What kind of artificial

Rotating aerial image, quartz-halogen illumination, solid state sequencer, interchangeable 16mm, Super 8 and 8mm modules.

Our uniquely designed intermittent drive system and fixed pin registration combined with State of the Art electronic and electromechanical automated controls have resulted in a professional optical printer of extreme versatility within reach of your budget.

Several models of standard and aerial image optical printers available to satisfy the needs of the independent filmmaker, universities and motion picture laboratories.

Write for brochure.



J-K CAMERA ENGINEERING, INC. 5101 SAN LEANDRO ST. OAKLAND, CALIF. 94601

same day
16mm/super 16
DEVELOPING
and PRINTING
commercial & high speed
Ektachrome
& 16&35mm B&W Reversal

16mm/super 8
ANSWER PRINTS
SWIFTLY FROM
COLOR NEGATIVE
or REVERSAL

bébell[®]
INCORPORATED
MOTION PICTURE LAB DIVISION
416 West 45 St. New York 10036
PHONE: (212) 245-8900
WRITE, WIRE, PHONE FOR PRICE LIST

16mm/super 8
Internegatives
CRIs
Masters

16mm/super 8
release
prints



"COPTER" CAMERA MOUNTS

World-wide acclaimed range of Helicopter Camera
Mounts for 35mm, 16mm, and Video Cameras.

ONE CALL PROVIDES MOUNTS, CAMERAS, STORY AND
CAMERA HELICOPTERS, PRODUCTION CREWS, WORLD-WIDE

Continental Camera Systems
National Helicopter Service

989-5222 16800 ROSCOE BLVD. **345-5222**
VAN NUYS, CALIF. 91406

Dealer List

Chicago (312) 321-9406
Dallas (214) 369-1165
Detroit (313) 371-4920
Miami (305) 751-1818
San Francisco
(415) 957-1787
New York (212) 581-5474
Utah (801) 295-8368
Toronto (416) 920-5424
London (01) 223-2600
Sydney 439-6955
or 669-6000
Bangkok 821720



IN MEXICO 16 mm. FILM PRODUCTION

cameras

♣ ARRIFLEX BL 16
♣ BOLEX EBM

♣ CP 16
♣ CP 16/A

sound

NAGRA, IV, SN

STEENBECK EDITING FACILITIES

PALMER, BAUER, AMPEX RECORDING

PLUS EXPERIENCED CAMERAMEN, SOUNDMEN
AND EDITORS

Altogether IN MEXICO'S
biggest 16 mm.

PRODUCTION CENTER

NOTIMEX
INSURGENTES SUR
No.1700
MEXICO 20, D.F.
MEXICO



PHONES:
524 1165
524 1680
524 1674
524 1197

NTX/SPG

lighting did you use then?

RUTTENBERG: In the early days we didn't have lights. If we wanted a real strong highlight, we would open a door at the studio and use two or three mirrors to get a hot spot on the sets. Later, arc lights and Cooper-Hewitt lighting began to be used. I don't know if any of you ever saw those huge banks of lights — like fluorescent lights, but vapor light. We would use a bank of those and an arc for hard light. We would set up a whole row. Then later the studios built overhead tracks on top of the sets.

QUESTION: Were those lights something like neon?

RUTTENBERG: They were like neon — yes. Then came panchromatic film and we couldn't use those lights anymore. We had to change to incandescent light and the transition was tough, because it was hard to get used to. I had a little studio of my own and I experimented with the incandescent light until I was able to get correct exposures. But the way the business progressed — from the time I started my motion picture career in 1914, I grew with it. The cameramen, my colleagues, experimented with everything. They took bottles and broke the bottoms out and put them in front of the lens for diffusion. They used gauze, and burned a hole in the center with a cigarette — all kinds of tricks. I did one picture with D.W. Griffith and he always liked to experiment. He wanted to shoot a love scene with two people sitting on a wall, with the whole beautiful background in the picture, but he didn't want to use process. So in order to get what Mr. Griffith wanted, we had to use a wide angle lens. This meant that we had to get in very close. Well, when you shoot a woman's face that close with a wide angle lens, everything looks harsh and distorted. So I had to use gauze and it produced a very interesting overall effect. Sometimes I would use a woman's stocking for a different effect, or netting.

QUESTION: Did you use any gauze in "GASLIGHT"?

RUTTENBERG: No, we used an O.B.

SCHWARTZ: That's a glass diffusion disc with circular rings in it.

RUTTENBERG: The rings were separated. There was a wide space between the first and the second ring, and so forth. If you wanted to increase the diffusion, you would use a disc with the

rings closer together and it would give you a softer effect. They were marked: "A", "B" and "C".

QUESTION: I've heard a number of times that the favorite lens of the old-school cameramen was a 40mm. Why was that?

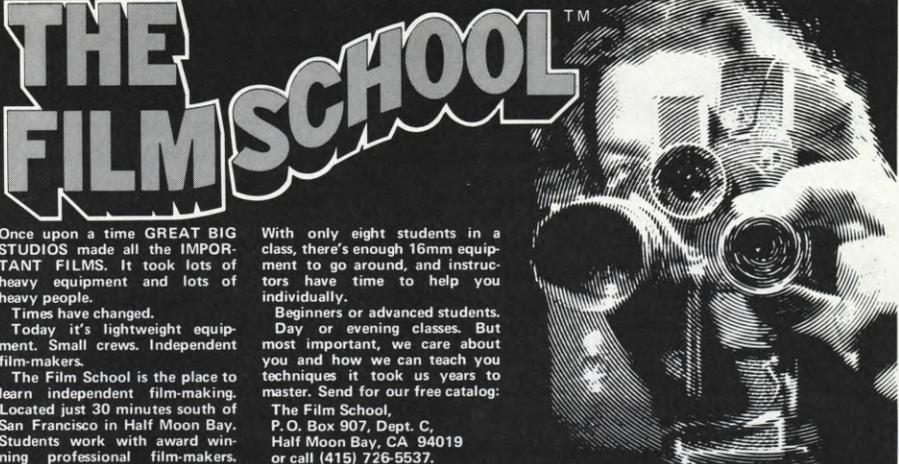
RUTTENBERG: That's all we had in the early days. Then we got a 50mm lens and, later, telescopic lenses. Joe Walker began to work with telescopic lenses for closeups. You know, however, we got some nice looking pictures in those days, even though we were never allowed to pan the camera at all. Directors would say, "Throw those pan handles away!" You would set your camera so many feet from a character and that was it. The character would walk out of one scene and into the next.

QUESTION: Mr. Ruttenberg, could you tell a little bit about the making of "GIGI"?

RUTTENBERG: It was just a beautiful picture, a conventional picture. However, some of the scenes attracted a lot of attention — like, for example, the silhouettes against the fountain. This was a magnificent fountain — the most beautiful in Paris, I believe. The scene shows Louis Jourdan standing in front of the fountain and singing a number. I felt that in order to get any beauty out of such a shot, it should be photographed in silhouette. I discussed this with Vincente Minnelli, who is a great director, and he agreed. The shot would have to be made at night. This fountain was huge — at the moment I don't remember its exact dimensions — but our problem was one of getting enough lights behind it to illuminate the whole fountain from the back, without having the rays of light shooting into the lens. I knew there were two huge lamps in London which contained 20,000-watt bulbs in each lamp. We had them flown in. Now I was able to hide these two huge lamps behind the fountain and they lit the whole spray and some of the base of the fountain. I used a small spot for a cross-light on Jourdan, and that was it. I must say that it was a magnificent shot. I mention this because I maintain that it is not necessary to use many units of light in order to get interesting photography — if the lights are placed in the right places.

QUESTION: Could you tell us a bit about how to light fog scenes — like the ones you mentioned earlier in "GASLIGHT"?

RUTTENBERG: If you ever have to



Once upon a time GREAT BIG STUDIOS made all the IMPORTANT FILMS. It took lots of heavy equipment and lots of heavy people.

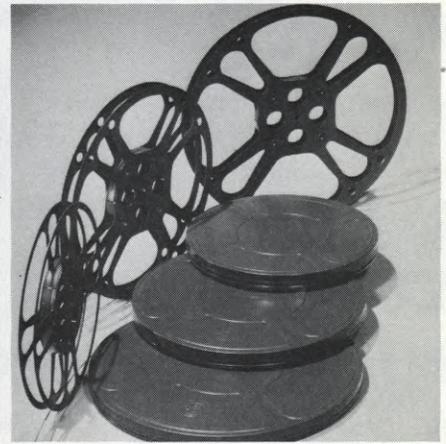
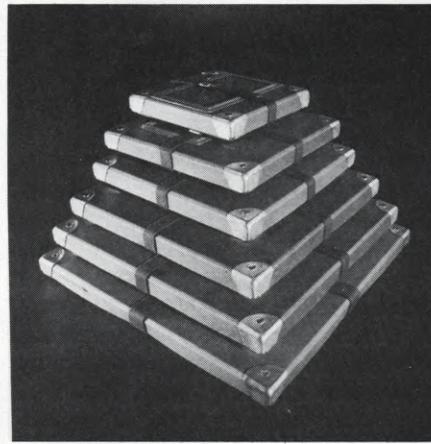
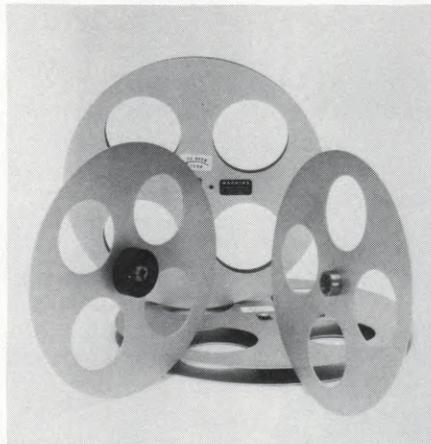
Times have changed. Today it's lightweight equipment. Small crews. Independent film-makers.

The Film School is the place to learn independent film-making. Located just 30 minutes south of San Francisco in Half Moon Bay. Students work with award winning professional film-makers.

With only eight students in a class, there's enough 16mm equipment to go around, and instructors have time to help you individually.

Beginners or advanced students. Day or evening classes. But most important, we care about you and how we can teach you techniques it took us years to master. Send for our free catalog:

The Film School,
P.O. Box 907, Dept. C,
Half Moon Bay, CA 94019
or call (415) 726-5537.



for all your reel needs!

- 8mm & Super 8mm Reels in steel, 200' to 2000'.
- 16mm Reels in steel, plastic and sheet aluminum.
- 8mm & 16mm cans in steel and plastic.
- Shipping Cases in fibre and plastic.
- Split Reels in steel and aluminum.
- 35mm & 70mm Reels in steel and aluminum.



Reel perfection is a GOLDBERG tradition!

GOLDBERG BROTHERS

P.O. Box 5345, T.A. • Denver, Colo. 80217

complete MAIL sound service!

TRANSFERS
SOUND EFFECTS
MUSIC
Sound EDITING to Picture
NARRATION recording
*MIXING

35mm

16mm
"SAME DAY SERVICE" on
DAILIES, TRANSFERS & EFX.
*AWARD WINNING MIXER: IRV NAFSHUN

qsi

HERE YOU ARE - ALL DUBBED!



quality sound, inc. 5625 melrose avenue, hollywood, calif. (213)/467-7154

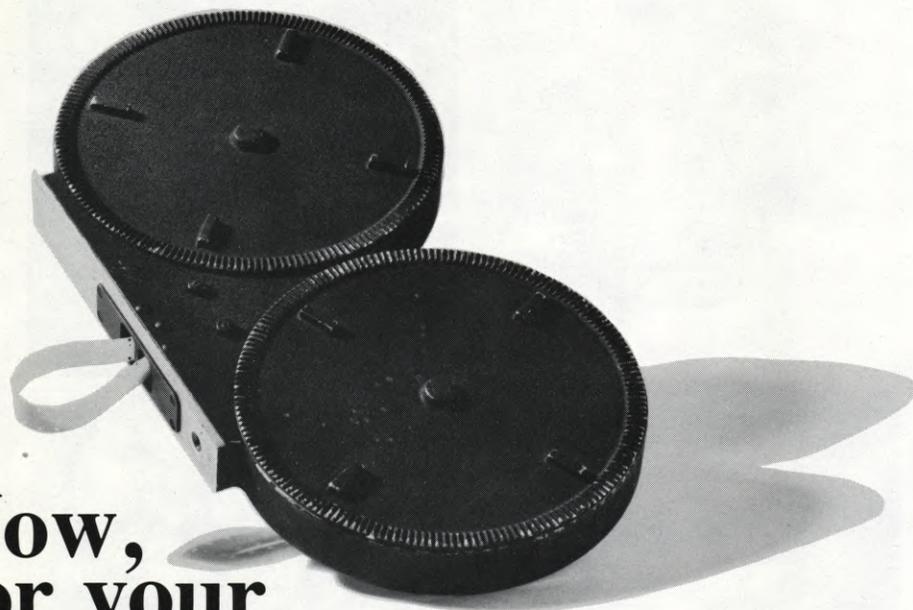
shoot a fog scene, always, if possible, fill the stage with fog vapor and back-light the fog, but don't light it from the top of the set, because the effect will look phony if you do. Try to set lights on the floor and shade the lights from the lens. Also, whenever you have a street on the set, put little tiny spots behind the streetlights, shooting toward the camera. But be sure to back-light the vapor.

QUESTION: You mean that if you have a streetlight, you should put a light directly behind it?

RUTTENBERG: Sure. The streetlight is big enough to cover the spotlight itself and the light spreads and illuminates the fog.

After you've been a cameraman for a while, you work out solutions to problems as they come up. I remember that we were shooting on location one day and we needed some closeups. It was getting dark and the background was going very dark, but the director needed to complete those closeups to avoid having to come back the next day. We always carried a huge scrim with us. So I had the scrim put on a frame behind the characters and had an arc lamp at a distance shot onto some trees that you didn't see. But the arc threw a shadow on the scrim and you had the feeling that you were shooting into a silhouette of the trees, with a slight suggestion of fog. It wasn't too bright. It was just enough to get a little detail into the background. By doing that, we were able to complete our day's work — and it was also interesting on the screen.

