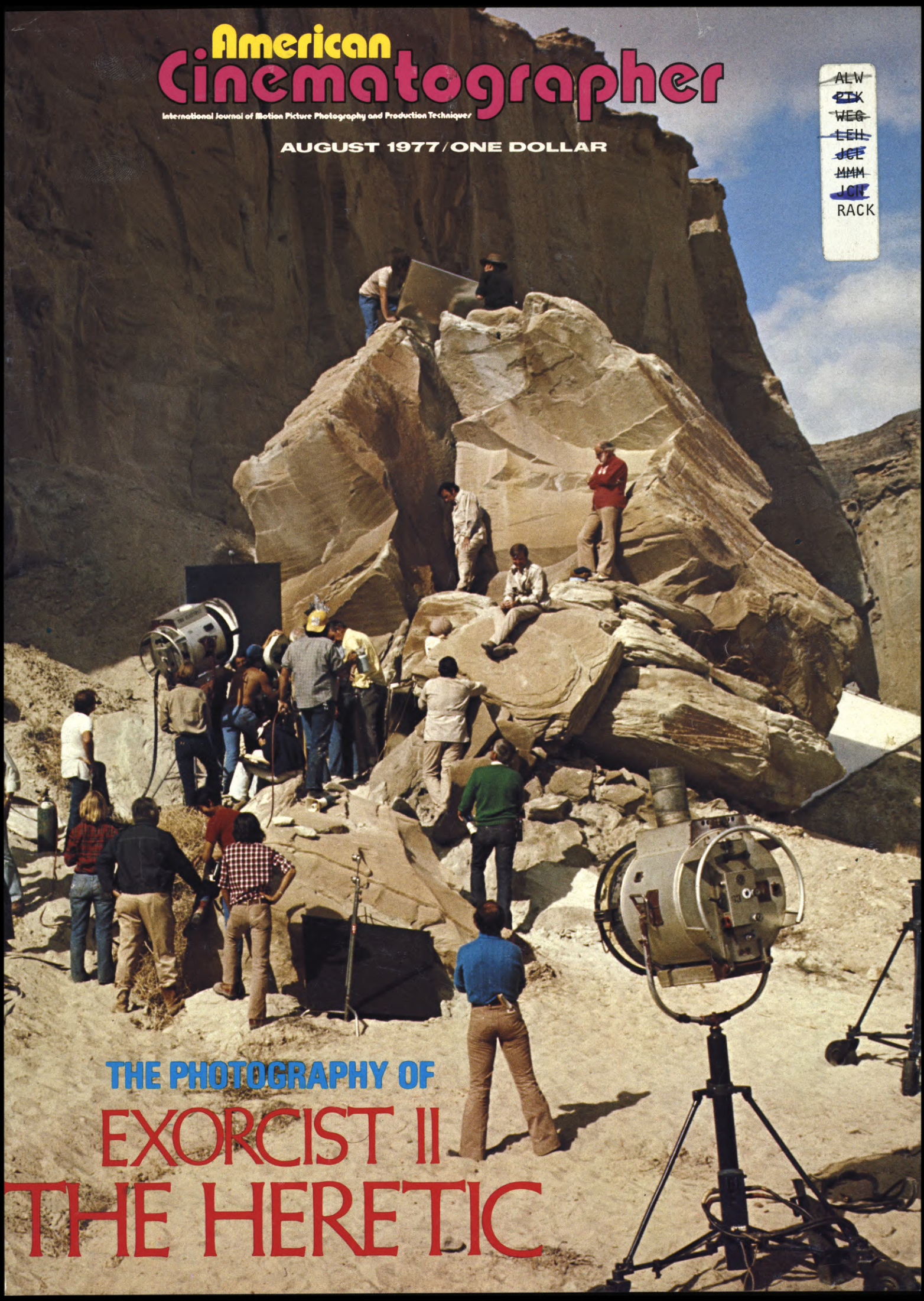
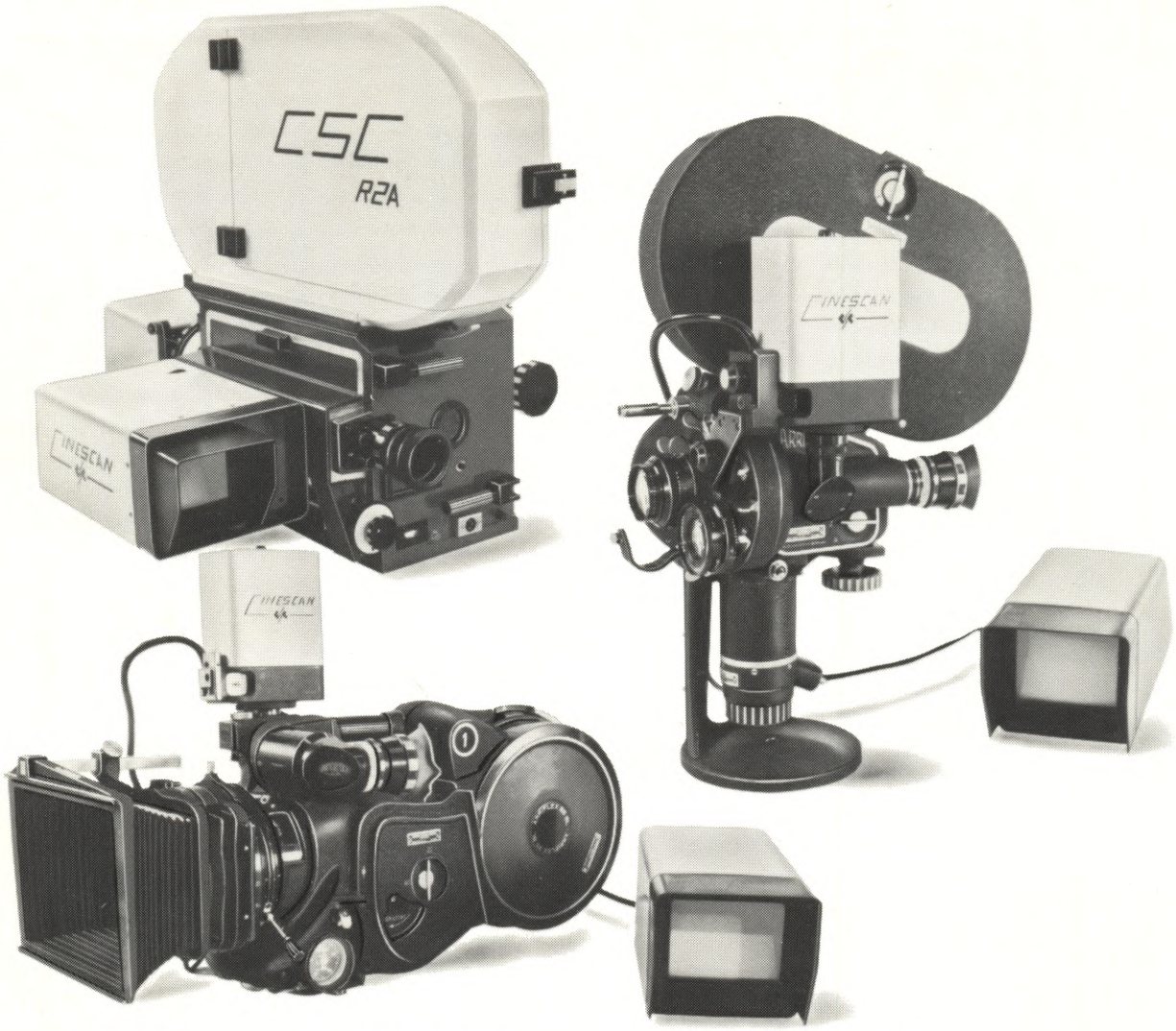
American Cinematographer
International Journal of Motion Picture Photography and Production Techniques
AUGUST 1977/ONE DOLLAR



THE PHOTOGRAPHY OF

EXORCIST II
THE HERETIC



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This is the system uniquely designed and precision engineered by CSC to meet the exacting requirements of today's cinematographer. Space-age solid state components supply power to zinc telluride video receiver tubes to produce a sensitivity that surpasses every film rating on the ASA scale. Incredible? Yes! But isn't this what you've come to expect from Camera Service Center?

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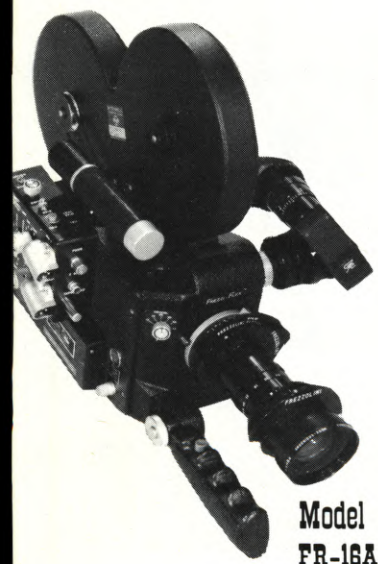
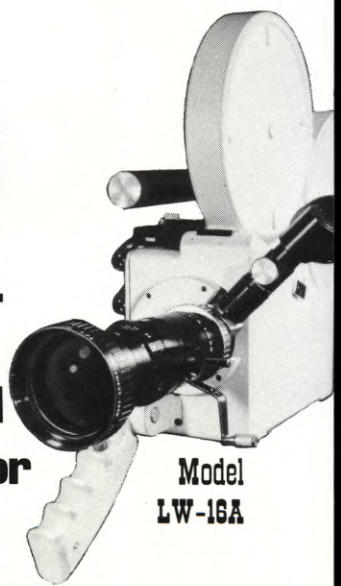


Model FR-16A



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American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

The American Society of Cinematographers is not a labor union or a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initials A.S.C. after their names. A.S.C. membership has become one of the highest honors that can be bestowed upon a professional cinematographer, a mark of prestige and distinction.

AUGUST, 1977 **VOL. 58, NO. 7**

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

• FEATURE ARTICLES

• DEPARTMENTS

ON THE COVER: Warner Bros. film crew on location in the desert near Page, Arizona, shooting Ethiopian desert sequences for "EXORCIST II: THE HERETIC", directed by John Boorman and photographed by William Fraker, ASC. These scenes tie in with extensive exteriors shot on sound stages at The Burbank Studios.

AMERICAN CINEMATOGRAPHER, established 1920, in 58th 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.

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The best film is in the can.

Whether your film is 10,000 gorgeous feet of the once-every-hundred-year eruption of the most colorful volcano in the world or 400 black-and-white feet about the variations of wing nuts . . . it's probably the best work you've ever done. Until your next one. But no matter what it is, you need a lab to process that film exactly right. On time. At a fair price.

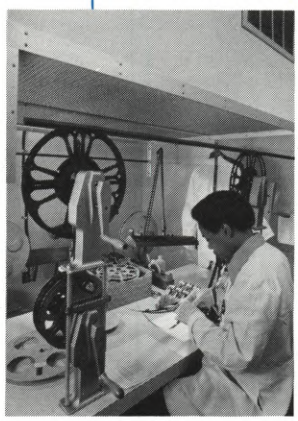
Now, Byron. Byron Motion Pictures is a 60,000 square-foot, full-service laboratory considered one of the most efficient, quality-controlled, economical and customer-oriented film/video labs in the business. Conceived, designed, custom-built and operated by Byron Roudabush, the man who wrote the "bible"* of cinema lab technique; Byron Motion Pictures is unquestionably *the* lab man's film lab.

*Handbook: RECOMMENDED STANDARDS AND PROCEDURES FOR MOTION PICTURE LABORATORY SERVICES, published by the Association of Cinema and Video Laboratories

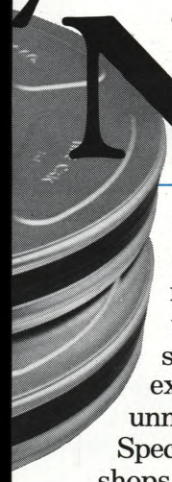
Make a lab "negative-safe" and it can handle *any* kind of film without the slightest reservation. That's what *quality control* is all about. That's exactly what Byron's total environmental control system ensures.

Begin with a windowless, pressurized building (to prevent variations of temperature and humidity, and street dirt from coming in). A 40-ton water chiller and six 750,000 BTU water heaters designed to maintain consistent lab water temperature. A 200-ton air-conditioning unit, a series of recirculation pumps, return fans and one monstrous central vacuum system . . . all working in unison to filter all the air in the lab—constantly, 24 hours each day. Mixing, chemical, cleaning and pump rooms with their own separate exhaust system to prevent contamination of other areas. Even specially-treated walls and floors. At Byron, cleanliness is obvious because dirt never shows . . . on your negative or anything else.

Reduce film handling and you reduce the chances of anything "unfortunate" happening to it. How? It's called efficiency. And at Byron, efficiency of operation was a major consideration in the design and construction of the building. Obviously, each phase of processing and printing requires different specially-equipped rooms. Byron's rooms are where they should be. Next to the room where the film came from and adjacent to the room where it goes. Basically, Byron is the ideal flow chart put into reality. But



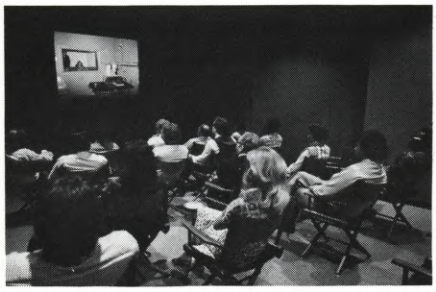
you've ever shot Now, Byron.



that's not all. Little things like placing mixing tanks *above* their receptacles saves the costs of extra pumps and unnecessary equipment. Specialized maintenance shops near the equipment they service means faster repairs and easier preventive/maintenance checkups. Even the floors of non-critical areas are angled to facilitate cleaning of wastes and chemicals. *Let's face facts.* The more efficient an operation, the less waste. Less waste means lower costs. And the lower the overhead costs, the less you pay for superior processing and printing.

Being more than just a lab is a major feature of Byron Motion Pictures. Very often producers need additional services . . . but they don't want the hassles or headaches of going all over town seeking them out. That's why Byron provides a wide range of extras you don't usually find at a cinema lab. Like two narration studios, complete with mix and looping facilities. Three screening rooms —one of which seats 50 people in Hollywood luxury. Conference rooms. Five fully-equipped editing rooms. Client office space. And three fabulous music and effects libraries.

For your video requirements, Byron provides the best here, too. Such as 24-at-a-time video cassette duplication capabilities.



Film-to-tape transfers from Super 8, 16 or 35mm. And a very unique tape-to-film transfer process, we call *Chromascan*™ . . . color or black-and-white with single or double system sound. Unquestionably, a transfer process that is light years away from those old kinescopic methods.

Reliably on time every time is one of the major functions of Byron's Customer Service Department. Perfection may mean reshooting a scene 39 times until it's right. A motion picture lab only gets one shot at it. Byron Customer Service maintains a watchful eye over your film from the moment it's received until it's delivered back to you. Scheduling, information, advice and problem solving are what customer service people are trained to do. You depend on them. So does Byron.

Give us a call, or drop us a line on your company letterhead. We'll send you our latest price list immediately. Or better yet, send us your film. We'll show you what perfection from a lab is all about. And we'll prove beyond a doubt that a motion picture lab designed, built and operated by one of the most respected men in the industry does make a difference. The Byron difference. After all, when the best film you've ever shot is in the can, you can't afford second best.

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WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE

STUDIO (QUARTZ) LIGHTS ACHIEVE OPTIMUM VERSATILITY WITH NEW "Z FRAME" AND ACCESSORIES

Studio (quartz) lights can now be fitted with such essential lighting accessories as gobos, diffusion screens, vignetters, polarizers and a variety of filters for correction as well as special effects.

These accessories are held in front of the light by the newly introduced "Z Frame," so designated because of its Z-shaped strut construction which permits total adjustability.

The "Z Frame" mounts to any light stand with 3/8 or 5/8" diameter upper section and accepts the 12x12" accessories by simply snapping them under the frame clips. When not in use, the "Z Frame" folds into a compact flat package.

"Z Frame" accessory kits are made of tough, heat resistant materials and include a daylight conversion (to use daylight film with 3200°K lamps) and cooling filter set, a polarizer set, softlight diffuser set, color effect filter set, and gobo (a "go-between" opaque material to shade light).

The Spiratone "Z Frame" is priced at $24.95; accessory sets are priced from $9.95 to $14.95. They may be ordered by mail from Spiratone, Inc., 135-06 Northern Blvd., Flushing, N.Y. 11354 or may be purchased at either of their two retail outlets — at the Northern Blvd. address and at 130 West 31st Street, New York City.

•

NEW LEVERS FOR FILM SPLICERS

CIRO is introducing completely new anodized aluminum levers for all CIRO and CIR-type film splicers, 35mm and 16mm. Made at the CIR factory in Italy, these levers are sturdier than the plastic levers they replace. And they feature a roller bearing that makes the lever's action much smoother.

From now on, all CIRO splicers will come with the new lever. If you want to replace the plastic lever on your own CIRO or CIR-type splicer, you can buy one for $19.60 from franchised CIRO dealers. There's also an optional flat lever plate, for $2.60, that replaces the curved plate previously standard with the plastic lever.

Distributor: CIRO Equipment Corporation; 6820 Romaine Street, Hollywood, California 90038. Phone: (213) 466-3591.

UNIQUE NEW PRODUCTION TECHNIQUES CUT COST OF XENON COMPACT ARC LAMPS AND FLASHTUBES BY 50%

A completely new line of high intensity xenon compact arc lamps and flashtubes, priced at less than half the cost of quartz short arc products, has been announced by Illuminex Corporation, Santa Clara, California. In addition to their price advantage, these new lamps and flashtubes are of considerably greater intensity than both xenon long arc flashtubes and quartz iodine lamps.

Available in 25, 75 and 150-watt models, the new Illuminex lamps and flashtubes provide a highly concentrated source of light, similar to a point light source, but of much greater intensity. Because of the concentrated nature of the light, it can be easily collimated with simple, low-cost reflectors and lenses.

The degree of control over the light beam is such that the same lamp can produce broad, totally shadowless illumination, of the type required in the surgical operating theater, to a brilliant, tightly beamed beacon or flash that can be seen for miles, as used in marine and aerial navigation and warning systems.

The new Illuminex lamps and flashtubes utilize special, super hard high temperature glass envelopes instead of quartz, thermally compatible ceramic sealing materials, and innovative, simplified production techniques, pioneered by Illuminex, and for which patents have been applied.

These new Illuminex techniques not only permit the mass production of high-quality xenon compact arc lamps and flashtubes, they provide considerably higher yields than possible with conventional production methods.

The result is a family of Illuminex compact arc lamps and flashtubes priced from $1.50 to $30.00, depending on type and OEM quantity, as compared with conventional quartz compact arc devices, which sell from $30.00 to $160.00.

Designed to replace conventional quartz xenon high-intensity units, applications for these new Illuminex xenon compact arc lamps and flashtubes include surgical and dental lighting systems, microscope and fiber-optic illuminators, continuous and pulsed warning and marker beacons, photographic spot and strobe lights, hand-held searchlights and signaling devices, audio-visual projection systems and high intensity ignition timing lights.

For further information call: Bob Levine, Marketing Manager, Illuminex Corporation, (408) 248-6186, or write: Illuminex Corporation, 1200 Norman Avenue, Santa Clara, CA 95050.

•

COMQUIP PUBLISHES NEW 1977 CATALOG

Comquip's new 1977 Cine' Shopper catalog describes the firm's full line of new and pre-owned motion picture equipment. The complete catalog lists all types of cameras and accessories including sound gear, editing, projection, laboratory and lighting as well as production aids and accessories. A variety of video and related items are also listed. Many of the catalog's items are fully illustrated and supported by detailed descriptions. Starting with the 1977 issue, the Comquip catalog will feature a Cine' Shopper special. The first item to be so featured is a Special Effects — Animation Camera Stand at an introductory price tag of only $495.

Comquip is one of the nation's most comprehensive suppliers of professional motion picture and video equipment. The firm specializes in serving professionals, independents, schools and students with equipment rentals and repair services as well as new and pre-owned equipment sales. All major equipment brands are represented. By specializing in previously owned, fully guaranteed equipment, Comquip is able to offer substantial across-the-board savings.

Free copies of Comquip's new 1977 Cine' Shopper Catalog can be obtained by writing Comquip, Inc., 366 S. Maple Ave., Glen Rock, N. J. 07452 or calling 201/444-3800.

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BERKEY COLORTRAN BOOSTS GELATRAN LINE TO 60 COLORS

Berkey Colortran, Inc. has extended its line of Gelatran color filter media to 60 by the addition of 30 new colors.

According to Peter Coe, president of the Berkey Photo, Inc. subsidiary, the new colors were selected to form "a system of colors that would meet any possible artistic requirement of a lighting designer" in theatrical, film and television applications.

Coe stated that all Gelatran colors are composed of through-dyed (as opposed to surface-dyed), DuPont Mylar®. They

Continued Page 882

what's the real name of this camera?

☐ G.S.A.P. ☐ GZAP ☐ ZAP ☐ GAZAP ☐ Minicam-16 ☐ Gun Camera

If you picked any of the above, you're right, because this famous little World War II veteran is known by many names. Technically, G.S.A.P., for Gun Sight Aiming Point camera, or, as it is now known, Minicam-16, is correct. But no matter what you call it, here's one camera that has made a fantastic transition from war to peace.