You can do many tricks with scrim, and they can be useful when you don't want to get the background too sharp. I find it upsetting when photographing some people who are playing a very important scene in the foreground — in a nightclub sequence, perhaps — and there are a lot of people behind them, with heads bobbing up and waiters picking up cups, while this important action is going on in the foreground. In such a case, I used to lower my camera a bit, so that the foreground people would be up a little higher and the background people would be below the heads of the people playing the important action. That would keep the audience from being annoyed by all that movement in the background. I used to remove any moving object from behind the heads of people in closeup. I also believed that bright objects behind people were disturbing. Some script clerks and cutters would say, "There was a picture up there on the



Now, for your second most important decision.

Your first important decision was composing, lighting and shooting.

Now comes your second most important decision . . . having it processed where you know your visual conception becomes a reality with no flaws.

That's where we come in. At Photo Processors your job is as important to us as it is to you.

We've invested in the finest color equipment available. Our team of color specialists are here to insure the best end-product possible.

Send your next color job to us and let us show you what we mean.



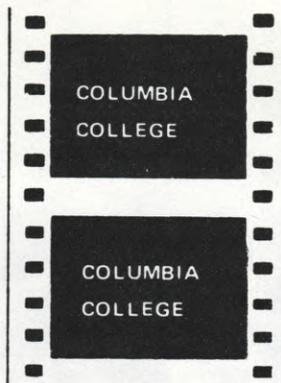
photo processors inc.

Box 2116A, Austin, Texas 78767
AC 512-472-6926

wall. Why did you take it away?" I'd say, "Well, what was more important for the audience to see — the picture back there, or the action?" When you're shooting with a very bright object in the background and you have a person standing in front of it playing a scene, where does your eye go? Voom! — it always keeps going to that bright spot behind the person, and you lose the feeling of the scene. It doesn't matter if you remove the distracting object. The audience won't miss it. Only the script clerk might miss it.

QUESTION: When you're getting ready to shoot a new sequence, do you play around a lot with different angles, in order to get the best angle?

RUTTENBERG: No. You really should know what would be the best angle. From experience you know. You sometimes have to play around, of course, if you're not experienced. But nowadays you don't have time for that. When I worked on pictures, it would take about six months to do a picture. We had a lot of time. When I worked on "MADAME CURIE", the producer said, "Joe, I want you to play around with this. Even if it's no good, we'll do it over again tomorrow, but let's get it right." I don't



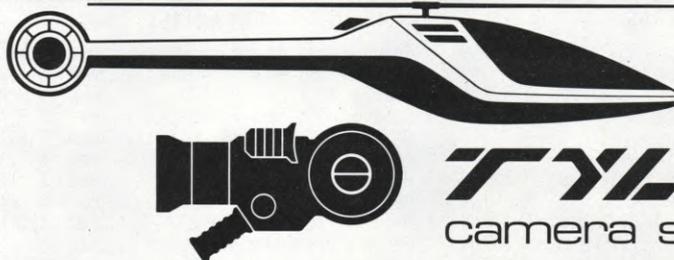
Approved for Veterans

A study of the Motion Picture and Television Arts and Sciences within a degree program, taught by a distinguished faculty.

Now Registering. Write for a descriptive brochure.

COLUMBIA COLLEGE

925 No. La Brea Ave.
Hollywood, Calif. 90038
851-0550



TYLER
camera systems

VIBRATION ISOLATION HELICOPTER CAMERA MOUNTS FOR 16 / 35 / 70 mm AND TV PHOTOGRAPHY

Hollywood 213-989-4420 — San Francisco 415-864-4644 — Toronto 416-920-5424 — New York 212-431-3930
Miami 305-757-5988 — London 01-452-8090 — Paris 01-223-2323 — Sydney 43-1162

Send for brochure — Tyler Camera Systems, 14218 Aetna Street, Van Nuys, California 91401 U.S.A.

HELICOPTERS CAMERAMEN CAMERA PILOTS

Why

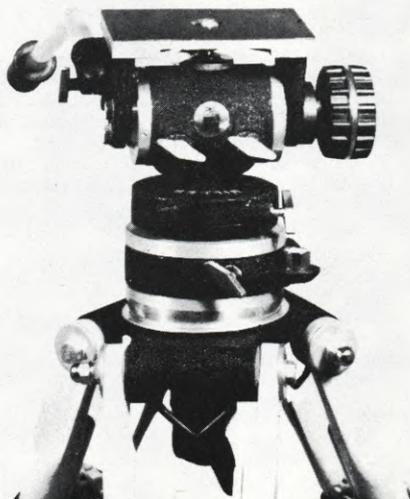
THE Miller "Fluid Action" PROFESSIONAL HEAD is the World's Finest!

*MILLER Equipment is precision-built of highest quality materials and every replacement part is available.

*MILLER Equipment is used throughout the world by leading photographers film and television studio giants.

*MILLER Equipment lasts indefinitely if properly maintained.

*MILLER Heads are being used with complete satisfaction from the freezing Antarctic to the excessive heat and humidity of the desert and tropics.



FEATURES INCLUDE:

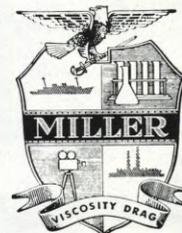
- *Full 360° Horizontal Pan.
- *Slip control for filming of fast moving objects or events.
- *90° Tilt control up or down.
- *Positive Tilt Lock and variable tension controls for camera support up to 40 lbs.
- *There is a MILLER Tripod suitable for every Head.
- *Other MILLER Fluid Heads are available for cameras from 5 lbs. up to 200 lbs.

The MILLER world famous velvet like movement operates on a semi-hydraulic principle which is patented throughout the world, and should not be confused with any friction-type movement.



Leos **CAMERA SUPPLY** LTD. CANADIAN DISTRIBUTOR

1055 GRANVILLE STREET VANCOUVER 2, B.C. TELEPHONE: (604) 685-5331



(PATENTED)



Jordan Klein

Specializing in all phases of professional underwater filming and production.

**Cameramen • Divers • Doubles • Props • Cameraboat • Locations
Consultation • Custom underwater camera systems • Lighting • Sound**

Jordan Klein I.A.T.S.E. #666 • 3131 N.E. 189th St. • Miami, Fla. 33160 • (305) 931-2300 • Telex 51-9352

CAMERAS

Canon Scoopic 16 outfit.....used	\$ 699.00
Arriflex 16 w/3 Schneiders, VS motor, matte box, case.....used	\$1599.00
Arriflex 16 BL w/12x120 Ang., crystal control, 400' mag., cable, matte box, filters, Halliburton, case.....used	\$5500.00
Kodak K-100 Turret w/3 lenses.....	\$ 389.00
Kodak XL 55.....	\$ 79.00
GAF 805 SS w/microphone.....new	\$ 289.00
GAF 605 SS w/microphone.....new	\$ 259.00
GAF 250 XL w/microphone.....new	\$ 229.00
Nizo 801.....new	\$ 689.00
Nizo 156 XL.....new	\$ 440.00
Nizo 561.....new	\$ 549.00
Minolta Sup-8 D-10.....used	\$ 299.00
Minolta Z8.....new	\$ 99.00
Minolta XL 400.....new	\$ 199.00

BOLEX

Bolex H16 EBM camera complete, bay, mt. w/power grip, battery, charger, 3' cable.....new	\$1169.00
Bolex sync pulse for EBM.....new	\$ 119.00
Bolex crystal sync for EBM.....new	\$ 219.00
Bolex Vario Switar 16-100 POE, bay, mount.....new	\$ 869.00
Bolex Vario Switar 16-100 POE "C" mt.....new	\$ 869.00
Pancinor 17-85 F2.0 w/viewfinder.....new	\$ 399.00
Bolex MST motor w/rechargeable battery pack.....new	\$ 299.00
Bolex MST motor w/rechargeable battery pack.....used	\$ 199.00
Bolex 400' magazine.....new	\$ 179.00
Bolex take-up motor.....new	\$ 124.00
Bolex 400' magazine.....used	\$ 129.00
Bolex take-up motor.....used	\$ 99.00
Bolex electric grip.....used	\$ 39.00
Bolex H lightmeter.....used	\$ 39.00
Bolex Rexofader.....new	\$ 56.00
Bolex Tripod w/adj. column, ball joint, pan head.....new	\$ 159.00
Bolex Pro monopod.....new	\$ 79.00
Bolex Tripod w/pan head.....used	\$ 99.00
Bolex large aluminum case.....used	\$ 179.00
Bolex matte box.....	\$ 69.00
Bolex H16 SBM w/18-86 Vario Switar OE.....used	\$ 869.00
Bolex H16 Rex 5 body.....used	\$ 599.00
Bolex 25 F1.4 Switar RX.....used	\$ 99.00
Bolex 10mm Switar RX.....used	\$ 189.00
Bolex 10mm Switar RX Preset.....used	\$ 219.00
Bolex 16mm Model S-221 opt/mag sound projector.....used	\$ 699.00
Bolex 16mm Model 421 opt/mag sound projector w/zoom.....new	\$1400.00
Bolex Multimatric.....new	\$ 119.00

BEAULIEU

Beaulieu 4008 M3 w/8x64 Ang.....new	\$ 539.00
Beaulieu 4008 ZM w/8x64 Ang.....used	\$ 489.00
Beaulieu 4008 ZM II 8x64 Ang.....used	\$ 539.00
Beaulieu 4008 ZM II 6x66.....used	\$ 699.00
Beaulieu 4008 ZM3 6x66.....used	\$ 589.00
Beaulieu MAR-8G Reg-8, 6.5x52.....new	\$ 149.00
Beaulieu R16 electric body.....used	\$ 399.00
Beaulieu R16 ES body.....used	\$ 789.00
Beaulieu R16 auto w/17x68.....used	\$1189.00
Beaulieu R16 auto w/12x120.....used	\$1489.00
Beaulieu R16 auto PZ 17x68.....used	\$1589.00
Beaulieu R16 auto PZ 12x120.....used	\$1899.00
Beaulieu electric grip.....used	\$ 55.00
Beaulieu 1000ma battery.....used	\$ 99.00
Beaulieu 500ma battery.....used	\$ 59.00
Beaulieu chargers.....used	\$ 30.00
Beaulieu 200' magazine.....used	\$ 199.00
Beaulieu 60 cycle sync. pulse generator.....	\$ 189.00
Beaulieu 50 cycle sync. pulse generator.....	\$ 119.00
Beaulieu 16 News camera w/12x120 Ang. w/double system module.....like new	\$4000.00
Beaulieu 16 News camera w/12x120 Ang. w/single system module.....like new	\$5000.00

RECORDERS

Uher 1200 recorder w/Neo-pilot sync, ni-cad batteries, charger, case, microphone.....like new	\$ 999.00
Uher 1000 Recorder w/Neo-pilot sync, ni-cad batteries, charger, case, microphone.....like new	\$ 699.00
Uher 400DL w/case.....used	\$ 299.00
Stellavox SP7 w/Neo-pilot.....Demo	\$1899.00
Stellavox AMI 1-5 Channel mono/stereo mixer.....Demo	\$1689.00
Uher CR 134 cassette recorder.....new	\$ 299.00

PROJECTORS

Silma Bivox Dual-8 sound projector w/16.5-30 zoom lens.....	\$ 339.00
Silma "S99" Dual-8 projector w/zoom lens.....	\$ 119.00
Bauer P6 Studio 16/16 double band interlock projector.....new	\$3900.00
Bauer P6 auto. mag opt. 16 projector.....used	\$ 799.00
Bauer P6 auto (no sound).....used	\$ 399.00
Revere 16 silent projector.....used	\$ 119.00
Bell & Howell 16 silent projector.....used	\$ 169.00
Bell & Howell 1535B.....new	\$ 500.00
Bell & Howell 1535B.....used	\$ 400.00
Bell & Howell 16 1552.....like new	\$ 500.00

know if you ever saw "MADAME CURIE", but there's a scene in it where she discovers radium. She notices the light it is giving off when she walks into a dark room. We had to make sure and be careful that the effect didn't look too artificial. We had to have little lights under the plates, and so forth — but very soft and just enough to hit the faces without looking like artificial light. It was very difficult to get right, but a very interesting challenge. That's the kind of thing I like to do.

QUESTION: Could you comment on the changes in the nature of the cinematographer's job, in terms of the way it used to be compared to now? What I'm thinking about is: would you prefer that there not be such an extreme specialization of jobs on the set, so that, for example, if you wanted to move a lamp over a couple of inches, you could just walk over and do that?

RUTTENBERG: Well, here's what happened to me one time. I was brought up on charges before the union because someone had reported me for handling a lamp. I went before the Board of Governors at the time and said, "Now, look, lighting is a tool of the cameraman just as much as the camera is, and if he has to move a light a little bit to the left or to the right and watch what a light does on a face, he can't always stop and call somebody from a distance — an electrician — to come and move the light." I won that point. Here's the point: I think that lights are the tools of the cameraman and that he should be allowed to move a light — I don't mean to set lights on a set — but just move a light. Now, for example, I did a movie called "THE PHILADELPHIA STORY" with Katherine Hepburn. She has a very long neck and, in order not to attract too much attention to her neck, I had to use a very high key. Well, I bought a very lightweight lamp and mounted it on the end of a stick. I used to follow her around with it and raise or lower the lamp a little bit where needed to make a shadow on her neck. A cameraman ought to be able to control his lighting. There's no question about that.

QUESTION: Did you ever shoot any low-key color?