Originally manufactured in the 1940s by two major companies, Fairchild Camera and Instrument and Bell and Howell, G.S.A.P. cameras were produced by the thousands during the war. They were most often mounted in the wings of fighter aircraft, aligned to coincide with the firing pattern of machine guns, and used to provide factual and dramatic records of air-to-air and air-to-ground sorties. The ruggedly constructed, electrically-operated (24V DC) 16mm G.S.A.P. cameras use standard pre-loaded Eastman Kodak 50-foot magazines.

If you'd like a first-hand demonstration, visit our Hollywood showroom.

No new G.S.A.P. cameras have been manufactured since World War II. But the cameras are still around and more active than ever. Alan Gordon Enterprises Inc. has taken the Bell and Howell G.S.A.P. camera, remanufactured it, and retitled it the Minicam-16, a name, incidentally, we were using long before it became popular with the television ENG people.

It's obvious the Minicam-16 is not a brand-new camera. What it is, however, is an outstandingly versatile camera that has been converted by our expert technicians to make it a favorite piece of equipment for the cinematographer who wants that shot that is otherwise unattainable. We've taken the G.S.A.P., completely stripped it down, discarded the original lens and mount and replaced it with our exclusive C-mount or Arri-mount front plate, removed internal components that applied only to aircraft use and recalibrated the motor to professional filming speeds of 24 and 48 fps. (Some of our customers have cranked the camera as high as 96 fps, although we don't recommend it.) The camera has been refinished in an attractive red, white and blue color scheme with a tough, baked urethane paint. It is reassembled, tested and is then ready for use.

The Minicam-16 has the enviable record of having been attached to almost anything that moves and coming back with fantastic pictures. It has filmed point-of-view shots attached to missiles fired from Cape Canaveral, autos, racing cars, cycles, hang gliders, boats, race horses, ice skates, water and snow skis, sleds and camera-helmets. It's a perfect mate for our Gordon/Bell Camera Helmet and, in fact, was used to photograph free-fall scenes for the television series, "Ripcord," back in 1961, and has been a popular camera with sports photographers ever since, including those who filmed the recent summer and winter Olympic Games.

If you're a cinematographer who is looking for that unusual shot or angle, you should investigate the Minicam-16. There's not a more popular camera among today's daredevil cameramen. It's available for $350.00 with the C-mount front plate, less lens, and $425.00 with the Arri-mount front plate, less lens.

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We could go on and on about the contributions Al and his department make to film developing technology and systems for improving lab efficiency. But what all this technical talk means to you is that you can count on Deluxe for the best film processing available. And when you've got a specific problem, you've got good men like Al Ford to find a workable solution for you.

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If you have a little money to spare you can buy a kid breakfast for a year.

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

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

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

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

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

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

WAIF

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 When using mattes or masks before the lens for split-stage and other effects, how does one calculate the distance to set the mattes from the lens?

A There is no set formula for this operation because one type of split-screen shot may call for a soft blend at the matte edge (or where the two exposures join together) while another will require a fairly sharp matte edge. The closer the matte or mask is to the camera lens, the softer will be the line or lines of demarcation; the farther away it is, the sharper it will be. Using a small lens opening will also sharpen the line.

Q I am interested in learning of a manufacturer of a C mount compact zoom lens with an anamorphic attachment mounted in the rear of the lens. The focus of the zoom lens should be in the rear so that the front elements do not revolve, thus altering the position of the anamorphic element. I have tried using the anamorphic mounted on the front by means of support brackets but this creates more problems than it solves.

A We know of no maker of a zoom lens with an anamorphic element mounted in the rear that performs with success. Despite the problems, you are advised to stay with the anamorphic attachment mounted on support brackets in front of your prime lens.

Q Why do the film laboratories which make anamorphic 16mm feature films from anamorphic 35mm feature films cut off part of the top and bottom of each and every frame? Proof that this is done can be evidenced by comparing scenes from a "regular" print with the same scenes from an anamorphic print of the same movie. My solution, and one in which I can see no reason for film laboratories being unable to carry out, is to reduce the 35mm print more than has been the case in the past so that the 16mm anamorphic print has its height rather than the width conforming to the 35mm anamorphic print. The resulting 16mm anamorphic print would have the same aspect ratio as the original 35mm anamorphic print with a little black line as masking on both the left and right side of each frame.

A The CinemaScope aperture is .868 inches by .735 inches on 35mm film. This equals a ratio of ~~1.37~~ 1.16. It is, therefore, as you indicate, impossible to make a direct reduction of the anamorphic image of 35mm.

The Academy aperture is .868 by .631. This is a ratio of 1.38. Production reduction printers are set for reducing the Academy aperture to the similarly proportioned 16mm aperture. Thus, reduction printers, as built, produce a negative or print in which the width of the 16mm image conforms to that of the 35mm anamorphic image. This necessarily loses a little from the top and bottom of the negative frame. Practically all modern reduction printers cannot be changed to include the height of the negative image and to produce a print with black lines on both sides of the frame. In addition to the change in aperture, the printer would have to be refocused for a different reduction ratio. Moreover, the people who order the prints would strenuously object to the presence of black lines on either side of the picture. Everyone in the film distribution business seems to be satisfied that the loss of image from top and bottom is inconsequential. ■

"On *American Enterprise*, TVC gave us beautiful dailies. Then they gave us beautiful prints—7,000 of them."

"The incredible story of *American Enterprise*—from an idea to the most widely-seen educational film series ever—began in the spring of 1975, when we presented Phillips Petroleum Company with an idea and a challenge: to tell the story of how this nation evolved from an underdeveloped country to the economic marvel it is today.

"A series of five films was proposed. And, since America's economic 'sets' were still largely in place—the mills of New England, the canals, the railroads, etc.—why not crisscross the country and use them?

"Phillips accepted the challenge, and *American Enterprise* was born.

"For seven months our crews travelled more than 100,000 miles to 104 locations in 31 states. We had only one day per location.

"Time was of the essence. We needed a stock and a lab we could count on, both of which had to be fast.

"Our choices were 7247 and TVC. Throughout the job TVC gave us beautiful dailies . . . then they picked up where they left off and gave us beautiful release prints—a total of 7,000 of them.

"Starting in September *American Enterprise* will be seen by a million school children a month—the first time this magic number has been reached! And, beginning in October, *American Enterprise* will be seen on commercial prime time TV in more than a dozen major markets.

"*American Enterprise* worked because it tapped a need. It was the right combination of ideas, talents and people at the right time. TVC was very much a part of that combination.

"Thanks, TVC."

James C. Crimmins/Executive Producer/Playback Associates, Inc.

Only tvc has Chem-Tone

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Your light-metering system should be as versatile as your camera system.

The light meter in your camera is good, but not as good as you have to be.

So Minolta has created a general-purpose meter that responds to your professional needs for accuracy, handling ease and versatility.

The Minolta Auto Meter II is equipped with a sensitive silicon cell for precise readings in low light, instant response and no memory lag. Its automatic scales give you instant, direct readings of incident light. The meter head rotates 270 degrees for convenience. And it's fast and comfortable to use, with a single oversize button that you press to take the reading, release to hold the numbers.

The system.

But the Auto Meter II is more than a meter. It's a complete system that allows you to approach any job with confidence.

Spot and incident readings.

You can replace the incident light dome with a 10° spot attachment* It comes with an optical finder to insure accuracy.

For wide area reflected light readings, there is an attachment* that has a 40° angle of acceptance.

Close-ups, too.

A miniature incident dome at the end of a flexible cable plugs into a jack on the Auto Meter II. This unique close-up probe* is useful for readings at small or hard-to-reach subjects.

Any kind of light.

Four diffusers let you modify the Auto Meter II for any kind of light. It comes with a deep-dome spherical diffuser that integrates all light illuminating the subject. A flat disc diffuser* permits measurement in conjunction with an EV/Lux/Foot-Candle table on the back of the meter. And two neutral density domes* reduce intensity in varying degree to permit readings from extraordinarily bright and/or close light sources.

Enlarger readings.

By bayoneting an attachment* onto the receptor head in place of the incident dome, you can use the Auto Meter II as a spot-reading, on-easel enlarging meter.

The vital statistics.

Film speed range: ASA 6 to 25,000

Exposure time range: 1/8000th sec. to 2 hrs.

F/stop range: f/1.0 to f/90

Cine scale: 8 to 128 f.p.s.

Measuring range in incident mode at ASA 100: −4 EV to + 17 EV

Measuring range in spot mode at ASA 100: −1 EV to + 20 EV

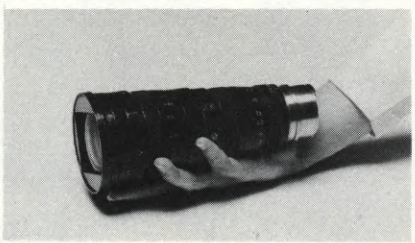
In addition to the Auto Meter II, Minolta makes a wide range of professional meters. They include 1° spot meters, and meters for flash and color temperature measurement. For information, see your Minolta dealer or write Minolta Corporation, 101 Williams Drive, Ramsey, N.J. 07446. In Canada: Minolta Camera (Canada) Inc., Ontario.

*Optional at extra cost.

What you get from the world's highest quality 16mm zoom lens, Taylor Hobson's Cooke Varo-Kinetal

☆ **100 line pairs per mm.**
☆ **Minimum object distance 450mm from the film plane (230mm from the front glass).**
☆ **60° widest horizontal angle.**

So the Cooke Varo-Kinetal takes 16mm cinematography into the big league. Its amazingly high resolution is designed to match the modulation transfer function of the Kodak E.K. 7247 film emulsion. Means you can even blow up 16mm film to 35mm format and still get high quality results.



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CINEMA WORKSHOP

By ANTON WILSON

OPTICS II

There are basically seven types of aberrations that prevent a lens from forming a "perfect" image. These aberrations each distort or impair the image quality in a specific way. The challenge for the lens designer is to minimize or eliminate such aberrations. This process is quite complex, as correcting one type of aberration may aggravate another. As each aberration is corrected, the lens grows in both complexity and cost. A high-quality, fixed-focal-length lens may have as many as a dozen lens elements arranged in various groups.

While a cameraman is not expected to be a lens designer, the ability to identify lens problems could prove quite helpful. Last time we looked at longitudinal chromatic aberration. Here we will consider lateral color aberration. It should be made clear that these are two distinct and very different aberrations. Although both phenomena come under the heading of "chromatic aberration", the qualification: *longitudinal* or *lateral,* should always be included.

A previously discussed, longitudinal color results from a shift in back focus distance as a function of wave length (color). This causes various colors to come into focus on different image planes. On the other hand, lateral color is caused by a shift in *focal length* as a function of wave length (color). As a result, images of different colors may lie in the same focal plane, but will have *different magnifications.* Lateral color is sometimes called *chromatic difference of magnification,* which is a more descriptive label.

FIGURE 1 tells the entire story most graphically. An image with both red and blue components is focused on the film plane. Note that both colors do focus on the same focal plane, indicating that longitudinal color has been fully corrected. However, the focal lengths of the two colors are different. Because of an optical phenomenon, the lens exhibits a longer focal length for red. In the example it is obvious that f_R' is longer than f_B'. If an oblique principal ray is analyzed, it becomes apparent that the image height for the reds (H_R') will be greater than that for the blues (H_B').

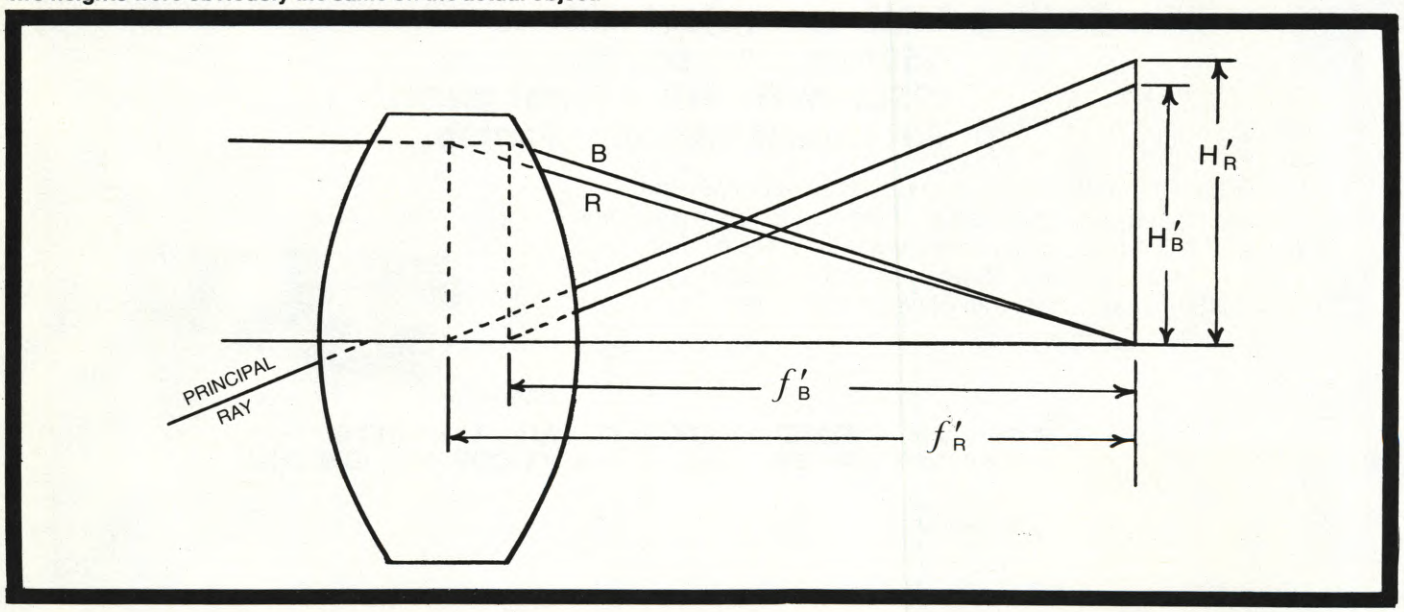
Quite simply, if an object is comprised of red and blue components, it will form two images on the same focal plane: a smaller blue image and a larger red one. This phenomenon is visible as color fringing. The effect is most noticeable off axis, as the amount of fringing is directly proportional to the distance from the center of the lens.

Even a small amount of lateral color is quite apparent and objectionable. The lens designer places far greater importance on correcting lateral color. In practice, the tolerances for lateral color are 10 times more stringent than those for longitudinal correction.

An image suffering from longitudinal color will exhibit color fringing across the entire image area. Moreover, the "quality" of this fringing can be altered by slight adjustments of critical focus (not improved, but merely altered). This is most apparent in a collimator. Lateral color will also be exhibited as color fringing. However, it will be most blatant at the periphery of the frame with very little occurring in the center. It can not be altered with an adjustment of focus, and it will be more noticeable on lines perpendicular to radii.

Correcting for color aberrations is only part of the story. Next we will consider some non-color associated distortions. ■

FIGURE 1 — The lens appears to have a longer focal length for red than for blue. This phenomenon results in lateral chromatic aberration, which causes greater magnification of the long wave lengths (reds) and less magnification of the short ones (blues). Thus, different colors will be magnified by different amounts, resulting in color fringing off axis. In this example, note that the focal length for red fR′ is greater than that for the blue fB′. An oblique principal ray will thus yield a greater image height for the red HR′ than for blue HB′, even though the two heights were obviously the same on the actual object.



CP-16R

The ideal production camera for industrial films.

(Above) Filming the loading of a giant pump. VanDerKloot used a special dust cover to protect his magazine from the burning dust of the iron pours. Freelancer VanDerKloot has worked on a variety of projects for many companies, including IBM and Newsweek Broadcasting Service among others.

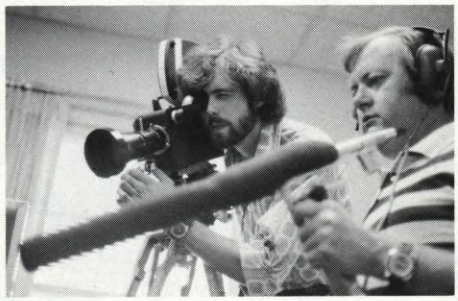
Atlanta, Georgia, a major cultural and industrial center in the emerging new South, is rapidly becoming an important film production center, attracting feature and commercial production companies as well as independent filmmakers.

"A sponsored industrial film, by its very nature, combines various aspects of different film forms: the commercial, the instructional film, the news feature and the documentary," says freelance filmmaker William VanDerKloot of Atlanta. "In addition, each 'industrial' comes complete with its own unique set of problems."

The industrial film *"Performance: the GIW Story"* — produced and shot by VanDerKloot for GIW Industries of Augusta, Georgia — was no exception.

"GIW Industries manufactures large industrial slurry pumps which are used in dredging and mining operations. The largest of these weigh well over 15 tons," says VanDerKloot. "Not exactly the sort of product a salesman can take along in his briefcase.

"Shooting within their steel plant outside Augusta was a veritable 'photographer's nightmare.' The plant was basically one giant room, with a mixture of various light sources: tungsten, fluorescent, sodium vapor, mercury vapor, and some daylight filtering through small skylights and large doors.



VanDerKloot and soundman Patterson shooting a sequence in GIW's computer room. "The CP-16R was quiet enough even in the tightest office areas so that we never had to blimp it," says VanDerKloot.

"The average illumination level was between 8-16 footcandles. Moreover, their manufacturing equipment occupied much too large a space to light properly within the film's time and budget restrictions. Besides, heavy use of lighting equipment would have drastically intruded on the workers' normal environment, something we wanted to prevent.

"To make matters worse, many of the processes we were to film were almost impossible to schedule accurately, and most were essentially non-repeatable; which meant that we would have to hustle in order to cover enough angles on film. Our equipment and filming methods had to be as flexible as possible, without sacrificing on-screen quality.

"I was certainly glad to have my CP-16R/A with semi-automatic exposure control and Angenieux 10-150mm zoom lens on this assignment. Recording double system was soundman David Patterson with a Nagra and a Sennheiser shotgun mike.

"The CP-16R was quiet enough even in the tightest office areas so that we never had to blimp it. And the built-in exposure control was especially helpful during the iron pours and helicopter shots. Throughout the shoot, I used it in conjunction with my incident meter as a *spot meter* to double check my readings.

"The Angenieux 10-150mm allowed me great freedom over framing, and worked well in low-light situations. Though we shot indoors mostly with available light, we got excellent results with TVC's Chem-Tone process and pushing the 7247 color negative two stops (to ASA 500).

"Our filming environments ranged from a cool computer room to the humid climate of the central Florida phosphate fields (where GIW pumps were at work), to the burning dust of the iron pours. During this time, over 7000 feet of 7247 color negative ran through the camera — all without a jam or a single scratch on the emulsion.

"The client was very pleased with the results, and so was I. Once again my CP-16R has proven itself an enormously versatile *production camera:* silent, reliable, and easily adaptable to a myriad of difficult filming situations."

CP-16R/A with Angenieux 10-150mm zoom.

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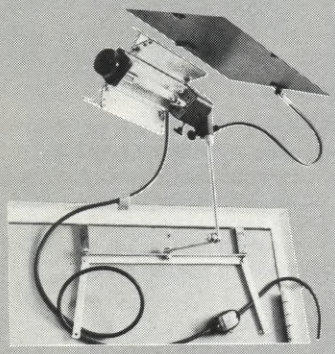
Location lighting's not what it used to be.



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 applications 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.

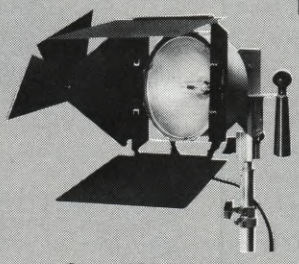
Modular Link System. Solves grip and control problems as they occur on location. Rugged, lightweight components interlock to form flags, booms, diffusers...dozens of other rigs. Outstanding stands: with unusually high strength-to-weight ratios.

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.

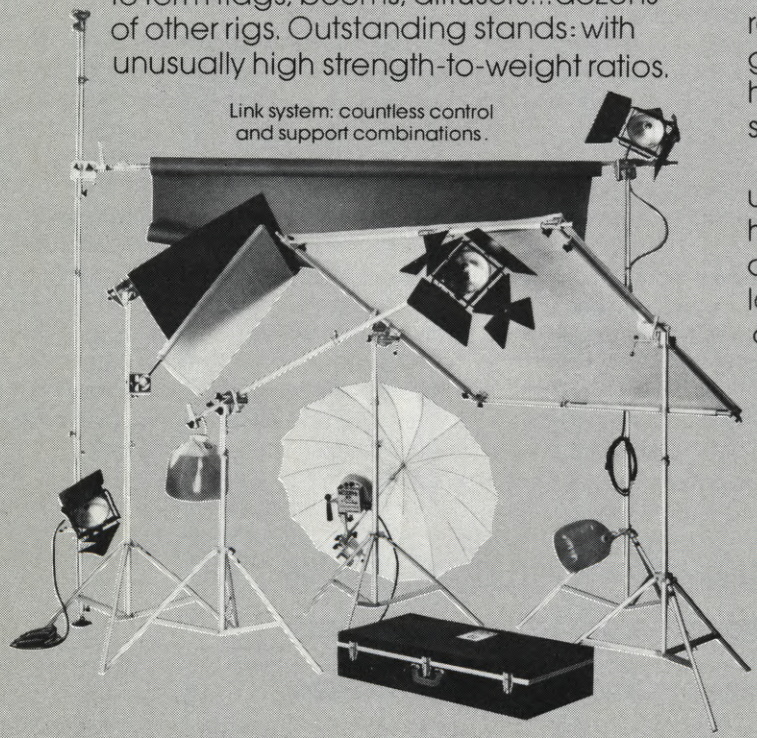
Softlight 1500: the large, soft-shadow source that fits in a small case.