RUTTENBERG: In "GIGI" we had a lot of low-key color. We went into Maxime's — the famous restaurant in Paris — to shoot a sequence. I don't know how many of you have ever been there, but it's a small place and we had a crowd of 125 people in the scene and a crew of 40 people, plus the cameras

bel air
camera & hi-fi

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

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

and the big lighting units we had to use in those days — not like the small lighting units that are now available. There were many mirrors on the walls, and we had to dolly from one end of the restaurant to the other — all in one shot — and had to hide the reflections of the lights and the equipment. It was quite a challenge.

On another occasion, we were doing a picture called "THE RELUCTANT DEBUTANTE" and shooting a sequence in the ballroom of the International Hotel in Paris. When we started to set up, the director said, "I would like to shoot in this direction all the time; we have to. We'll start shooting tomorrow." The direction he indicated was right into a huge mirror and there would be no possible way to avoid unwanted reflections. So I said, "Get a still photographer up here." He arrived and I had him shoot pictures into the mirror, on the right and on the left, with the camera just low enough to miss the people who would be dancing there. He shot reflections in the mirror of chandeliers, pillars and the ceiling, using an 8 x 10 camera. Then the negatives were sent to a laboratory — they do this sort of thing very well in France — where hand-colored 8 x 5-foot enlargements were made. These were installed in the frames of the mirror and the next day we had 300 people in the ballroom, along with ladders and big lighting units. We kept switching the photographs from right to left whenever we changed camera angles, sticking them into the mirror frames, and nobody noticed that there was no reflection of the people.

QUESTION: What are the characteristics in a director that make him interesting to work with, from your point of view?

RUTTENBERG: I prefer a director who is tough, but who knows what he's talking about. Then, no matter how tough he is, he becomes interesting. I enjoy most working with a director who knows something about photography, about the camera. All a director would have to say to me is: "I would like this kind of shot, Joe. Can we do it?" Then I would tell him that we could or couldn't or that we would try. Some of the younger directors see pictures made in 1905 or 1915 and want to imitate the effects, but they have no idea of how to go about it. And yet, they won't engage one of the older cameramen with many years of experience because they're afraid he might try to tell them a few things — might try to be the boss. Now, I'm not talking against the young

MAGNETIC HEADS REBUILT

All Auricon-type heads rebuilt to factory specifications
2-day service — reasonable prices
One year unconditional guarantee

New and rebuilt heads also available.

MAGNETONE



7342 Fulton Ave., North Hollywood, CA 91605 (213) 780-5112

Cool kits for hot camera crews.

Only famous Janiro lighting fixtures, (the ones you get in Strand Century lighting kits), give you cool-to-touch fiber glass housings, for safe, comfortable handling at any time. And only Strand Century kits give you superbly rugged carrying cases for years of trouble-free use.



Strand Century kits offer the best kit value available anywhere. Light weight. Sturdy, durable stands. Easy to adjust during use. Smooth, even light distribution. Quick heat dissipation for fast pack up.

For use on location, and in the classroom, or wherever rugged portables are needed, insist on Strand Century lighting kits. Write for details to National Director of Television/Motion Picture Sales,

Strand Century Inc
20 Bushes Lane,
Elmwood Park, N.J. 07407.

STRAND CENTURY INC

A COMPANY WITHIN THE RANK ORGANISATION



**American
Cinematographer**



REPRINT

FILMING "2001—
A SPACE ODYSSEY"
SUPER-8—
THE STATE OF THE ART
SUPER-16
VIDEOTAPE & FILM

All in one place—no advertising

AMERICAN CINEMATOGRAPHER
P.O. Box 2230, Hollywood, Calif. 90028

Please send me _____ copies of the
FOUR-IN-ONE reprint @ \$5.00 ea.,
postpaid.

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

California residents please remit 6%
Sales Tax. (30¢ per copy). Foreign
buyers please pay by International
Money Order or U.S. Funds.

directors. Some of them have a very fine knowledge of photography and lighting. But many of them should leave that to the cameraman. Get a cameraman who knows his business. Tell him your problem, and let him work out the problem.

SCHWARTZ: Joe, since you are retired now, how about discussing some of your secrets for photographing women?

RUTTENBERG: Secrets? Well, you saw it on the screen today in "GASLIGHT" — the proper diffusion and the proper balance of light.

QUESTION: Is there a certain rule you should go by in photographing women, as far as your key lights and fill are concerned?

RUTTENBERG: Yes, there is a rule. Number one: you should be very careful about lighting a woman from two directions. Another thing that is important is to study the face of the person you are photographing. For example, Greer Garson is very beautiful, but she has to be photographed on one side of her face. As a matter of fact, they used to build sets with entrances to accommodate her best angle. If you can find the best angle for a woman and then manage to keep your key lights on that side, it will help to get the best result. Some women can stand a key light directly from the front, but up high. Harry Stradling used that kind of light with Barbra Streisand — very high, and it produced some nice shadows. Always be careful not to get the nose shadowy; that ruins everything. And always get a glint in the eyes with some kind of light.

QUESTION: Did you ever use two lights reflecting from the eyes?

RUTTENBERG: You should use one small spot. You should also be careful that you don't get a strong cross-light and a kickback from that light. It glares. The eyeball can pick up a very bright glare, and you should be careful of that.

Photographing a closeup of a woman doesn't require a lot of units of light. You can do it with two or three lamps. You can put a key light on one side, a fill on the other, and perhaps a back-light to get just a little kick on her hair. The back-light idea started in the days of black and white photography when you couldn't separate the subject from the walls. It would blend into the walls. That was the purpose of back-light. So we had terrific back-lights in

MICROFILMED

BACK ISSUES OF
AMERICAN CINEMATOGRAPHER

UNIVERSITY MICROFILMS

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

Gordon Yoder, Inc.
FORMERLY
PROFESSIONAL CINE PRODUCTS, INC.

2840 REWARD LANE, DALLAS, TX 75220 P.O. BOX 20296 (214)357-3045 or 357-2725

QUICK SERVICE

REASONABLE PRICES

REPAIRS **ANGENIEUX** ZOOM & FIXED FOCAL LENGTH LENSES.

SERVICE BY **ANGENIEUX** TRAINED TECHNICIANS USING

GENUINE **ANGENIEUX** TEST EQUIPMENT AND PARTS

THE ONLY SUCH REPAIR FACILITY IN THE MIDWEST AND
SOUTHWEST. SEND YOUR LENSES TO US FOR ESTI-
MATE. Also work on all other lenses.

MOTION PICTURE EQUIPMENT SALES & SERVICE OVER 22 YEARS

those days; you'd see nothing but glare. But in color photography, the colors themselves separate everything. You don't actually have to have a strong back-light — just a little glow, perhaps. You can do beautiful closeups without back-light in color. You really don't need it.

If you are using a highlight on a woman, don't get your light so hard that you throw eye shadows on her or lip shadows. Sometimes when she opens her mouth you can't even see her teeth because of the shadows. All of those little things count, you know.

When you're sitting in the projection room with these stars, they aren't thinking about their acting. One will say, "See that hair on the side. What happened to that hair on the right side?" They're only thinking about how they look. Of course, they're particular about how they look, because it's their bread and butter. This can get complicated, however. For example, I remember when I was photographing "THE WOMEN". We had five top women stars, including Norma Shearer, and each felt she should be photographed differently from the others. It took some diplomacy to get through that picture.

SCHWARTZ: Since time is running short, Joe, are there any final suggestions you'd like to leave with the film-makers here at AFI?

RUTTENBERG: You shouldn't get upset and be too temperamental, no matter what happens. You should remember that the director is the captain of the ship. Discuss the scenes with him; discuss the reasons why something might not be good. If you can't win, either quit the picture or do what he wants you to do. Try to be a diplomat. After all, he's the boss. Some guys are very nasty about it and want to fire you right away. But stand up for your rights and be sure that what you are doing is the right thing. If you make mistakes, you must admit those mistakes. Don't try to blame everything on the lab.

In my opinion, in order to be a successful cinematographer, you must have a thorough education in photography. This is what motion pictures is all about — a series of still pictures telling a story on the screen. You have three tools — the camera, film and lights and you must know how to use them intelligently. Don't "direct" the photography; photograph the picture. There are so many interesting things that can be done with photography. My advice is: be a photographer — not a "Director of Photography". ■

The XSD Recorder

X • Crystal • Built into Recorder

S • Sync • 60 Hz Pilotone Standard

D • Dolby • Noise Reduction Circuitry



Record high fidelity sync sound on cassettes with the XSD Recorder and any crystal-controlled or pilotone camera. Response 30-15,000 Hz, S/N 58db with Dolby, modified SONY TC152SD. Resolve to 16mm magnetic film using the XSD Resolver Unit or write for a list of labs now doing XSD transfers.

XSD Recorder - \$499

XSD Resolver - \$200

Super8 Sound, Inc.™

95 Harvey Street, Cambridge, Mass. 02140



Ronson Aviation Makes It Easier To Shoot Those Helicopter Sequences

Easier, because you'll be working with the pilots that shoot most of the aerals in the Northeast and Mid-Atlantic region. They know how to keep in tight, how to stay positioned in turns . . . all the tricks that help reduce re-shooting. Easier, because Ronson Aviation has the muscle to supply everything you need. A fleet of helicopters, ranging from JetRangers to two-man bubbles. Stabilization systems. Ronson is the exclusive distributor for Tyler camera systems in the Northeast. Fixed wing aircraft for crew transport. Fast, accurate estimates. Call Ronson Aviation. Let our helicopter camera pros improve your viewpoint.

RONSON AVIATION

a subsidiary of **RONSON** Corporation

IN NEW YORK: (212) 431-3930 IN NEWARK: (201) 636-3600 OR: (609) 771-9500

Do you want a superb, ready to roll 35mm. outfit for your own studio, complete and at an unbeatable cash price?

MITCHELL BNC CAMERA with
4 x 1000 ft magazines, 220 v-3 phase-50 Hz.
Sync. motor and start box, fitted with . . .

ANGENIEUX 10 to 1 REFLEX ZOOM
(24 : 240 mm., f2.6 - T3.8) with lens hood/
filter holder, support casting, balancing
system, etc.

\$9,999.00

Fully serviced by our own engineers before despatch. Double exposure film test provided.

Also available : Set of 7 COOKE SPEED PANCHRO
LENSES (18-25-32-40-50-75 & 100 mm.) plus Mitchell
side-finder and set of matched auto-parallax focus cams.

\$2,500.00

MULTI-DUTY MOTOR 96 v. - DC/220 v. -AC with DC
and AC start boxes, cables etc.

\$600.00

Many other Mitchell accessories in excellent condition available. Just tell us what you need — AC and DC motors, magazines, lenses, frame cutters, obie lights, etc.

Write to: Dennis Rosario,
Rentacamera Ltd., 8-12 Broadwick St., London W1V 1FH, England.

**FIRST ANNUAL ASC AWARDS
FOR COLLEGE CINEMATOGRAPHERS
Continued from Page 827**

Guest of Honor said, "Well, Stanley, we've come a long way since that test. But that wasn't strain on my face; that was sheer terror. The one thing that I remember about that screen test, which was made at the old Fox Studios on 10th Avenue, was that there was such a good-looking devil behind the camera that everybody thought that he and I ought to change places, and the secretaries kept coming in to look at him. But, in spite of Stanley's wonderful work, I wasn't hired from that test. I came out here two or three years later when I was just a little less terrified and had a little more experience behind me, but Stanley and I have remained good friends now for 30 years or more and I do thank you for that very gracious introduction. I appreciate it very much.

"The award that you people are giving tonight is one that I would expect people like you to give. I've known a great many of you for many years. I've worked with great cinematographers, starting with Tony Gaudio and Artie Miller, Charlie Clarke, Russ Harlen, Joe MacDonald, Hal Mohr, Karl Struss (who is here tonight), Charlie Lang, Joe Ruttenberg and made half a dozen pictures with the terrible tempered pussycat, Leon Shamroy, and many others. I have to mention my dear friend, Harry Wolf, while we are at it because we worked together a great many years ago.

"Now, I've known these men as good warm friends working with them day after day and, as I've known them, they've been a group of people who are creative, tough-minded, and reliable. Above all, I've known them as men who really love what they do — who take great satisfaction in striving every day for the utmost in perfection and doing great work and helping the directors and actors they work with to do their best work. We all owe these gentlemen — many of them in this room tonight and all of them in your craft — a great, great debt, all of us in the film community and movie-going audiences all over the world, so it doesn't surprise me that you men have taken this very important step to encourage young men and women to enter into your exciting and demanding field. I think that the A.S.C. deserves the gratitude of all of us for their generosity and their concern with the future of motion pictures.

"It is my honor in helping you to inaugurate what I am sure you intend to become an annual award to announce first, the five nominees and as a

member of the movie community on behalf of all of us to thank you gentlemen for the enormous number of hours you have devoted, and your concern and care in viewing the films and making the selections and working with the 100 colleges that Stan mentioned a little while ago. We are all in your debt for that."

Mr. Peck went on to announce the names of the five finalists for the award, the nominees. Then he said, "The winner is here with us tonight, and he is Denis Mayer of San Diego State University."

Mr. Mayer came forth to claim his award trophy and, obviously somewhat overwhelmed by the honor bestowed upon him, said "Thank you very much. The immensity of this honor has been growing on me this evening, as I realized that I was with the most talented, from my standpoint, men of the industry. I'm very impressed. This award means a great deal to me. I'm very honored tonight. The award, coming as it does, from the American Society of Cinematographers, has a very special significance to me. Looking back on the production of our film, I have to emphasize that it was very much of a learning experience for my partners and myself and, indeed, very much of a collaborative effort, and there are so many people to thank . . .

"We did 'NEGATIVE IMAGE' to satisfy the requirements for our Bachelors' degrees, and we certainly had our share of difficulties in putting it all together. But we wanted the film to serve, also, as a sample of our various abilities. I'm very pleased at receiving this award. For the future, I'm very much looking forward to becoming a part of our film industry, and I know I'm going to succeed in that sooner or later. Once again, my deepest appreciation for the award."