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.



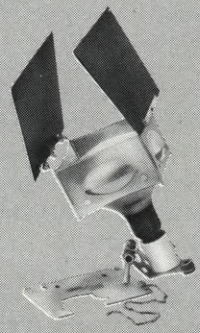
Quartz "D": 7-1 focusing plus high intensity.

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



Link system: countless control and support combinations.

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.

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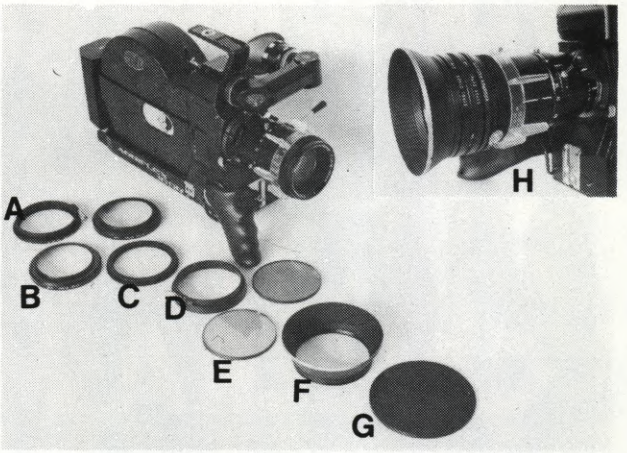
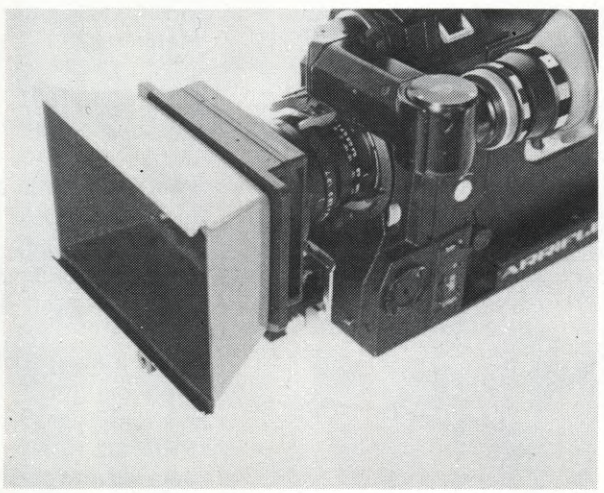
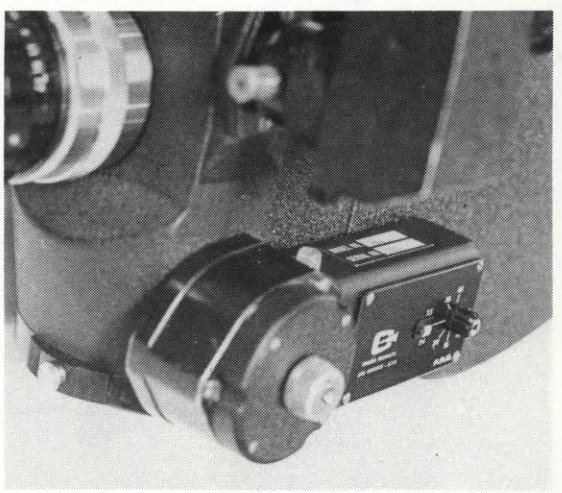


Arri 16 SR with Zeiss 10:100mm T3.1 zoom lens. **A.** diopter adaptor ring **B.** Nos 1&2 diopters **C.** diopter combination ring. **D.** filter adaptor ring **E.** 85&85B filters **F.** sunshade **G.** lens cap **H.** all accessories fitted



Zeiss Distagon lens with sunshade and two stage matte box on an Arri 16 SR camera. Adaptors for Arri 16 BL, ST, Aaton, Eclair NPR and ACL cameras are also supplied.



Eclair ACL with 400' magazine, and CP motor fitted.

We always take pride in supplying equipment which surpasses that which can be obtained elsewhere -- our 16mm equipment is no exception.

For instance, the Arri 16SR camera fitted with a Zeiss 10-100mm zoom lens is no rarity, but only from Samuelsons does it come complete with the ability to shoot close-ups, a choice of Wratten 85 filters and a screw-on circular sun-shade.

The Zeiss Distagon lenses are another case. We are able to supply them mounted to fit not only the Arriflex 16SR, BL and St models but Aaton and Eclair NPR and ACL cameras as well, COMPLETE WITH A SUNSHADE AND MATTE BOX which fits any of these cameras and which takes two filters, including one with revolving and sliding facilities, an essential requirement for the creative cinematographer.

Our Aaton cameras can all be equipped with TV viewfinders with which we supply a small battery powered portable TV monitor which the director can view while he follows the cameraman. In addition we can also supply a Sony Rover VTR for instant play-back.

Our Eclair ACL's have all been up-dated by the addition of a more powerful motor which provides 24/25 fps crystal speed and 8-48 fps variable speed.

All this, plus our 24-hour 7-day-a-week service and our back-up makes using Samuelson's 16mm equipment a super experience.

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THE BOOKSHELF

By GEORGE L. GEORGE

FACTS AND FIGURES

Edited by Peter Cowie, WORLD FILMOGRAPHY 1967 is the first volume of what promises to be a monumental reference work dealing with global film production. Full data on thousands of features from 45 alphabetically listed countries establish this volume as an indispensable source of wide-ranging and meticulously detailed information. (Barnes $35.)

Now in its 4th year of publication, INTERNATIONAL INDEX TO FILM PERIODICALS 1975 is a reliable guide to articles and essays on movies appearing in the world's 80 most important film magazines. Edited by Frances Thorpe, it covers all aspects of cinema in 9000 fully cross-indexed entries. (St. Martin's $30.)

Between 1897 and 1920, New Jersey was an important film production center, whose significant contribution is told by Paul C. Spehr in a well researched volume, THE MOVIES BEGIN. Richly illustrated and fully documented, it is a highly readable account of a historic period. (Newark Museum $13.95)

From inexpensive personal films to high budget studio-made features, HANDBOOK OF MOTION PICTURE PRODUCTION by William B. Adams is a detailed and practical guide covering all steps in movie making. (Wiley $17.95)

Papers presented at last year's conference co-sponsored by the Educational Film Library Association and International Film Seminars are collected in 16mm DISTRIBUTION. Edited by Judith Trojan and Nadine Covert, it contains a widespread array of views and valuable data on modes of non-theatrical distribution by informed professionals, educators, librarians and distributors. (EFLA $6.)

* * *

MASTERS OF THEIR CRAFTS

The features Alfred Hitchcock made in England in 1925-39 are analyzed in HITCHCOCK'S BRITISH FILMS by Prof. Maurice Yacovar, a notable addition to the study of the director's significant period of development and established mastery of psychological suspense. (Archon $17.50)

A brilliant study of the current movie scene, HOLLYWOOD RENAISSANCE

by Diane Jacobs assesses the work of directors Altman, Cassavetes, Coppola, Mazursky and Scorsese, offering an optimistic view of Hollywood's future based on artistic control by a new generation of filmmakers. (Barnes $12.)

Filmmaker and poet Jean Cocteau uses death as a predominant theme in many of his movies, a preoccupation subtly and sensitively analyzed in JEAN COCTEAU AND HIS FILMS OF ORPHIC IDENTITY by Arthur B. Evans. (Art Alliance $12.)

In KING LEAR: THE SPACE OF TRAGEDY, eminent Soviet director Grigori Kozintsev publishes his diary of the filming of Shakespeare's play, an illuminating document on the thought processes, his recollection of early days of Soviet cinema and the actual problems of shooting. (U. of California Press $14.95)

Perceptively edited by Dorothy Gardiner and Kathrine Sorley Walker, RAYMOND CHANDLER SPEAKING assembles letters of the late scriptwriter/novelist that reveal the many-sided personality of the creator of detective Philip Marlowe. (Houghton Mifflin $5.95)

David Denby has put together a brilliant anthology of American film criticism (1915-76), AWAKE IN THE DARK. From Vachel Lindsay and Gilbert Seldes to Andrew Sarris, John Simon and Pauline Kael, the film scene is evaluated in its complex contribution to society's changing tastes. (Random House $4.95)

Rex Reed's abrasive and often witty pen is at its sharpest in VALENTINES AND VITRIOL, a collection of his newspaper interviews with three categories of film stars, "goddesses, heroes and survivors". (Delacorte $8.95)

Tracing the career of a brilliant director, Maurice Zolotow gives us BILLY WILDER IN HOLLYWOOD, a vivid, frank and entertaining biography of a highly creative and dynamic personality. (Putnam $10.)

In RICHARD AND ELIZABETH, writers Lester David and Jhan Robbins draw a colorful portrait of the Burtons, their courtship, marriage, clashes and eventual divorce, a bigger-than-life tale of two highly charged egos. (Funk & Wagnalls $8.95)

A captivating biography by Anne Edwards, VIVIEN LEIGH is a sensitive and intimate portrait of the late star, a moving memorial to a talented actress. (Simon & Schuster $9.95)

In a welcome switch from biographies of top name performers, Jim Connors writes about a Hollywood "starlet" in THE CAREER OF BARBARA LAWRENCE, a typical story of a capable performer who never made it in the big leagues. (SLP Publ. $11.95)

In THE MAGICIAN OF SUNSET BOULEVARD, Frederick Kohner recounts the career of his brother, the well known talent agent Paul Kohner, an improbable but authentic tale of inside politics in the movie colony. (Morgan Press $10.)