There followed the presentation of a duplicate trophy to San Diego State University as the institution fostering the winning film. In accepting the trophy on behalf of the university, Prof. Hayes Anderson said, "I wish to thank the Society for this award. It means a lot to the Department of Telecommunications and Film, because we realize the high professional standards by which these films were judged and we know the quality of the films that came from some of the competing institutions that you were looking at. What we try to do in our curriculum at San Diego State is to instill, within our students, a high level of professional excellence. We know that they aren't going to quite achieve it by the time they get out, but at least they will have learned the basic skills of the industry. When Denis here

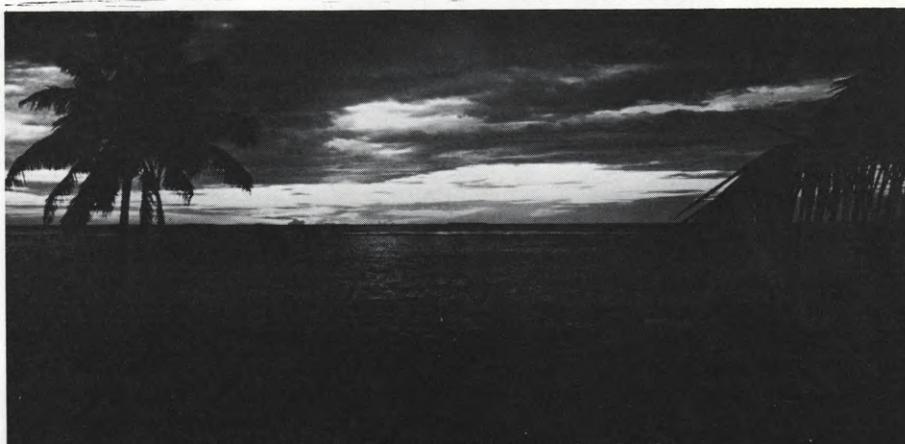


for ANIMATION/TITLING/FILMSTRIP: the thriftfax camera stand:

Accurate. Versatile. Moderately-priced. Made and guaranteed by FAX Company, producer of the first/only **combination 12/16 Field Disc**, used in the thriftfax stand — and available separately. Ask for full details. ■ Animation Cameras — Single-Frame Drives . . . Animation Supplies: Tell us your needs or ask for price-lists.

FAX COMPANY

374 S. Fair Oaks Ave., Pasadena, Calif. 91105-213/681-3084



ECO - 7390 The ultimate film reproduction in sharpness, color & silversound

ECO - EF 7389 Excellent low contrast print rendering with silversound for TV or projection.

16mm EKTACHROME ECO 7252

16mm ULTRASONIC CLEANING

16mm ME-4 PROCESSING

16mm CREATIVE EDITING (Kem Table)

16mm COLOR WORKPRINTING (1 Day Service)

16mm CONFORMING A&B ROLLS

16mm RELEASE PRINTING 3400K - 5400K

16mm CREATIVE SOUND PRODUCTION (Interlock)

16mm OPTICAL SOUND TRANSFER

16mm POSTFOGGING OF EF

16mm SILVERSOUNDTRACK APPLICATION

16mm TITLES & ART WORK

16mm OPTICAL PRINTING

CHANNEL 8 COLOR LABS

905 JACKSON STREET/P.O. BOX 1410

TAMPA, FLORIDA 33601/813/229-7781

The seventeen and one-half pound

CAT-KIT Quartz Location Lighting Kit



The CAT-KIT is ideal for CATV and for all on-location filming requiring an extremely compact and ultra-lightweight lighting kit.

For further information, please write to:

cinema E products
CORPORATION
Technology in the Service of Creativity
2037 Granville Avenue, Los Angeles, California 90025
Telephone: (213) 478-0711 ■ Telex: 69-1339 ■ Cable: Cinedevco

The CAT-KIT, which weighs only 17 lbs., 8 oz., includes: three non-focusing fill lights (*miniature broods*); three 10 ft. long three-wire cables (with in-line switches and parallel blade U-ground plugs); three "POP" light stands (made of aluminum); and a sturdy carrying case, measuring only 5 $\frac{3}{4}$ " x 9 $\frac{1}{2}$ " x 27". The CAT-KIT operates at 120-volts AC/DC with 650-watt double-ended quartz lamps.

The London International Film School

Britain's famous London International Film School with a worldwide reputation for excellence in practical film-making, invites intending students to apply for registration in its Autumn Term.

The intensive two year Diploma Course in applied film-making continues. It is designed to make graduates fully professional in their creative work. It will also be extended to include a full-time Diploma Course in Video.

The school is situated in Covent Garden, in the center of the West End, at the heart of London's cultural activities.

All tuition is given by practising film-makers who are faculty members.

The September course starts the 29th. Write to the Student Councillor Dept., London International Film School, 24 Shelton Street, London WC2H 9HP, England.

started way back in the Basic Photography course, he said, 'Hey, why do I have to take this? I'm a cinema man. Let me go out and shoot a 16mm film.'

"Well, that's where we feel it starts. They learn the tools of their craft, and from there they can progress on. So we thank you very much, and we think that, from this point on, when students come through our curriculum, they will be looking forward to trying to equal, if not do better than, what Denis, Bill Hall and Joe Gordon have done. Thank you very much."

There followed a screening of the award-winning film, "NEGATIVE IMAGE".

For not only the winners, but for all of us who attended the A.S.C. Awards Banquet, it was an evening to remember. ■

WHAT'S NEW

Continued from Page 784

NEW LAB CATALOGUE AVAILABLE

Bebell, Inc. (Motion Picture Lab Division) offers a new March 1975 edition of its Professional Motion Picture Laboratory Services and Prices Book. In full standard 8 $\frac{1}{2}$ x11" size, this book provides the most up-to-date film laboratory services and prices information available for the motion picture industry.

Included are highly-detailed Developing, internegative/CRI and contact or reduction costs for lab services on negative/positive Eastman-Color, reversal Ektachrome and Kodachrome, Color TV Spots, B&W reversal plus all related lab and packaging services. Film sizes shown are 16mm, super8mm and regular 8mm.

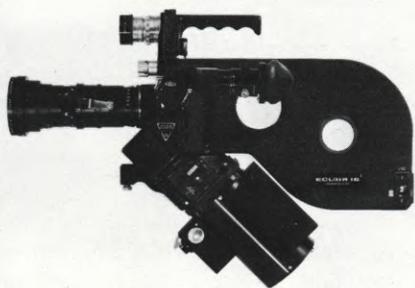
There is a large size page of Exposure Indexes, by film type and number of 16mm color Kodak motion picture stocks, for "normal developing," "under-exposure for forced one-to-four-stops developing," and "overexposure for retarded developing." (The page can be obtained as chart for on-the-job use.)

Carefully designed throughout and indexed for the motion picture professional to work from in figuring lab costs down to the last fraction of a cent in a quick and easy way, the March 1975 edition of the Bebell, Inc. (Motion Picture Lab Division) is available from Herbert J. Braun, Sales Manager. Call him at (212) 245-8900 or write to 416 West 45 Street, New York, N.Y. 10036.

MAJOR FIRMS USE FILM AGAINST DRUG ABUSE

Some of the world's largest com-

EXPERT NPR service



Eight years experience
with Eclair cameras:
Bodies, Motors, Lenses

FACTORY TRAINED

We also have trained
Arriflex specialists

SABA camera SERVICE

(213) 469-1551; (213) 469-2935
6572 Santa Monica Blvd.
Hollywood, Calif. 90038

panies are using a motion picture to combat what U.S. News And World Report calls "an epidemic in industry" — drug abuse on the job.

"The Drug Memo", a 36-minute, 16mm color film designed to teach foremen and supervisors in business and industry to recognize and deal with the problem of drug abuse, is now in use by a growing number of companies. The list includes:

Standard Oil, Ford, Consolidated Edison, National Cash Register, TWA, Western International Hotels, Wells Fargo Bank, Crown Zellerbach, Foster Grant, Fel-Pro, Fiber Industry, Humble Oil, Air Research, Xerox, American Can, Fireman's Fund American Insurance, Fieldcrest Mills, Emerson Electric, the U.S. Army, and others of similar stature.

The movie demonstrates effectively what drugs and drug paraphernalia look like and what drug abusers look and act like, both under the influence of drugs and during withdrawal.

"The Drug Memo" is sold at \$500 per print, or rented at \$100 per week, and a \$35 preview is available from Production House, Inc., 665 Harrison Street, San Francisco, CA 94107, phone (415) 495-3086.

COLUMBIA UNIVERSITY TO SPONSOR FILM AND VIDEO-TAPE FESTIVAL.

In November, 1975, Columbia University's Graduate School of Architecture and Planning will sponsor its second festival of films and video-tapes dealing with cities, suburbs and small towns. Entitled, "URBAN FOCUS", the festival will focus attention on the importance of media to the built environment and is designed not only for architects, planners, and filmmakers, but for anyone interested in further understanding the forces that shape the man-made environment.

This year's festival will focus on the urban reality, on its surroundings, on the process of urbanization, its origin, its motivations, its results. It will show images of the metropolis, suburbs, big towns, small towns, old cities and new towns, ghettos or utopias.

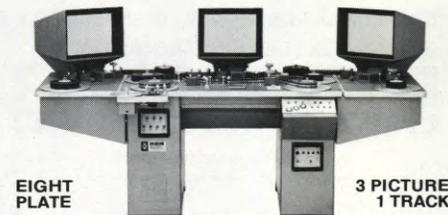
All entries (including those not selected) with a complete description of their content, characteristics and availability will be listed in the Festival's catalog. A detailed outline and a questionnaire are available. Please write to:

Francois Confino; Festival Director;
410 H Avery Hall; Columbia University;
New York, New York 10027. ■

KEM UNIVERSAL

A Unique, Modular, Extendable
Editing System — Quickly Inter-
changeable For All Film Formats.

Multiple screens and tracks
let you weigh the full balance of images
dialogue, music and effects.



Eastern United States:

MM Editing Systems Inc.
321 West 44th Street, New York
New York 10036 (212) 582-1681

Western United States:

KEM Editing Systems Inc.
6253 Hollywood Blvd, Hollywood
California 90028 (213) 461-4143



**all under one
umbrella
MOTION PICTURE
EQUIPMENT
SPECIALISTS**

the **BRENNER CINE-SOUND** organization covers every aspect of Cinematography equipment. Under our umbrella we have a unique team of personnel and services, backed by many years of expertise related to Sales, Service, Rentals and Repairs.

■ Whether your requirements are: Cameras, Lenses, Motors, Magazines, Tripods, Power Supplies, Lighting, Editors, Meters, Projectors, Tape Recorders or Screens **BRENNER CINE-SOUND** has it in stock with product names such as:

Angenieux	Eclair	Neumann
Arriflex	Electro-Voice	O'Connor
Arrivox	Guillotine	Oxberry
Beaulieu	Magnasynch	Permacel
Beyer	Maier-Hancock	Revox
Bolex	Miller	Sennheiser
Canon	Minerva	Shure
Cinema Products	Moviola	Spectra
Colortran	Nagra	Sonorex
		Zeiss

For more information on Motion Picture Equipment, Sales, Service & Rentals, call or write

5215 Wisconsin Ave., N.W., Washington, D.C.
20015 (202) 244-3800

**BRENNER
CINE-SOUND**

Div. of Ritz Camera Centers

Please mail me additional information:

Service Sales Rentals

Name _____

Address _____

City _____

State _____ Zip _____

**TAPE-TO-FILM "TRANSFORMING"
FOR THE INVISIBLE MAN"**

Continued from Page 779

sufficient performance for TV-to-film transform use and it was this "Imagematt" that produced the very clean mattes apparent in "THE INVISIBLE MAN". In several scenes a double-matte scheme was employed in order that the face and hands of the invisible man would fade in and out, while the clothing worn by the actor remained fully visible, resulting in a very believable invisibility illusion.

The Imagematt unit, like other contemporary chroma-key or matting devices, accomplishes its selective combining function using the red, green and blue color television primary colors. In the early stages of most color television systems these red, green and blue signals are developed separately in the camera and may be processed separately, if desired, prior to being encoded into the composite video signal. Using these separate primary color signals, it is possible to matte or key using each of the three primaries, if desired.

In the double matte effects produced for this show, two Imagematt units were employed, the first being adjusted conventionally to matte or key on the blue primary; the second unit was connected as a selective "fader" such that the green primary was allowed to pass unaltered, but all other colors could be faded in or out as desired. Thus the face and hands of the invisible man wearing a vivid green sweater were made to appear to fade into invisibility, without having the sweater itself fade. David McCallum was actually wearing the green sweater in this shot and the composite illusion of semitransparency fading into invisibility proved most effective.

Some of the effects, while seemingly straightforward examples of (single) blue-matte technique, proved to be difficult to achieve. In one scene the invisible man smashes an electronic "brain element" against the side of an aluminum control-console unit. The console unit, something similar to a large shiny metallic desk, the "brain element", and the invisible man in a blue total body stocking were to interact in the blue screen set. In setting up the shot, however, the blue screen was reflected off the surfaces of the angular shiny desk; everywhere the blue reflections appeared the matting device was "fooled" and inserted background picture information, resulting in a composite illusion of holes in the control console. The problem was solved

**WESTERN
Cine
EQUIPMENT
RENTAL
and SALES**

Arriflex

Eclair

Nagra

Miller

Lowel-Light

Colortran

Maier/Hancock

Zeiss Moviscop

Gossen

O'Connor

Mole-Richardson

Magnasynch/Moviola

Hollywood Film Co.

Spectra

Guillotine

Electro-Voice

Angenieux

Eastman Kodak

Sennheiser

Ediquip

Contact us for
a rental price list
and all equipment needs!