With remarkably good taste and understatement, befitting the daughter of an English peer, Elizabeth Harrison, Rex's third wife, tells it all in her candid memoir, LOVE, HONOR AND DISMAY. (Doubleday $7.95)

* * *

VIDEO VARIETIES

Television's affinity for science-fiction, from *Captain Video* to *Star Trek* and beyond, is imaginatively displayed in FANTASTIC TELEVISION, where Gary Gerani and Paul H. Schulman survey 190 of the most successful U.S. and British examples of the genre. (Crown $12.95/5.95)

An excellent selection of film/television sci-fi shows is described and illustrated in Jeff Rovin's exciting study, FROM JULES VERNE TO STAR TREK. (Drake $5.95)

Richard Meyers' TV SUPERSTARS is an attractive book that will delight fans of *Baretta, The Bionic Woman, Laverne and Shirley, Charlie's Angels* et al. with exclusive details about their favorite players. (Drake $6.95)

A marked help to your selection of video fare, DAYTIME TV 1977 by Jason Bonderoff also offers inside glimpses into top performers' private lives. (Manor $1.50)

A compelling biography, SARNOFF: AN AMERICAN SUCCESS by Carl Dreher relates the visionary and inspiring life of the man who practically single-handedly established the basis of the U.S. broadcasting industry. (Quadrangle $12.50)

Using quotations from *All in the Family* and a perceptive evaluation of the character of Archie Bunker's wife, Spencer Marsh's EDITH THE GOOD draws homelitic lessons for a purposeful life. Harper & Row $2.95) ■

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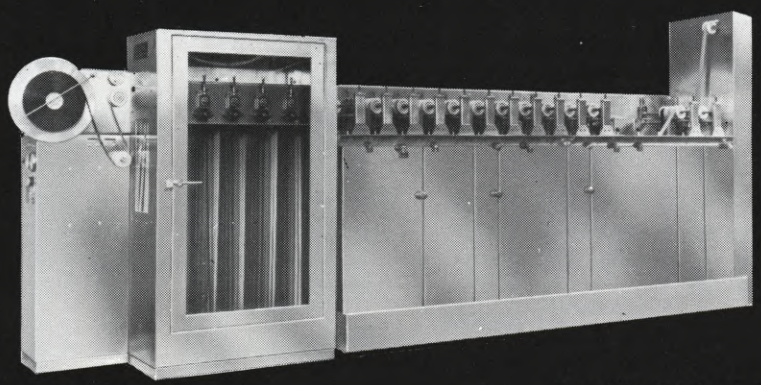
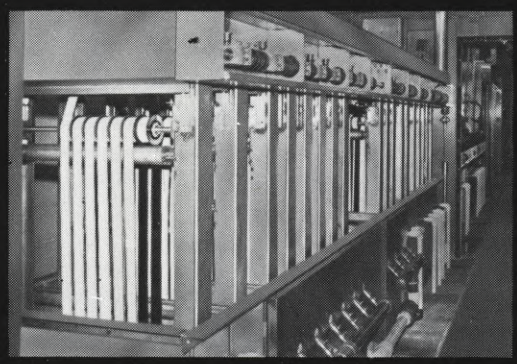


Typical medium size Filmline processor available in speeds from 7-200, f.p.m.



One of five 320 f.p.m. Filmline Color processors installed at Technicolor, Hollywood, California.

Micro-Demand is a patented exclusively different concept in demand drive film transport systems.

Micro-Demand is a dynamically tension-controlled friction film transport system that operates effectively at minimum tension and with complete reliability. When used with Filmline Feather-Touch film spool "tires" it transports 35mm, 16mm and single strand 8mm film interchangeably and without adjustments even when these films are spliced back-to-back.

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PROFILE: A.S.C.

By JOHN ORMOND

LEONARD SOUTH, A.S.C.

Within a four-week period earlier this year, Leonard South won elections as a governor of the American Society of Cinematographers and as special governor of the Academy of Motion Picture Arts and Sciences.

It's a measure of the respect held for South by his peers in the film and television world. They admire the work — and the integrity — of the cinematographer who became known in the industry as "Hitch's man."

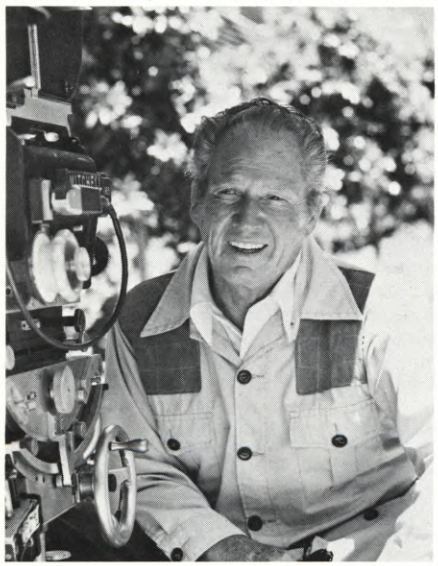
Over a 25-year span, he has photographed most of Alfred Hitchcock's movies, either as director of photography, assistant cameraman or camera operator.

This transpired through a prior association with noted Hollywood cinematographer Robert (Bob) Burks, who he worked with in the late 1940s at Warners' special effects camera department.

"You'd have to say that Bob Burks and Alfred Hitchcock have been the guiding lights in my entire career," the tanned, relaxed-looking South told me in an interview. "Without either one of them, things might have been very different."

Burks (who died in 1968) won an assignment in 1950 as director of photography on a Jane Wyman film, "A KISS IN THE DARK", which Delmer Daves directed. Burks took South with him, as his camera assistant.

Two years later, again at Warners, the camera twosome of Burks and South went to work on their first Hitchcock movie, "STRANGERS ON A TRAIN".



"We both worked so well with Hitch, that he used us on practically all of his pictures after that," recalled South.

The lens firm of Burks and South photographed "DIAL M FOR MURDER", "REAR WINDOW", "NORTH BY NORTHWEST", and "TO CATCH A THIEF". On the latter picture, South won promotion to camera operator.

"We did every one of Hitch's movies during that period, except 'PSYCHO'," he recalled.

During this time, Len also worked as operator on two Clark Gable films, for the Perlberg-Seaton company.

Understandably, South regards Hitchcock as a moviemaker par excellence. "He's one of the most amazing men in the industry," he told me. "Hitchcock is that rare combination — a fine technician and a great creative artist. He's one of the few directors in the world today who really understands the camera."

Not all of Len South's film work was devoted to the Hitchcock movies, though. In addition to the Gable films, South also worked with Burks on Billy Wilder's "SPIRIT OF ST. LOUIS", starring James Stewart as Lindbergh. And he operated for cinematographer Philip Lathrop on the Norman Jewison picture, "CINCINNATI KID".

Despite this formidable list of credits, Len South still hadn't become a director of photography. This was principally due, he reminisced, to the fact that the "old firm" of Burks & South had fared so well, he was quite content to keep it that way.

One day, though, an old friend, cinematographer Richard Kline, took him aside.

"It's about time you became a first cameraman," said Kline. "And I'd like to see it happen right now."

Kline convinced his friend to tackle a television series, "T.H.E. CAT", starring Robert Loggia. South took over as first cameraman, and supervised photography of half the series. But he wasn't happy on the show, and departed to MGM for another series, "PLEASE DON'T EAT THE DAISES".

His first feature assignment as cinematographer was "HANG 'EM HIGH", a Clint Eastwood western filmed on location in New Mexico and at MGM for United Artists. That was in 1967.

Still more recently, he photographed the Marlo Thomas TV series, "THAT GIRL", for three years. And he did a two-year stint as cameraman for Stan Freberg TV commercials. "That was enjoyable," said Len. "Freberg was such a creative guy."

He additionally photographed a string of MOWs (Movies of the Week) at Universal, Paramount, Warners and MGM between 1972 and 1974.

In 1975, he was called back by his favorite director to be director of photography on Hitchcock's "THE FAMILY PLOT". His camera work won high critical praise, though the picture fared moderately at the box office.

Last year, Leonard South moved his activities to the Walt Disney studios, where he photographed two television films then a feature, "HERBIE GOES TO MONTE CARLO".

In 1977, he's been adding to his impressive list of MOWs at CBS in Hollywood, and is expecting to add another Hitchcock thriller to his record late this year.

Between shows, Len spends almost all of his time in and around his two-story home at Corona Del Mar, on the Southern California coast below Newport Beach.

He has lived with his wife Bette in the Newport area for some 19 years, and wouldn't move elsewhere. The four-bedroom house is two blocks from the beach. They have a daughter, Anne Marie, aged nine.

When it comes to hobbies, though, South's first love is the sea, and he has become one of Newport's noted sailors. Len owns a 34-foot sloop, appropriately dubbed the "Southwind". He's a member of the Balboa Yacht Club and the Trans-Pacific Yacht Club.

He first started racing in the early 1940's, and he competed in the Trans-Pacific event to Honolulu in 1965. Since then, Len has owned ten different boats, and he's matched sails with America's best in six-man crew racing to Acapulco, Puerto Vallarta and Mazatlan, as well as competing in 20 Ensenada Races, the world's largest sail boat event.

Chances are, if you come by the South residence during daytime, you'll discover Len is down at Balboa Yacht Club.

"I just can't stay away from the sea, and my boat," he grinned. "Bette's very active with me in racing, so we enjoy the sport as a team."

His second hobby is cars. He's had a variety of autos, mostly of the racing type. South has owned five Porsches, for instance, but recently bought a BMW 320-I. That's partly due to the new 55-

Continued on Page 882

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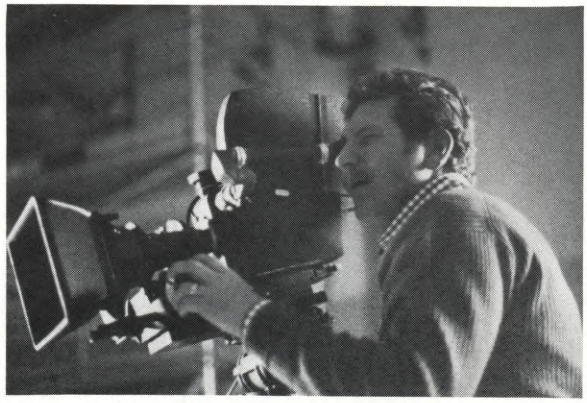

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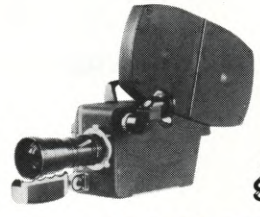

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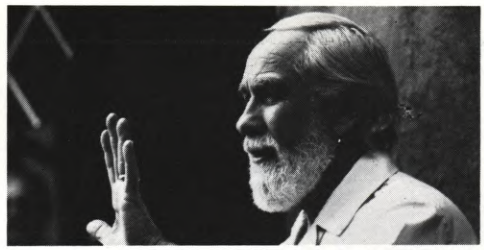
Scene from Warner Brothers Features' production of "The Heretic—Exorcist II"

"I must say that the important factor in using Rosco material was the consistency of the material from order to order. We used several thousand feet of Rosco material and it performed." —William A. Fraker, A.S.C.



William A. Fraker, A.S.C.,
Director of Photography

...and then Fraker created the sun.

After three days of experimenting, William A. Fraker, A.S.C., Director of Photography literally created the sun for this scene in "The Heretic—Exorcist II." Using Rosco Dark Amber, a ten foot sun-spot reflector and a 10K quartz light, he achieved just the effect he wanted.

Bill Fraker and his gaffer, Doug Pentek, created some very special lighting techniques for this set. "I used double MT2 on the backing and the village and MT2 on Richard Burton," says Bill. "The final effect on this shot has to be one of my favorites. I must say that the important factor in using Rosco material was the consistency of the material from order to order. We used several thousand feet of Rosco material and it performed."

In a recent interview in American Cinematographer, Bill is quoted as saying, "Film-making is a tremendous team effort." Rosco is proud to be part of the cinematographer's team, contributing our part to the success of a major motion picture. Rosco is here to serve the cinematographer and help meet his challenges.

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THE PHOTOGRAPHY OF EXORCIST II THE HERETIC

Location filming in New York and Arizona, plus the re-creation of a vast hunk of Ethiopian desert on a studio sound stage, add up to a series of stunning stylized images for this sequel to "THE EXORCIST"

All motion pictures, by definition, rely heavily upon cinematography for their impact. The cinema was exclusively a visual medium long before it found its voice — and it remains *primarily* visual, despite all the wondrous innovations of stereophonic, quadraphonic, quintaphonic and Dolby sound. However, there are a certain few films which depend to an extraordinary degree upon cinematography for viewer impact. Just such a film is "EXORCIST II: THE HERETIC".

In realizing the stunning images requisite to bringing this story to the screen, Director of Photography William Fraker, ASC, no stranger to the creation of horrifying visual mood ("ROSEMARY'S BABY"), found his artistry and technical skill challenged far beyond any demand to date. In the following interview for *American Cinematographer,* he goes into detail about some of the innovative techniques used on "EXORCIST II: THE HERETIC" and explains why he considers it the most difficult film he's ever done:

QUESTION: Would you begin by telling me some of the problems you faced in photographing "EXORCIST II: THE HERETIC", and how you went about coping with them?

FRAKER: There were so many facets to "THE HERETIC" that when you talk about the photography that's just one of 25 areas you might discuss. It was a huge, huge picture and probably the toughest picture, physically, that I've ever done in my life. For example, re-creating the Ethiopian desert on Stage 16 at The Burbank Studios. How do you do that?

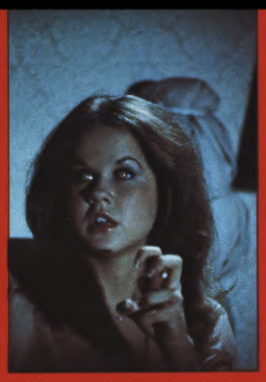
QUESTION: Isn't it true that originally the picture was scheduled to be shot mainly on distant locations?

FRAKER: Yes, we were going to go to North Africa, Italy, Washington, D.C., Georgetown, the Arizona desert and then Hollywood. It sounded like a very exciting project, because we would be going all over the world to shoot it. We had to film the Ethiopian rock churches, those churches that are built on top of rock spires 300 to 400 feet in the air. We could get into Ethiopia alright, but the State Department couldn't guarantee us any way out. So the decision was made to shoot in the studio, and instead of globe-trotting, we eventually went only to New York City for two weeks and Page, Arizona, for a week. Everything else was shot on a sound stage in Hollywood. The director, John Boorman, asked all of us if we thought we could do the picture on a stage, and it became such a challenge that we all accepted it and said, "Let's go. Let's try to do it." It was difficult, but I think we did it. Everybody seems to be happy with the results.

QUESTION: Could you be a bit more specific about the problems of shooting vast outdoor areas indoors?

FRAKER: It was rather exciting, trying to shoot a basically exterior picture on the stage. It was a tremendous undertaking. People ask, "How do you shoot the Ethiopian desert on a stage?" I say, "The only way I know how to do it is the way I do it outside — by stopping down to f/8 or f/11." Of course, in order to be able to stop down that far, you must have enough light to allow you to do it. That means that instead of 20 arcs, you end up with 123 arcs — which is what we used on the stage. Okay — now, how do you put up 123 arcs and have 100 people on the set and only cast one shadow? It breaks down to taking eight hours to light one shot. That's the kind of stuff we did. Steve Spielberg was shooting "CLOSE ENCOUNTERS OF THE THIRD KIND" at the same time and, between the two of us, I think we had every arc in Hollywood. Especially the Titans; they were all gone.

(LEFT) In a trance, imposed by uncontrolled forces of evil, Linda Blair as Regan in John Boorman's film, "EXORCIST II: THE HERETIC" teeters on the edge of a New York highrise. The Richard Lederer Production for Warner Bros. also stars Richard Burton, Louise Fletcher and Max von Sydow. (RIGHT) Director of Photography William Fraker, ASC, takes a meter reading on a studio set representing an Ethiopian rock church, as Richard Burton observes.

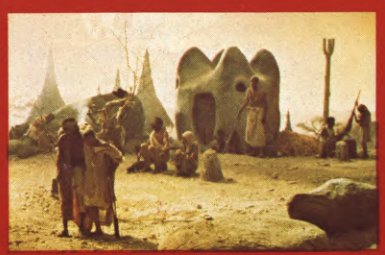






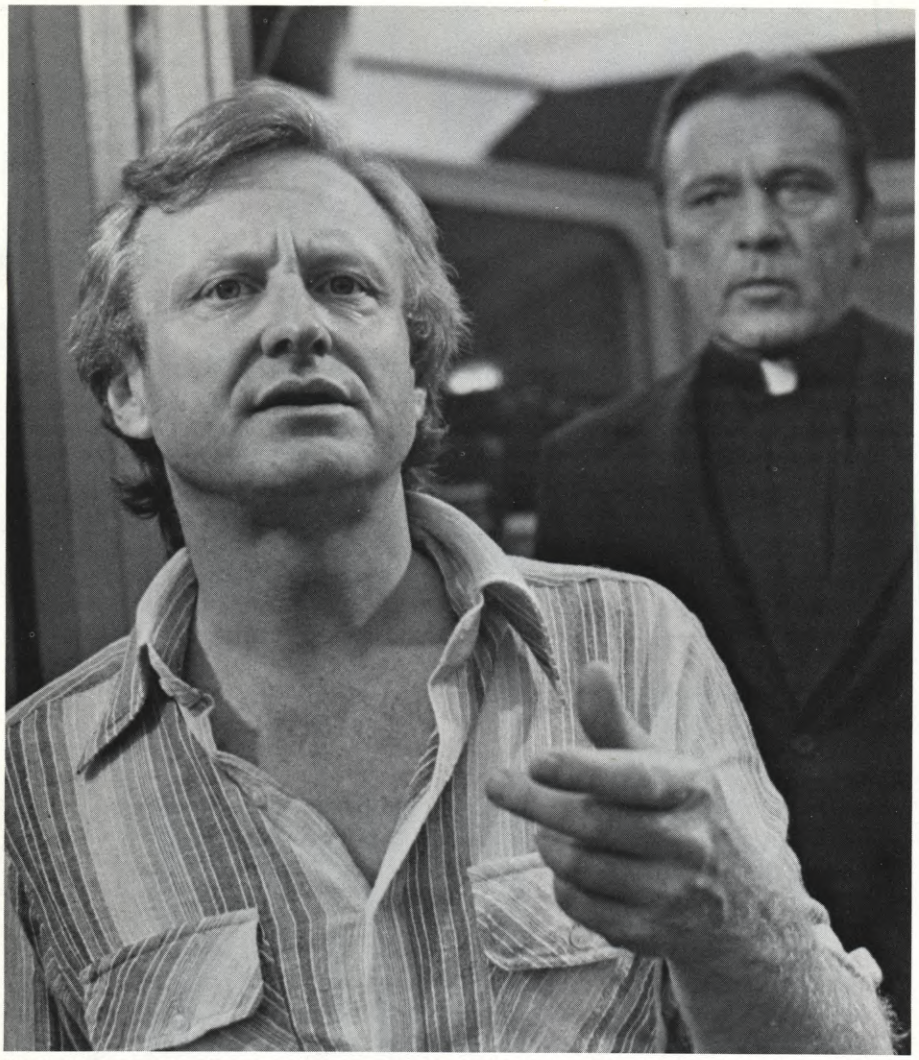








A sampling of images from "EXORCIST II: THE HERETIC" provides examples of the stylized visual approach to the production which Cinematographer Fraker describes as "theatrical, yet realistic". A daring gamble from the standpoint of audience credibility, the approach works well in establishing mood and enhancing dramatic impact.



(ABOVE) John Boorman, shown here on the set with Richard Burton in the background, functioned as producer-director of "EXORCIST II" and his stamp is evident on the entire production. Best known for his direction of "DELIVERANCE", Boorman is an imaginative iconoclast who is not afraid to take chances. (BELOW) Cast and crew prepare to film a tense sequence on the terrace outside the 34th floor penthouse atop the Warner Communications building in New York

QUESTION: How successful do you feel you were in making this stage-enclosed desert look real on the screen?

FRAKER: We're very happy with the effect we got. It's a very theatrical effect, but, at the same time, it's very realistic. John and I, in our discussions, had agreed that the more we could give the picture a definite style — and still stay within the area of realism — the better we could achieve what we set out to do, and I think we have.

QUESTION: I can't quite reconcile the terms "theatrical, yet realistic", as you've used them. Could you explain that in a bit more detail?

FRAKER: If you set out to copy nature in some fashion that isn't real, then you have to do something that is almost impossible to do. So, when I say "theatrical, yet realistic", I'm talking about stylizing a look that is basically believable, so that you accept it as real, while knowing that it's phenomenal. Speaking of the visual look, I think motion pictures should be done theatrically. I think that when you see moonlight coming through windows, it should be a theatrical-looking moonlight. I think it should be bluish; it should be different. The people who are making television films today are doing a fantastic job of achieving realism, considering the amount of time and budget they have to work with. Now, why should people leave their homes and go to a theater if they are going to see the same thing on the theater screen? That's what I'm talking about when I say that you theatricalize a look to make it a little different from what they are going to see on the tube at home — something to help pull them out of their homes and into the theater.

QUESTION: In terms of practical mechanics, how was that achieved in "EXORCIST II"?

FRAKER: We changed the colors on the backings so that they would be a little theatrical. For example, if a soft, pale yellow were called for, we would bring it up a little brighter. We used orange for sunrises and sunsets and black horizon lines and a lot of smoke and dust and a lot of color filters on the arcs. When an effect began to look very realistic, we would move it out beyond almost anything you have ever seen before. I'm not saying that what we did was revolutionary, but the look is just a bit different. The colors are just a little different. The result is due to a combination of what we put in front of the lens

and also what we did with gels on the arcs and 10Ks.

QUESTION: How were you able to stabilize this type of theatricality in terms of what was expected from the laboratory?

FRAKER: The backings were tested and painted a certain color so that the light would reproduce on them the way we wanted it to visually. This became a kind of constant for us. At the same time, we established a printing light at Technicolor and we never varied that printing light. The objective was also to maintain that same printing light when they got to making the CRIs.

QUESTION: Working on the edge of credibility in this way, so to speak, how did you feel when you saw the dailies?