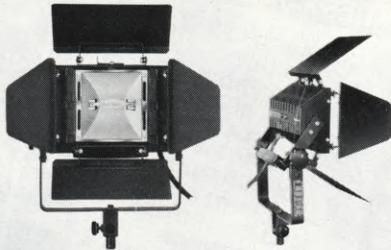


312 SO. PEARL ST. • DENVER, COLO. 80209
(303) 744-1017

SMITH-VICTOR

Models 740-750

HI-FI STUDIO LIGHTS



These Smith-Victor HI FI Studio Lights are Specially designed with a new unique high efficiency reflector. They provide broad flat illumination to fill large areas. Large handle placed away from housing provides for cool adjustment of light. These lights are strong, light-weight and provide high quality lighting for photography or T.V. Permanently attached Barn Doors give full light control.

Prices shown are less lamp

MODEL 740 \$62.00 (650 watts)

MODEL 750 \$68.00 (1,000 watts)

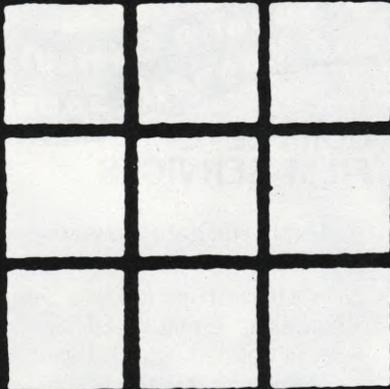
Full line of accessories available

AT YOUR PROFESSIONAL DEALER

SMITH-VICTOR CORP.

Griffith, Indiana 46319

Photographic Equipment Service, Inc.



Specializing in
Optical Printers and Animation Stands.

Nationwide field
REPAIR SERVICE

SALES

New and Previously Owned equipment
"LIQUITECH" Wet Gate

COMPUTERIZATION SYSTEMS

(914) 235-2720

695 Main Street / New Rochelle, N.Y. 10801

by shooting at a very high angle on the eight-foot crane of a crab-dolly to minimize reflection problems. Remaining minor reflections were reduced with dulling spray. Similar problems with reflections were experienced when actors were performing in close proximity to the blue-screen set. Normal perspiration will result in subtle blue reflections on the sides of faces or other skin areas and it is necessary to apply appropriate make-up to retain a clean matte around these areas and, in so doing, prevent an unnatural "tearing" appearance to the actor's facial outline.

Again, the availability of an instant visual examination of the desired effect and its timing, the degree of the effect, and the interaction of visible and "invisible" objects was a most valuable time-saving and useful tool for the director.

A detailed discussion of video tape-to-film transform processes will not be attempted at this time, except to state that the technique employed by Image Transform to convert the television-created special effects to 35mm film is non-kinescopic in nature and uses proprietary video noise reduction and selective enhancement circuitry for processing the TV signal prior to recording electronically on film.

Since the end use for this production was primarily "on air" as a television "movie-of-the-week", an evaluation based upon a home TV-screen-sized-image would provide a realistic subjective comparison of the differences between original film and original TV scenes in the show. Given this criteria, it is difficult to identify differences between the original film and the TV-to-film transfer sequences. The actual evaluations by the production staff were made on the basis of a large screen theatrical presentation and, with some few exceptions, the overall intercuttability was acceptable for this type of use. The best scenes were the closeups, as could be predicted; the effects themselves were believable and in several cases, unique. ■

To Classified Advertisers

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

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

MA-11

HEADS REBUILT

ONE-DAY SERVICE

Reasonable
Prices

*

Fully
Guaranteed

MOBIUS

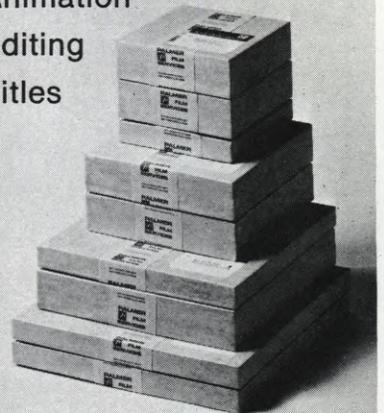


CINE
LTD.

7 E. 47th St.
NYC 10017
(212) 758-3770

mail order service

- Laboratory
- Recording
- Music Scoring
- Special Effects
- Animation
- Editing
- Titles



 Write for details.

W.A. PALMER FILMS, INC.
611 HOWARD STREET • SAN FRANCISCO, CA 94105
San Francisco's complete 16 mm film service

CRAMER *Continuous*
Automatic FILM PROCESSOR

THEY SPEAK FOR THEMSELVES —

"I would like to thank you for making a fine piece of machinery. Our MARK VII has been working great! We run an average of 200 feet of color film a day . . . and every inch of it has been perfect . . . and the price, about 1.53¢ per foot . . . it is nice to know that the "Cramer" has paid for itself in the first year of operation in the money it saved in chemicals alone."

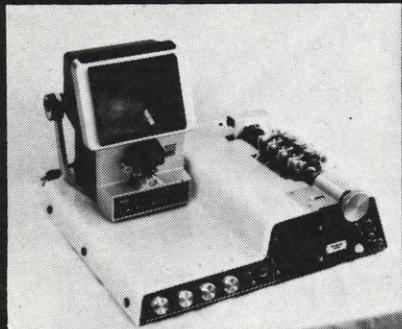
Rick Dunn, KTVQ-2, Billings, Montana



H.G. CRAMER CO.

ROUTE 3, BOX 24A
SARASOTA, FLORIDA 33580
TELEPHONE: 813/355-4470

SPECIALTIES
EDITOR



3 magnetic tracks
plus picture track
at sync sound speed

SYNCHRONOUS MOTOR
AUTOMATIC CLUTCH
MIXER-AMPLIFIER
3 MAGNETIC HEADS
LARGE LIGHT WELL
FOOTAGE COUNTER
FOOT OR HAND CONTROL

Super-8 **\$595**

3429 ENCINA DRIVE "D"
LAS VEGAS, NEVADA 89121
(702) 451-5290

NATURAL HISTORY FILMS
Continued from Page 820

"wheat" in seventy days instead of the usual six months and before that grew "wild oats", bringing it to full ears in January.

To grow a plant under controlled and accelerated conditions is not all that difficult — nursery men do it all the time — but to ensure that it always looks strong and natural, that the leaves remain steady and of constant colour, that the tone and texture of the soil does not change between single exposures at eight-hour intervals and to plan a camera tilt-up as the plant grows over a period of months, that requires know-how.

While the plant is growing it is illuminated by a mixture of "grow-lux" light and warm fluorescent, for seventeen-hour days. During one particular period of growth it is put on to a twenty-four-hour day to prevent the leaves from moving between exposures and after this is passed it must again be given regular sleep to prevent the leaves from turning yellow. As the time comes for each exposure a ten-function intervalometer of their own design switches off the growing lights, opens an auxiliary shutter set in front of the camera lens, opens the camera shutter, fires a flash, caps the lens, advances the camera to the next exposure, turns the tilt mechanism a microscopic amount and switches the growing lights back to their own cycle.

During all this period they have to pray that there is no main power cut that would release all the solenoids which control the sequences, that the plant grows as planned, that no light leaks into the camera, and so on.

When eventually the time comes to unload the camera and send the shot roll of film (which may only be 10 feet long) to the laboratory for processing they take the precaution of informing the manager that roll "X" is NOT the one to have a "stop-in-the-bath" with.

The tilt-up had not yet commenced when I was there as the plant had not yet grown to the top of the TV frame line. When this happens the months-long 10° tilt will begin. At the moment they were measuring the rate of growth so that when the time to start the tilt arrived, they would be able to select a suitable speed.

Their own fifty-minute television programmes, such as "THE MAKING OF A NATURAL HISTORY FILM" and "THE WORLD YOU NEVER SEE", are fitted in between specific assignments for clients.

Last year they produced "THE

ADOLPH GASSER INC
SALES • SERVICE • RENTALS

ARRIFLEX
BOLEX
CINEMA PRODUCTS
CINEMA BEAULIEU
ECLAIR
NAGRA
COLORTRAN
LOWEL
MILLER TRIPODS
O'CONNOR
MAGNASYNC / MOVIOLA

SCREENING ROOMS
SHOOTING STAGES

THE EXCLUSIVE
NORTHERN CALIFORNIA
REPRESENTATIVE FOR

PANAVISION

181 SECOND STREET
SAN FRANCISCO
CALIFORNIA • 94105
(415) 495-3852

16mm • 8mm • Super 8
EKTACHROME PROCESSING

Color & b&w
POSITIVES AND NEGATIVES

**Super 8 Optical
and Magnetic Sound**

**COMPLETE
FILM SERVICES**

- 35mm Color
- 16mm wet gate blow-ups to 35mm—fully corrected.
- 35mm to 16mm—16mm to 8mm or Super 8
- Processing—Printing—Editing
- Sound Transfer—Sound Striping
- Super 8 to 16mm

SAME DAY SERVICE

24 Hour Processing
Coast to Coast Service
Send for Price List



1138 No. La Brea
Hollywood, Ca. 90038
(213) 467-1118

**AMERICAN
FILM INDUSTRIES, INC.**

OXBERRY.

Division of Richmark Camera Service, Inc.
Tel. [212] 585-0730
Cable OXBERRY, N.Y.
516 TIMPSON PL., BRONX, N.Y. 10455

**OPTICAL
PRINTERS
LIQUID GATE
ANIMATION
& FILMSTRIP
EQUIPMENT**

**FOR THE FINEST
REFLEX BNC
SEE CSC**

**NOBODY makes BETTER 16mm
COLOR POSITIVE PRINTS
— than TEKNIFILM!**

- Small enough to give you
PERSONAL ATTENTION
- Large enough to meet your
DEADLINES—40,000 ft./shift

T TEKNIFILM, INC.
1923 N.W. Kearney • Portland, Oregon 97209
Telephone 503/224-3835

TRY US ON YOUR NEXT PRINT ORDER

2 GREAT CINE BOOKS

By Joseph V. Mascelli, A.S.C.

THE FIVE C's OF CINEMATOGRAPHY

THE CLASSIC CINE TEXT

FIFTH BIG PRINTING \$15 Postpaid

MASCELLI'S CINE WORKBOOK

Up-to-Date Text; Cine Tools, Tables

& Calculators in BOTH Feet & Metric

INCREDIBLE VALUE \$20 Postpaid

Calif. add 6% Tax. Foreign add \$1 per book.

10-DAY TRIAL OFFER! FREE BROCHURES!

**CINE/GRAFIC PUBLICATIONS
P.O. BOX 430 HOLLYWOOD, CALIF. 90028**

NEW ZEALAND

And The South Pacific

**Location & Studio Production Facilities / Mitchell,
Arriflex & Eclair Cameras / Helicopters & Fixed
Wing Aircraft / 35 & 16mm Footage From Stock or
Shot to Order / Location Finding
GEORGE & ASSOCIATES LTD.
CPO Box 3061 Auckland. Telephone 766-049
Cables, Georgefilm
Telex Seek AKNZ 2901 Georgefilm**

**D
R**

**HOLLYWOOD'S OLDEST
FILM SCHOOL**

**NOW ACCEPTING ENROLLMENTS
FOR OUR NEXT**

MOTION PICTURE COURSE

CAMERAS • SOUND RECORDING

LIGHTING • EDITING • EFFECTS

COMPOSITION • SCRIPTING • ETC.

Two Week Courses— Evening Classes

**DANNY ROUZER
STUDIO**

7022 Melrose Avenue, Hollywood, California 90038
Request Brochure HC (213) 936-2494

TENDER TRAP", a film about insect-eating plants. Next year's project is to finish "POLLINATION". All these films show sequence after sequence of nature from the inside in a manner in which it has never before been filmed.

One of their best-known efforts was to cut a window in a fertile egg and show the life of a chicken from the time the egg is laid until it is hatched.

It is for their micro and macro cinematography that they are most famous, made possible by the unique optical benches which they have developed for this type of work.

I asked Peter Parks where he drew the line between the two and he said there is no clear division. The degrees of magnification possible by either means overlap, but for the purpose of easy reference it might be said that "macro" is with extension tubes on normal lenses and "micro" is with a microscope.

At close distances from the subject "normal" lenses must be reversed, i.e. used with the element which would usually be facing the emulsion turned around to face the subject. Exceptions to this rule are the 40mm and 90mm Kilfitt lenses which are specifically designed for macro work.

A favorite lens of theirs is a 100mm brass-mounted objective "borrowed" from a hundred-year-old microscope.

From this microscope they also "borrowed" the method of dark background lighting which makes so much of their work look so dramatic. It is achieved by setting a light directly behind the subject and placing a condenser lens, with its centre blacked out, between the lamp and the subject. In this manner a corona of light falls on the subject, making it appear to be translucent, while the background is black and the incident rays of light pass harmlessly out of range of the lens of the camera. They have improved upon this technique by having a full range of translucent coloured discs with which to replace the opaque centre, together with half-blue discs which can be used to simulate a horizon and blue sky.

When frontal lighting is required they use 100-watt tungsten-halogen units of their own design and manufacture which give a concentrated beam of heat-reduced light.

Before making their own lighting units they used 500-watt reflector bulbs immediately in front of which were placed large spherical flasks filled with plain water. These formed very good lighting condensers, but did not eliminate as high a proportion of heat as their own design.

When totally heat-free light is re-

The American Film Institute

announces



**\$300,000
for
filmmaking
grants**

in January 1976

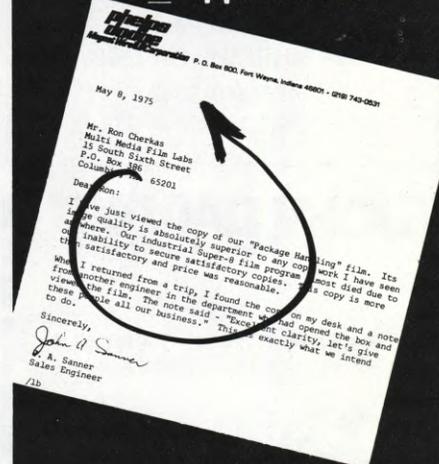
under the INDEPENDENT FILMMAKER PROGRAM

Grants are made to individuals in amounts ranging from \$500 to a maximum of \$10,000. Proposals for any type of film project in 16mm or 35mm will be considered; any U.S. citizen or permanent resident may apply. The deadline for submitting applications is September 15, 1975.

For applications, please contact:

**The Independent Filmmaker Program—B
The American Film Institute
501 Doheny Road
Beverly Hills, California 90210**

**At Multi-Media, our work
is appreciated!**



Your Full-Service Lab

**15 So. 6th Street Box 386
Columbia, Mo. 65201
(314) 449-0376**



Film Labs

For Professional Equipment in
PHILADELPHIA,
 it's
O. H. HIRT, INC.
 39 N. 11th St. • Phila, Pa 19107
 (215) 629-8560

CALL A PROFESSIONAL Cine-Craft, Inc.

A full service laboratory for
 16mm, Super 8, Regular 8
 Any quantity Best prices
 8764 Beverly Blvd., Hollywood, Calif. 90048
 (213) 652-7357
 Write for free brochure

NEW magnetic sound reader
 Completely self contained
 Sound head, Amplifier, Speaker
 All in the same cabinet.

Complete price \$99.50
 Write for illustrated literature
SATELLITE FILM, INC.
 P.O. Box 650512
 Miami, Fla. 33165



R-2 Reflex Auto- COLLIMATOR

Focus Testing Equipment is made by
RICHTER CINE EQUIPMENT, ESSEX, N.Y. 12936
 for people who care about image quality.
 Cost? Less than one good lens or
 one out-of-focus scene.

WE WILL BEAT
 ANY QUOTE ON
 LIGHTING EQUIPMENT
 RENTALS
 EAST OF THE MISSISSIPPI
 MPA
 221 CATALPA PL.
 PITTSBURGH, PA. 15228
 412/343-5043
 24 HOURS A DAY—7 DAYS

JOHN BARRY

GROUP OF COMPANIES

SALES—SERVICE—RENTALS



105 Reserve Road
 Artarmon, N.S.W. 2064
 Sydney, Australia.
 Telephone: 439 6955
 TELEX: 24482

**SHOOTING
 in
 CANADA?**
 Contact Jim Grattan for
 top equipped crews. Single
 and double system.
 1440 St. Catherine Street, West
 Suite 507, Montreal 107, P. Q. Canada.
GRATTAN PRODUCTIONS (514) 878-9638

quired they use Dawe strobe lights which can be synchronised with any of the cameras running up to 50 fps. They used strobe lights recently to film spiders spinning webs. Normally spiders only spin webs at night, but the 1/100,000-second flashes from the strobe lights were too fast to register, so they carried on working regardless.

Owls too, do not regard strobe light as "light".

A recent expedition was on board a British deep sea research vessel which was exploring the fish that inhabit the sea at a depth of two or three miles.

Many of the fish have never come in to contact with anything of any kind. They don't know a surface, a piece of weed, a rock, the bottom of the sea bed and so on. The only thing that they know, and then only occasionally, is the surface of the body of another fish and many of them are adapted to grabbing the other and swallowing it whole whenever the opportunity arises. This is why these fish have such large and peculiar mouths.

The *Discovery* trawls a large net system, paying out as much as seven miles of cable and trawling for four or five hours at a time, after which they pull in the net, hoist the catch on deck and, miraculously, some of the animals are still alive. Many will have been killed by abrasion against other animals or the net, by the change in temperature and by the change in pressure, but enough remained to make last year's trip unique in the number of fish that were seen and filmed for the first time ever.

To illustrate how tiny are the plankton animals, and how fine are the nets used to catch them, they filmed the two through the eye of a fine needle.

It was weird marine life, filmed with this equipment that was used on "ZARDOZ" as a background for a dream sequence.

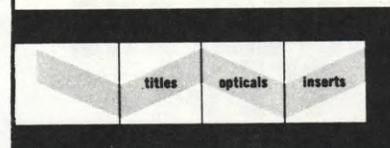
"It's almost an axiom that whatever you know to be true almost never happens when you go to film it," comments Gerald Thompson. "That's the perversity of nature. If you engage a professional photographer with no biological knowledge, the odds of his knowing enough about an animal to get it to behave at all for a film in commission are very poor. Even considering all the people with scientific know-how in our own experience, you've still got projects or odd sequences which require incredible perseverance — the day and night watching of a bat, for example, or a European perch, in order to anticipate and capture just the right action on film. We finally developed a rotating

IN CANADA

Complete 16mm & 35mm color & b&w processing and printing. Eastman COLOR Ektachrome processing. Magnetic sound stripping for 16mm-8mm and Super 8mm. Vacuumate film treatment. 16mm Optical Transfers.

QUEBEC 1085 St. Alexander St., Montreal, Quebec
 FILM LABS Telephone (514) 861-5483

WESTHEIMER Company



Joseph Westheimer, A.S.C.

TITLES, TRAILERS, INSERTS AND OPTICAL EFFECTS

FOR MOTION PICTURES AND TELEVISION

HO 6-8271

736 Seward St., Hollywood, Calif. 90038

IN CANADA

Editing a cinch with the **KEM** time saving
 Film Editing Tables (4, 6, and 8 plate models).
 Phone or Write:

UBRO FILM TECHNICAL SALES & SERVICE
 19 Sealcove Drive, Etobicoke 652
 Toronto, Ontario, Canada (416) 621-2679

EDITING CONSOLES

2 picture, 3 sound
 modestly priced

Twenty Fourth Frame
 P.O. Box 539, Bedfordburg, Va. 24060 (703) 544-7666



Sea Systems

UNDERWATER CINEMATOGRAPHY
 ARRI-FLEX - VIDIEO - NIKON

415-531-0493

2220 PELHAM PLACE, OAKLAND, CALIFORNIA 94611

FEATURE & DOCUMENTARY LOCATIONS
**FLORIDA, GEORGIA, TEXAS
 & SO. EAST, SO. WEST, MIDWEST**

JOHN O. EVANS
 DIRECTOR OF PHOTOGRAPHY, IATSE
 219 Drake Ave., Huntsville, Ala. 35801 (205) 883-0875
 *FULL CREW AVAILABLE

BOLEX ACCESSORIES

- 24-Frame Sync. Camera motor—115V
- Var. Speed Battery Camera motor—24V
- 400-ft. Magazine w/400' counter in camera
- Intermittent—Range 1½ sec. to 36 min.
- Animation motor for new single-frame shaft

Write for Bolex Accessory Catalog

STEVENS ENGINEERING CO.

P.O. BOX 1605,

NEWPORT BEACH, CA 92663

angénieux service corporation of california
 13381 BEACH AVE., VENICE, CALIF. 90291 • (213) 821-5080



**FACTORY SERVICE
 CENTERS**

REPAIRS • PARTS
 ACCESSORIES

angénieux corporation of america

ISLIP AIRPORT, BOX 340, RONKONKOMA, N.Y. 11779 • (516) 567-2424

MOVIES FROM SLIDES

Dissolves, Pans, zooms to areas as small as 1/4", using computerized Oxberry Animation Stands.

Send for information, free film chart, pocket slate, field guide and sample film.

Animated Productions, Inc.

1600 Broadway (212) CO-5-2942
New York NY 10019

CANADA'S LARGEST LAB AND SOUND FULL SERVICE ORGANIZATION



BELLEVUE *Pathe*

MONTREAL
2000 Northcliffe Ave.
Montreal, Que. H4A 3K5
Tel. (514) 484-1186

TORONTO
9 Brockhouse Road
Toronto, Ont. M8W 2W8
Tel. (416) 259-7811

*A DIVISION OF ASTRAL BELLEVUE PATHE LTD./LTEE

MOTION PICTURE EQUIPMENT CORPORATION

McALISTER CAMERA DOLLY
HOLLYWOOD SCENE DOCK
GRIP EQUIPMENT
5428 SATSUMA AVE.
NO. HOLLYWOOD, CAL. 91601
(213) 766-4397

QUALITY 16mm PRINTS

OUR SPECIALTY

Satisfied customers coast to coast
B&W • Kodachrome • Ektachrome
Color Interneg • Positive

TEKNIFILM, INC.

1923 N.W. Kearney St.
Portland, Oregon 97209
(503) 224-3835



FILMING FACILITIES

ASIAN FILMS

72, JANPATH, N. DELHI-1
Cable: Moviphoto,
New Delhi (India);
Telephone: 44040

Bulbs, Sockets to go.

Quartz, halogen or incandescent—studio, projection, telecine, theater or A/V—we serve the professional! If it's made by GE or Sylvania, we've got it in stock for immediate shipment.

For every bulb, the matching socket.

Free! 108-pg. stage/tv lighting Handbook.

Nationwide service for over 25 years.
Same-day shipment anywhere in US.
Rush delivery in Manhattan.

(212) JUdson 6-1620

BARBIZON ELECTRIC

426 W. 55, NYC 10019

schedule, according to which everyone just takes turns at waiting and waiting. Much depends upon your knowing enough about your biology in the first place and animals in general to be able to pick up signs of what an animal is about to do. Often it turns out that only afterwards do you realize that such and such behavior was a sign. You simply saw a fish swimming around and didn't realize that how he was doing it meant something to other fish — and the start of a sequence that you had been awaiting for many, many days.

"The total problem in general is the costing of a less-than-predictable project, and we have to use our biological knowledge, such as it is, to estimate the number of man-hours that it is going to take to shoot a certain sequence — and seldom have we ever been right. Sometimes it turns out to be quicker than we expect, but invariably it turns out longer and we often end up filming day and night in order to get it done on schedule.

"However, the animals usually aren't concerned with our schedule. That's why, for every biological subject, we try to allow two years for completion — two breeding or behavioral seasons. This is the thing that a lot of television and feature film producers forget when they ask us to do work. They always want it done by the end of next month, or the month after, and rarely do they pay attention to the time of year. They come in mid-winter and ask for wheat in full bloom or animals to be hatching and emerging — or they ask us to do a sequence in one year when, to cover all our chances, we really need two years, or even three.

"I think it's a reflection of our temperaments as individuals that we tend, in practice, to underestimate the amount of time it will take to get a sequence. Or conversely, equally in practice, we are sometimes over-cautious, because frequently such a subject has never before been filmed, or the animal has never even been studied."

Not all of their work shows animals in a serious vein. Typical of this was when they took a cross-section of an ordinary bath to illustrate how spiders come out of their hiding places and search for water under cover of darkness. They then showed how the spiders become trapped by the steep enamel sides of a bath and how, after being flushed down the plug hole by a terrified young lady, they subsequently climb up the waste pipe and watch her bathing, safely protected by darkness and the overflow grille. ■



PROFESSIONAL
UNDERWATER
PHOTOGRAPHY

(415) 841-0555

At Giddings Enterprise
6853 Buckingham Blvd., Berkeley, CA 94705

When you say one lab processes your film "better" than another, you're really saying that somebody isn't doing their job, because in the lab business there is only one way to process, edit, conform, print, transfer, mix, or post flash — the right way. At CPT FILM LAB, your job is done the right way the first time which means we have the time to concentrate on service, on the personal touch. When you call or stop by CPT, you talk to the people who actually handle your job. We deal with people, their projects, and their problems.

Our staff is composed of lab professionals — but we've also spent our share of hours behind the cameras so we can speak your language.

If service and quality are what you're looking for in a 16mm lab, write or call for your copy of our new catalog/price list.

-phone-
CPT FILM LAB
639 WELLS VILLAGE
DURHAM, NC 27703
919/686-7265

FilmLab SERVICE, INC.

FULL SERVICE 16MM. LABORATORY

INTERNEGATIVE
EASTMAN COLOR
POSITIVE

- PROCESSING — ECO — EF — B&W
- ADDITIVE COLOR PRINTING
- EDITING • SOUND SERVICE
- EDGE NUMBERING • VACUUMATE
- ULTRASONIC CLEANING
- FILMSTOCK • SUPPLIES

CALL COLLECT (216) 881-4510
4019 PROSPECT AVE CLEVELAND, OHIO 44103

BEHIND-THE-LENS FILTER HOLDERS

For Angenieux lenses on all Arriflex 16, Eclair NPR and CM3 cameras, and for the 25-250 Angenieux for 35 mm - in kits with gel cutter, tweezers, spare gel container and other convenience features.

Ask for brochures

CUSTOM PHOTOGRAPHICS

P. O. Box 25007, Portland, Oregon 97225 • 503-292-5569

A COMPLETE

16mm MOTION PICTURE LAB.

OVER 32 YEARS EXPERIENCE

Use Specialists to Make Your Color Prints

Pioneer in 16mm color negative-positive printing and processing • Color additive printing • Edge Numbering • Cutting Rooms available • Same day service on Koda and B&W reversal dailies

"Clients throughout the entire world"

CRC Mark of Quality

Color Reproduction Co.

7936 Santa Monica Blvd. (213) 654-8010
Hollywood, Calif. 90046

ROSCO

color media

ROSCO, PORTCHESTER, N.Y. 10573

BLOW-UP

HIGH QUALITY
35MM NEGATIVES
FROM YOUR 16MM ORIGINALS

Stock Shots Enlarged to Match-in with your 35mm Negative
Complete Pictures Transferred to 35mm
Call—Adrian at (213) 463-3178

CINESERVICE, INC.
1459 North Seward Street
Hollywood, California 90028

Let the PRO'S tell you How to Buy a
16mm Sound Projector.

FREE

We will send you the article which appeared in FILMMAKERS NEWSLETTER on Buying a "Used Projector."

HECHT—Box 443—Ellenville, N.Y. 12428

flip schulke underwater films

In association with Black Star Productions, Inc. Complete facilities for all types of expert underwater and topside filming and production.

For Information: Benjamin J. Chapnick 450 Park Avenue South New York, N.Y. 10016 (212) OR 9-3288 Miami, London

BOLEX 16mm cameras and projectors
COMMUNICATION ARTS crystal sync equipment
ECLAIR 16mm and 35mm cameras
LEE FILTERS lighting control media
MAGNASYNC 16 and 35mm studio recording equipment
MOVIOLA 16-35mm editing equipment
PYRAL recording tapes
RDS studio lighting equipment
STELLAVOX quarter inch recorders
contact the **PROFESSIONAL DIVISION**
W. CARSEN CO. LTD.
31 SCARSDALE RD • DON MILLS • ONT • M3B 2R2
TORONTO 444-1155 MONTREAL 488-0917

ELECTRONIC SPECIAL EFFECTS

Continued from Page 783

completed tape that included SMPTE time-code display (24 frames per second rather than the usual 30 frames per second). Compact built a specially-designed 24-frame time-code generator to perform this function. A kinescope was then made of the tape retaining the discreet-time code. All the okay takes were subsequently transferred to black and white scratch prints. The editor was then able to produce a first cut consisting of material originally shot on film and material from video transfers. The exact amount of color negative from the video-to-film portions was ordered by the editor who simply specified the actual time-code numbers between which color negative was desired.

The transfer process began by exposing the color negative two frames ahead of the specified starting frame and two frames trailing the specified end frame. In the two excess frames at the beginning and end time-code was inserted to enable the negative cutter to relate the color negative key number to time codes specified by the editor.

This process relates the video SMPTE time code to the film key numbers to which film editors and negative cutters are accustomed. ■

ASTROVISION JET SYSTEM

Continued from Page 812

Focus controls and a camera on/off switch are also located on the control console. Power is supplied by self-contained rechargeable 24V Ni Cad battery packs. Lear Jets supplied by Clay Lacy Aviation of Van Nuys, CA, have been modified to accept the system, as well as Executive Jet Aviation in Geneva, Switzerland.

With final film tests completed, Astrovision has completed air-to-air films for British Airways of the Lockheed 1011 where four days' filming was completed in four hours. Astrovision has also been contracted to film "Concorde" on its release to service. The system has also been used by Peter Medak (Director — "THE RULING CLASS") for a new film for the Pink Floyd rock group. A demonstration video tape was recently made in conjunction with Compact Video Systems using the same P.C.P. 90 system used on helicopter mounts with Continental Camera Systems.

Systems are available from Astrovision, Inc., 16800 Roscoe Boulevard, Van Nuys, CA 91406, Telephone (213) 989-5222; and Astrovision A.L.S., 52 Curzon Street, London W1Y England, Telephone 01-491-2506. ■

PRODUCTION MUSIC

Library on LP's & Tape for Radio, TV & Films.

Over 3,000 titles: jazz, contemporary, rock, classic, every mood and style. Sound effects too!

CLEARANCE AS LOW AS \$20 PER USE.

For free catalogs and rate cards write to:

Major Records
REG. U.S. PAT. OFF.

Thomas J. Valentino Inc.
151 West 46th St., New York, N.Y. 10036

ARRIFLEX Motion Picture Equipment
NAGRA Tape Recorders
IANIRO Lighting Equipment

Exclusive Distributor in Canada:
BRAUN ELECTRIC CANADA LTD.
3269 American Dr., Mississauga, Ontario, Canada
(416) 678-9200. Write for price lists and brochures.

Covering FLORIDA like the SUNSHINE—

COMPLETE RENTAL SERVICE

PHOTOMART
CINE EQUIPMENT SUPPLIERS
6327 S. ORANGE AVE. • ORLANDO, FLA. 32809

Phone (305) 851-2780

CINETEL **NINE**

IN CANADA locations

(403) 328-1346

services

1242 Fifth Avenue So., Lethbridge, Alberta T1J 0V5

AUTOMATIC DAYLIGHT PROCESSOR

- Processes up to 200 Ft.
- Super 8 to 105mm
- Movie—X-Ray • Microfilm
- Motor Driven—Portable
- Film Dryers Available
- Guaranteed

Write for Free Literature
OUR 28th YEAR
Micro Record Corp.
487-14 South Ave., Beacon, N.Y. 12508

WE HAVE THE KNOW HOW TO FILM IN SOUTH AMERICA

Contact:
THE WARREN STUDIOS
P.O. Box 145 New York, N.Y. 10019

BUY — SELL — SWAP HERE

STUDIO PRODUCTION EQUIP.

IDI SUMMER SUPER SALE! A few examples: ARRI 35BL late model, 5 Zeiss lenses, 4 magazines, Like New! \$39,750. ARRI 35 BLIMP PACKAGE crystal motor, motorized 25-250 zoom, \$7,900. MITCHELL SPR/BNC, 6 Baltar lenses, 4-1000 mag, 220 V motor, CP crystal motor, batteries, \$22,750. ARRI 16BL, 12-120, 400' mag, single system \$8975. ECLAIR ACL 2-400' mag, \$6995. ECLAIR NPR 2-400' mag, crystal \$6995. AURICON 400' PACKAGE, 12-120, 2-400' mags, \$995. ACL 400' mag like new, \$1295. 25-250 ZOOM MOTOR, \$195. PERFECTONE NPR Crystal Motor, \$1895, IDI TRIPOD, \$495. Write for new Super Sale list, IMAGE DEVICES INCORPORATED, 811 NW 111 Street, Miami, FL 33168 (305) 751-1818.

ARRIFLEX BL, mint condition, Angenieux 12-120mm, magazine, Duro-pack battery & cable, etc. Asking \$8,500. N. LEWIS, 1254 Redondo Dr., San Jose, CA 95125 (408) 264-1254.

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

ARRI-S, 300 Kilfitt, VS motor, torque motor, 2-400' mags., battery, case, \$2600. D. W. DOWLING (617) 262-2010 Ex 254.

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

TWO ARRIFLEX 16M cameras, mint condition with lenses, magazines, carrying cases, tripods, time lapse. Editing equipment. DeBrie 16: 4 x Super-8 optical reduction printer. DeBrie 16mm step contact printer. 35/16mm B&W Treise developing machine. VISUAL EDUCATION, INC., P.O. Box 6039, Santa Barbara, CA 93111.

16 Interlock Jan projector with x 400 Magnasynch 2 Selsyn motors in rack, \$1800. 35 Interlock projector Century optical/magnetic 2000 ft. RCA rectifier, \$1595. NCE Tripod regular and baby legs, high hat \$795. Cine special animation camera micro lens, Yolo dissolve/hot press & typewriter, Tandberg P11 Pilot \$695. Stellavox Ranger, \$495. FILM ASSISTANCE, 1949 NE 147 St., No. Miami, FL 33161 (305) 944-7494.

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

SURPLUS STUDIO EQUIPMENT SALE

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

ECLAIR ACL, 1-200' magazine, battery, charger, Angenieux 9.5-57 f1.6 CA-1 mount. Used once. TORONTO, CANADA (416) 278-4417 evenings.

ARRI-S, 16, 25, 50 Schneider, matte box, case, cable, acc., \$1,300 or Trade for Beaulieu 5008S/4008ZM2 (602) 837-1484.

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

STUDIO PRODUCTION EQUIP.

16MM PRODUCTION EQUIPMENT FOR SALE! Used but excellent condition. Cameras, lenses, accessories. Tripods, editing, lighting, sound gear. Projectors, animation stand, etc. Call (612) 854-8036 for complete list.

NEW Angenieux 12/120 zoom lens in CA-1 mount. Call (213) 469-2935.

STEENBECK, interchangeable 16 & 35 heads. 6 plates. (Original cost \$12,000) \$8,500. Call evenings (212) UN1-7030.

BERTHOIT 38-154mm zoom lens w/reflex viewfinder. Has BNC/NC mount, but adaptable for Arri's and other 35mm cameras. Over \$2000 new, \$450 w/accessories. Eclair 400 ft. 16mm magazine for CM-3, \$175. N.Y.C. (212) 798-3533.

FOR SALE: Arriflex 16BL body with lens, single system module and amplifier, also several other accessories. This equipment is brand new. Priced for immediate sale. Write or call PAUL ODOM, JR., 7204 South Pennsylvania, Oklahoma City, OK 73159, (405) 685-5541.

BELL & HOWELL 70-DRs w/normal lens, \$350 to \$450. Like New demonstrator, \$550. Slotting \$50. Extra, Frezz. bracket \$10. Model 70-HRs w/400' mag., motor, case, 1.9 lens, \$675. Bolex H-16M body-mint, \$175. Like new demo, \$275, with finder. Same converted to 400' B&H mag, w/unimotor, battery pack, A/C trans & case, \$775. SBM w/POE 16-100 zoom, \$1,495. EBM, 2 mags, 1 TU motor, battery, grip, charger, sync generator, 12-120 ANG. & case \$2250. New Schneider-Krueznach 75mm "C" f2.8 w/sunshade current list, \$189. Sell \$50. Berthoit 17-70 or 25-100 "C" w/finder, \$225. Angenieux 17-68 "C" f2.2 (mint), \$275. w/finder, \$425. Precision Mag.-Opt. Reader, \$125. B&H 302 Proj., \$600. All models used B&H & RCA proj. on request. Angenieux 15 & 75mm "C" lens, \$100. .95 25mm \$250. Bolex Unimotors (New) \$75. w/battery and AC trans., \$115. THOMCO, 2846 NW 59th, Oklahoma City, OK 73112 (405) 484-4868.

RCA PR-24 16mm optical film recorder with solid state amplifier, also RCA PR-24 16/32mm optical recorder with solid state amplifier, \$4500, each. DeBrie 16mm mag/optical solid state sound projector, \$500. 16mm Jan-Ampro sound projector, \$650. Elmo C-300 Tri-Filmatic Super-8 camera like new, \$275. IMAGE DEVELOPMENT CO., Box 1014, Parsons, KA 67357 (316) 421-2904.

BELL & HOWELL pedestal hot splicers from \$125 each. Footage and frame counters, \$40 each. Cooke & Kodak lenses, 40mm to 140mm, \$40 to \$125 each. Miscellaneous Contact and Optical printers from \$1000, each. CARTER EQUIPMENT CO., INC., 1050 W. Florence Ave., Inglewood, CA 90301 (213) 649-6344.

LLOYD'S SUMMER SPECIALS

Maurer 16mm outfit, \$1500. Mitchell Reflex 16 (2) \$4000. Mitchell Pro-16, \$2750. Cine Spec body for parts, \$99.50. Fastax 16mm camera, \$300. ARRI IIB camera, \$1000. Mitchell fluid head (adapted), \$295. Lloyd's fluid 16 head, \$109. Mitchell 70mm camera, \$1250. B&H 16mm silent proj., \$175. B&H 2709 — Pilot pin, \$995. Houston Fearless A-11, \$750. Cine Specials I & II, \$295 up. Many more football cameras, lenses, projectors. LLOYD'S CAMERA EXCHANGE, 1612 N. Cahuenga Blvd., Hollywood, CA 90028 (213) 467-3863.

ECLAIR ACL 2-200 FT MAGAZINES, BATTERY, CHARGER, HAND GRIP, FILTER SLIDES, HALLIBURTON CASE-ABSOLUTELY NEW. \$4,500. HASKELL WEXLER, 6950 OPORTO DRIVE, HOLLYWOOD, CA. 90068 (213) 851-1771.

BEAULIEU R16BT with 12-120 Angenieux zoom, 200 ft magazine, Halliburton case, electric handgrip, 1000 MA battery, charger, 110v supply, misc. accessories. Like new. Will sell all or part. JOSEPH M. EDELMAN, M.D., 244 Peachtree Blvd., Suite 200, Baton Rouge, LA 70806. (504) 287-0936.

STUDIO PRODUCTION EQUIP.

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

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

B&H "C" printer with additive head, \$20,000. B&H 16mm printer with additive head, \$21,000. B&H Punch, \$2,500. Kodak 16/35 MP Video Analyzer, \$20,000. ACME 35mm camera, \$2,500. Acme 35mm matte projector, \$2,750 Custom-built 16mm animation stand. Animation stand with 35mm B&H camera. Acme pencil animation stand, \$1,750. Reflexed pin registered 16mm animation cameras from \$1,500. 35mm pin registered filmstrip & slide cameras from \$3,000. 35mm Moviola with large picture head, \$1,250. UNIVERSITY SUPPLIERS, 225 W. Ohio St., Chicago, Ill. 60610, (312) 467-6457.

AURICON CECO News, 12-120 Angenieux conversion, magazines, case lights, power-pack, \$2800. B&H 70DR camera w/10mm, 25mm and 75mm Angenieux lens & case, \$450. Priced to sell. CNS Films, 608 E. Violeta Dr., Alhambra 91801. (213) 282-4442.

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

ECLAIR 35MM CM-3, variable speed 8V motor, finder, cable, strap, dust cover, \$700. EARLE CORTEZ, 1245 N. Vine St., Hollywood, CA 90038 (213) 464-9760.

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

FILMMAKERS Flea Market will be held July 17th through July 20th, 1975 at 354 West 45th Street, 2nd floor, New York City. Hours 10am-5pm daily including Sat., Sun. Tables full of bargains: Cameras, lighting, sound, editorial, projectors, accessories, supplies, video, the works. Come early for best selection, no advance list available. Terms: Cash only, all sales final. Or, establish credit in amount you expect to spend by sending check before July 1st to: COMQUIP, INC., 366 S. Maple Ave., Glen Rock, NJ 07452. (201) 444-3800.

ANIMATION Stand 12 field compound, Maurer 16mm camera, animation motor, \$5500. VANGUARD, 6820 Santa Monica Blvd., Hollywood, CA 90038 (213) 461-5437.

BELL & HOWELL 35mm hi-speed printer, 1200 watt lamphousing, filter system perfect condition. ALLEN (213) 466-6113.

ECLAIR ACL 2-200 magazines, 12-120 Angenieux battery-charger, \$5750. Bolex Rex 5 Angenieux 12-120 automatic zoom, \$1950. Auricon-Frezz conversion, 400' magazine, crystal motor, Angenieux 12-120 with 7" finder, \$3275. LLOYD DAVIES (213) 462-1206.

ARRIFLEX 16 S, 12-120 Angenieux, 9.8 Tegea, hard lenses, Maurer 16 with accessories. HERMAN GALLI CAMERA SERVICE (213) 931-4111.

SUPPLIES

BLACK LEADER, 16mm, fresh stock processed to 4.0+, guaranteed. \$.024/ft. min. order 2000 ft. complete lab service and supplies, 16mm and Super-8. LEO DINER FILMS, INC., 350 Golden Gate Ave., San Francisco, CA 94102 (415) 775-3664.

RATES: Ads set in lightface type 40¢ per word. Minimum ad, \$4.00. Text set in lightface capital letters (except 1st word and advertiser's name) 50¢ per word. Modified display format (text set in boldface type, capitals or upper-and-lower

case) \$4.00 per line. Send copy with remittance to cover payment to Editorial Office, American Cinematographer, P.O. Box 2230, Hollywood 28, Calif. Forms close 1st of month preceding date of issue.

RENTALS

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

KEM rentals in Hollywood. HORIZONTAL EDITING STUDIOS (213) 461-4643.

STEENBECK RENTALS delivered to your premises. KLM West coast (213) 931-6151, East coast (301) 299-7259.

PRODUCTION Equipment at sensible prices . . . for example \$15.00 per day for Nagra III recorder or 12-120 Angenieux zoom lens. The rest of our prices are just as low. For more information on rentals, sales or service write: CINELEASE, INC. 209B Old Durham Road, Killingworth, Conn. 06417 or call (203) 663-2222.

SERVICES AVAILABLE

16mm projection service: your film shown anywhere in the Los Angeles area. All equipment and operator furnished. Call (213) 732-1636.

CINEMATOGRAPHER — 14 years experience — award winning films — Chicago area. Call: W. KOLAR (312) 469-5497.

DETROIT motion picture sound. Sound for 16/35mm film or videotape. Feature, Documentary and Industrial experience. GEORGE J. KEREJI (313) 274-1476.

NEW YORK city assistant cameraman from MUNICH. DIERK PIFFKO, 405 East 63 Penthouse. Resume on request.

FILMSTRIP Masters, 16mm, 35mm. Pulsing. Complete production. Send for prices. IMAGE & SOUND, 3457 Rockhaven Circle, NE, Atlanta, GA 30324 (404) 266-1197.

Wanted film assignments — anywhere in US. Work on daily or assignment basis. 20 years experience . . . quality guaranteed. 16mm completely equipped. Reply Box #1788, AMERICAN CINEMATOGRAPHER.

CINE Special owners. "C" mount lens plates installed on either model Cine Special Camera for zoom lens operation, \$150. Camera main spring wind motors, \$50. SPORTSREEL, 1201 Washington, Albany, CA 94706 (415) 526-9292.

POSITIONS AVAILABLE

VICTOR DUNCAN, INC. has opening for camera repair technician. Must have practical background in mechanics; electronics; optics. Call ROBERT BURRELL. (313) 371-4920.

IDI
is expanding its
RENTAL
SALES
SERVICE
DEVELOPMENT
DEPARTMENTS

We need several energetic teamworkers with background knowledge, organizational attitude and experience. IMAGE DEVICES INCORPORATED
811 N.W. 111 Street
Miami, FL 33168 (305) 751-1818

DIRECTOR of Film Services at large northeastern public television station. Must have at least five years experience as a filmmaker. Prior administrative experience is also required. Must be knowledgeable in all areas of television film production. Will be responsible for creative aspects of photographic and film making activities. Minimum starting salary \$16,500. We are an equal opportunity employer. AMERICAN CINEMATOGRAPHER # 1789.

FILM PRODUCTION TEACHER — Several years of pertinent professional experience required. TV studio experience desirable. Bachelor's degree necessary, advanced degree preferred. Position requires emphasis on visualization of ideas and editing. Faculty rank and compensation dependent upon professional and teaching experience. Telephone (716) 464-2720 or write Professor William S. Shoemaker, Director, School of Photographic Arts and Sciences, Rochester Institute of Technology, One Lomb Memorial Drive, Rochester, NY 14623. Position available Sept. 1, 1975 — July 1, 1975 employment date possible. Institute is an equal opportunity employer.

WANTED

WANTED Reduction printer — DePue 35/16mm. Will consider machines in any condition. Supply photo, complete technical description and price for immediate reply. ALAN GORDON ENTERPRISES INC., Attn: Bert Carlson, 1430 N. Cahuenga Blvd., Hollywood, CA 90028. (213) 466-3561.

WANTED Nagra or other sync recorders plus accessories immediate cash, no hassle. RICHIE (212) RA6-6832.

WANTED Bell & Howell 35mm motion picture camera with I-shuttle (moving pin) or I-shuttle alone. BROWN WHOLESALE COMPANY, Box 12597, Philadelphia, PA 19151.

NEED American Cinematographer back issue January, 1972. LINSMAN, Swartwout Productions, 6736 E. Avalon Dr., Scottsdale, AZ 85251.

WANTED: Medical footage: operating room, operation, etc. Also prosthetics, etc. 16mm color original or master. G. LE PAGE, P.O. Box 2862, Balboa, Canal Zone. Reply AIRMAIL only.

BELL & HOWELL 16mm cameras, motors 24V-115V, 400 ft magazine, any accessories or part. FA50 Processing machine. K-100 cameras and accessories, any condition. Write to: NATIONAL FILM CO., 10302 Kingspoint, Houston, TX 77034.

FILM STOCK, 16/35mm will consider all types. Sealed, opened and ends. RAFIQUE, 814 Broadway, NYC 10003, (212) 228-2757.

WANTED: Professional Motion Picture Equipment, 16mm and 35mm. Cameras, lenses, lights, sound, editing, projection, lab. For outright purchase or consignment. Supply complete technical description and price for immediate reply. Ted Lane, ALAN GORDON ENTERPRISES INC., 1430 Cahuenga, Hollywood, CA 90028, (213) 466-3561.

WANTED: 16mm used, ME-4 Processor (25 to 35 FPM) model "J" printer, PH-Meter, densitometer. Write offers to: AMERICAN CINEMATOGRAPHER, #1790.

MISCELLANEOUS

SCIENCE FICTION/Fantasy in Films and Television Fans — Convention August 1-3 Commodore Hotel, Manhattan; guests, films, displays, dealers, speeches, information: MALIN, 16 E 2nd St., Freeport, NY 11520.

Bids invited from photo equipment manufacturers for possible commercial involvement in a fully developed and tested quality life-like (3D) motion picture system. Inquiries to: P.O. Box 46073, Los Angeles, CA 90046.

COLLECTOR'S ITEM 36 years of American Cinematographer. Some issues missing. Shipped anywhere in Continental U.S. or provincial Canada. \$600. Write to M. CHARLES LINKO, 30 Gloucester St., Toronto, Ont., Canada M5B 1T1.

FILM FINANCING
The Art of Raising Money for Motion Picture Production. 12 Chapters detailing the dozen ways of securing production monies. "The book the film community has been waiting for." LIMITED EDITION Send \$20.00 to: FILM FINANCING, Suite 101, 1450 NE 123rd St., North Miami, FL 33161.

WORKSHOP
CONRAD HALL summer seminar. Intensive 6-day seminar for filmmakers and cinematographers with CONRAD HALL, ASC, July 20 to 26 in small Maine seacoast village. Daily screenings of students' and Conrad's films, group discussions, ample individual critiques and personal consultation. College credit and housing available. \$200 for filmmakers, \$110 to audit. Full summer of Master classes for advanced still and cinematographers, write: The Maine Photographic Workshops. Rockport, ME 04856.

MOVING?

When changing your address, please notify us at least four weeks in advance. BE SURE to give your FORMER address as well as your NEW ADDRESS and ZIP CODE.

AMERICAN CINEMATOGRAPHER

American Cinematographer REPRINT

June, 1968

FILMING "2001—
A SPACE ODYSSEY"

December, 1969

SUPER-8—THE STATE
OF THE ART

June, 1970

SUPER-16

October, 1972

VIDEOTAPE & FILM

ALL IN ONE PLACE



\$5.00

(Dealer Discounts—Inquire)

AMERICAN CINEMATOGRAPHER
P.O. Box 2230, Hollywood, Calif. 90028

Please send me _____ copies of the
FOUR-IN-ONE reprint @ \$5.00 ea.,
postpaid.

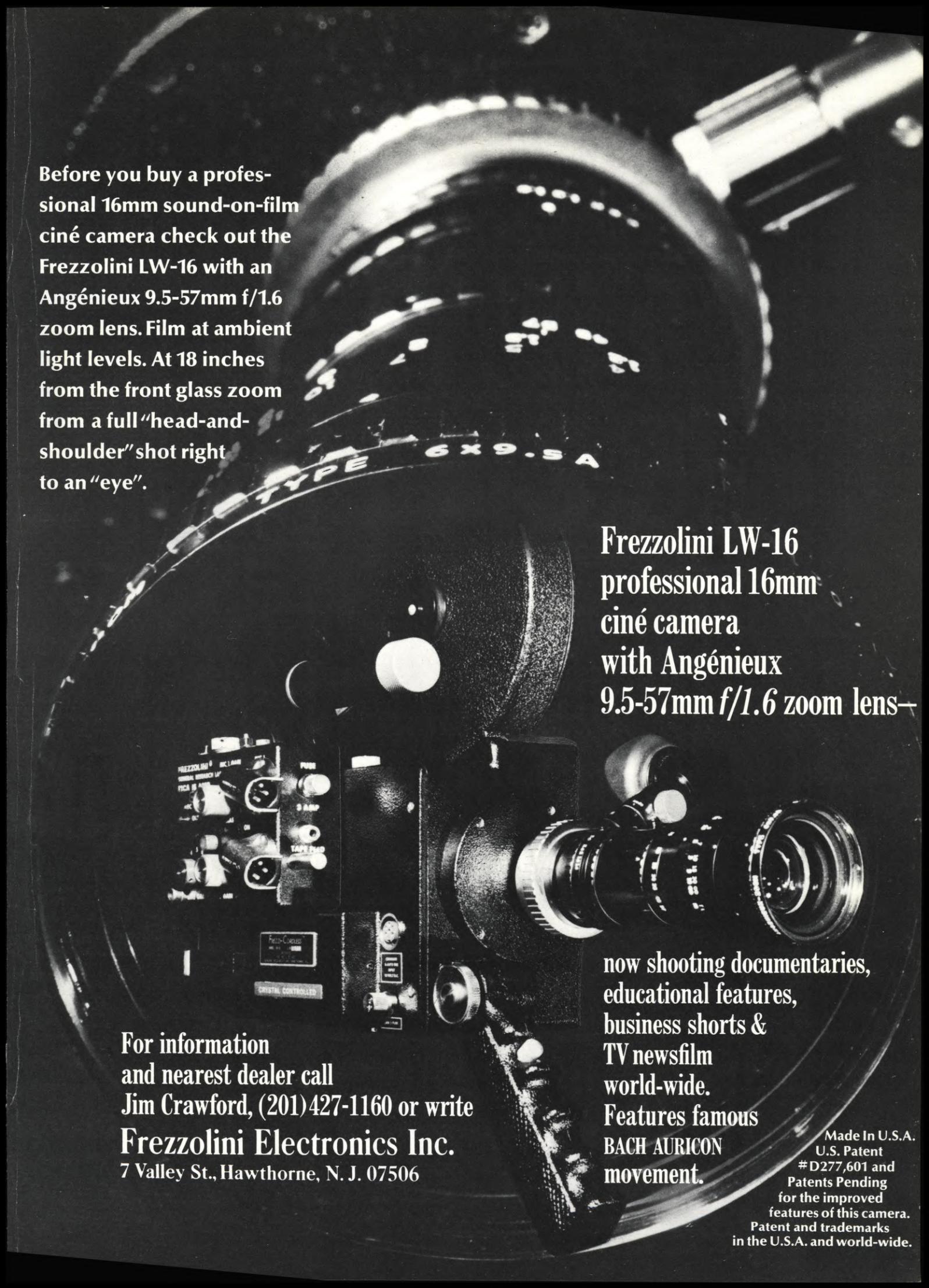
NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

California residents please remit 6%
Sales Tax. (30¢ per copy). Foreign
buyers please pay by International
Money Order or U.S. Funds.



Before you buy a professional 16mm sound-on-film ciné camera check out the Frezzolini LW-16 with an Angénieux 9.5-57mm f/1.6 zoom lens. Film at ambient light levels. At 18 inches from the front glass zoom from a full "head-and-shoulder" shot right to an "eye".

Frezzolini LW-16 professional 16mm ciné camera with Angénieux 9.5-57mm f/1.6 zoom lens—

For information and nearest dealer call Jim Crawford, (201)427-1160 or write Frezzolini Electronics Inc. 7 Valley St., Hawthorne, N. J. 07506

now shooting documentaries, educational features, business shorts & TV newsfilm world-wide. Features famous BACH AURICON movement.

Made In U.S.A.
U.S. Patent #D277,601 and Patents Pending for the improved features of this camera. Patent and trademarks in the U.S.A. and world-wide.

the only one

Byron, in Washington, D.C., is the only complete, fully-integrated film and tape service laboratory east of Hollywood.

- Tape to film, film to tape, tape to tape—and film to film
- All standard tape formats, all types of film—services thru post production and duplication
- A staff involved in your needs—your deadlines—your satisfaction

byron COLOR-CORRECT®

65 K Street, Northeast, Washington, D.C. 20002 • 202—783-2700
Worlds Most Sophisticated Video Tape And Film Laboratories.

COLOR