FRAKER: Some dailies looked terrific, and others made us feel like we wanted to commit suicide. We did a lot of retakes. John Boorman was adamant about what it should look like, and if it didn't, he'd say, "Billy, reshoot." And I would, but it was very expensive to do. It also involved a lot of persistence and a willingness to keep trying for a desired effect. For example, we got incredible shots from the 34th floor of the Warner Communications building in New York City by sticking a camera and operator out over the edge and zooming in toward the windows to pick up Linda Blair. Everybody said we couldn't do it and that we wouldn't be allowed to do it, but we did it anyway. We got phenomenal shots of sunsets and sunrises at just the right moment. We would look at a shot and then go back and do it again when we did miss. At Madison Avenue and Fifth Avenue, right around Rockefeller Plaza, we stopped traffic at five in the afternoon. It was horrendous. But John is like that. He's a fantastic man and really knows what he wants. He has exquisite taste and is very, very demanding of everyone — not just me, but everyone right down the line, including himself. The actors — Richard Burton, Louise Fletcher and Linda Blair — were magnificent. They got into the project and really felt that they were accomplishing something. We were all extending ourselves, exceeding our limitations, trying to do something that we had never done before.

QUESTION: Obviously, in order to make this desert-on-the-stage set work, you would have had to establish unusually close rapport with the production designer. Could you tell m

(ABOVE) Daredevil camera operator hangs precariously in space off the edge of the 34th-floor of the Warner Communications Building in New York City to film a point-of-view shot for "EXORCIST II". (BELOW) In sharp contrast to the concrete canyons of New York is this canyon location near Page, Arizona, selected for its close resemblance to the Ethiopian desert, portions of which were re-created for the film on Burbank Studios sound stages.

Using a viewfinder, Director Boorman selects a camera angle. Part of what attracted him to this project was the fact that he considered it "an almost impossible cinematic challenge."

a bit about that?

FRAKER: Richard MacDonald, the production designer, is a phenomenal man with a marvelous mind. He worked very closely with us. There were hours of discussions about how we were going to accomplish certain shots. For example, there's a sequence in which one of the Ethiopian monks, climbing to one of those rock churches 400 feet in the air, slips and falls all the way to the bottom. How do you do that on a stage? We set the rocks up sideways, using the whole length of the stage. Then we turned the camera, wired the man on a pulley overhead and "flew" him through sideways, with a blue screen down at the bottom. There was another sequence in which a man uses two rock spires, pushing between them with his back and legs in order to inch his way up to the church on top. We photographed almost all of that on the stage, then shot the bottom of the formation in Utah and tried to match the light. You do it with filters in front of the lens; you do it with arc lights; you do it with a lot of dust.

QUESTION: What about those churches on top of the spires? Were they all paintings?

FRAKER: All paintings and carvings. Richard MacDonald re-created those churches magnificently in the studio. It's very exciting footage. The picture has tremendous scope, because it starts in Buenos Aires and Ethiopia, then goes to Rome (the Vatican) then to Washington, Georgetown and New York City.

QUESTION: And the only major location trips were to New York and Arizona?

FRAKER: New York and Page, Arizona. We were trying to find a canyon that looked like the one in Ethiopia where the churches are located. So John James, the location manager, and I flew up to Las Vegas, rented a car and were gone for five days. We hit all of Monument Valley, Zion National Park, everything. We spent five days moving and covered what seemed like 7,000 miles. We just drove and drove and drove and finally found this one area that looked right. We became very excited over it and brought back the pictures to John Boorman. The next week we all went up, and that was it. The location really worked. It was something of a coup, because we could fly to the location and start to work that same day. It was just an hour-and-a-half trip.

QUESTION: What were the mechanics of tying that in with the material shot on the sound stage?

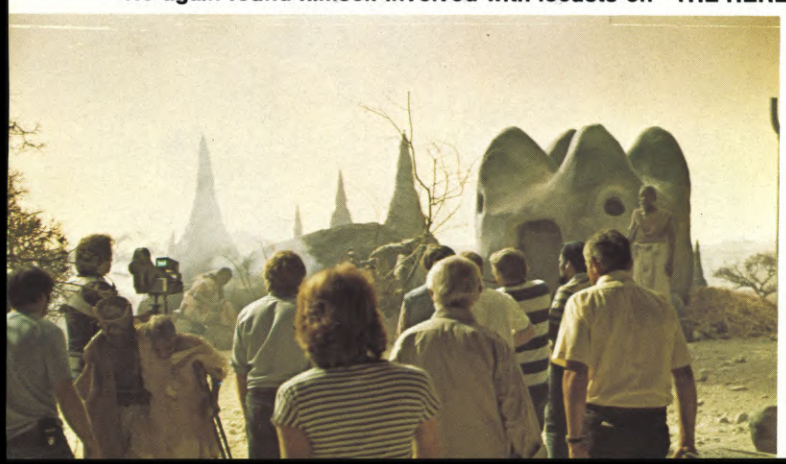
FRAKER: Once we knew we were going to use that location, Richard MacDonald designed the rest of the set (on the stage) to match it. We used all kinds of materials and devices to create our illusions — translights, backings, mirrors and a "ghost glass", which is like a 50% transmission mirror. We did complete light changes, dimming and lightning effects all in one shot. It wasn't a matter of doing this shot and then that shot; we had eight different effects working in one shot. For example, in one sequence, we start in the laboratory in New York, lose the laboratory and go to Georgetown, re-creating the exorcism from "THE EXORCIST" (but not using film from the original). We then go back to the laboratory in New York — all in one complete shot. No double-printing, no nothing. We created the whole thing. Such effects just take time, but the next day you look at the dailies and you are really gratified; it really works. All of this was John's idea. John's phenomenal — tough, but phenomenal.

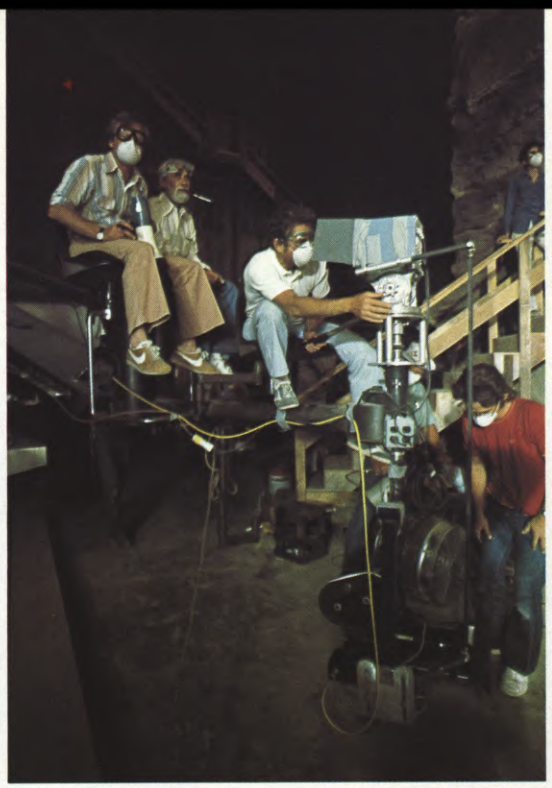
QUESTION: What part did camera movement play in this picture?

FRAKER: Most of the really creative camera movement was done with the Steadicam, as operated by Garrett Brown. In fact, the Steadicam played a very, very important part in the filming of this picture. The stuff shot with the Steadicam in "ROCKY" and " MARATHON MAN" and "BOUND FOR GLORY" was all marvelous, but I think that this is the first time that it's really been put to a directorial use that works with the story. For example, in "THE HERETIC", our demon, so to speak, is called Pazuzu and he's a demon of the air. Therefore, he moves through things and around them and so forth. John put the Steadicam to use to suggest all this

Continued overleaf

(LEFT) Authentic desert dwellings of Ethiopian tribesmen were painstakingly duplicated on Burbank Studios sound stages by Production Designer Richard MacDonald, whose previous credits included "MARATHON MAN" and "THE DAY OF THE LOCUST". He again found himself involved with locusts on "THE HERETIC". (RIGHT) Filming on the penthouse terrace in New York City.





The crew members often wore face masks to minimize effects of smoke and fumes generated on the set to create unusual special effects for the film. Studio-built sets for this production were carefully "color coordinated". John Boorman had a color key list of all the sets made, indicating that the colors to be used were black, brown, gray, cement, white, silver, yellow, amber, gold, burnt yellow, red and rust. All blues and greens (considered by Boorman to be "too comforting and reassuring") were to be eliminated.

(LEFT) Garrett Brown trails Richard Burton in an intricate follow shot, using his invention, the Steadicam, gyroscopically balanced stabilizing camera mount manufactured by Cinema Products Corporation. (RIGHT) Imaginative sets, including the complete Ethiopian village shown here, filled six sound stages at Burbank Studios. Evident in this scene is an example of the striking mood achieved by the lighting of Director of Photography William Fraker.

(LEFT) Linda Blair and Richard Burton are attacked by a storm of locusts as they revisit the bedroom in the Georgetown house where the original exorcism took place. Several thousand specially bred British locusts were imported into California for use in the film. (RIGHT) A "ghost glass mirror" shot, in which a scene from the past is superimposed over present action. The action took place on two adjacent sets, with the camera shooting through a semi-transparent mirror to record both images on the same strip of film.

movement. We have a marvelous sequence in New York in which the camera starts up high on them coming into Grand Central Station. Then it moves down and jumps aboard an Amtrac train on the way to Washington, D.C. All of this was done in one shot by Garrett Brown and it's absolutely wonderful.

QUESTION: What do you consider to be the single greatest challenge in making this picture?

FRAKER: The fact that there were so many unusual technical elements involved. It was monstrous to put together, and it was all held together by Boorman's conception of what he wanted to see, plus Richard MacDonald's skill as a production designer. He was really inventive, but he never brought up an idea for which he didn't have a solution. We made a lot of tests on this picture. Two or three times a week, at the end of the day, we would make a test. We tested transmission mirrors, rocks, blue screen, whatever — and we lived on tests. This was necessary because of the many elements involved in some of the scenes. There were a couple of times when we had so many elements going that I wanted to call Cal Tech and get them on the computer, so that they could figure out an exposure. For example, there were different mirrors with different degrees of transmission and you had to figure out how much you wanted to see through them and how much you'd have to build up the light back there to get an exposure at a normal key — then how much it would vary if you started in one place and went to another. You would have to calculate a visual effect for the demon and decide whether you wanted to be four stops overexposed or 18. Then there were all those other elements working on a 200-foot-long studio set that you were lighting as an exterior. How to handle the effects in such a set when everything starts to happen — how much you would have to bring up the foreground in order to make it all balance with the rest. All those things kept working all the time. We had so much working in a couple of shots that I said, "Get me a computer, will you?" But instead, we'd all get together and plot out an f-stop. This kind of intricate shooting takes a lot of thought before you start, but if you get too mechanical, then the creativity goes. As an interesting side note, Geoffrey Unsworth shot an insert and some other stuff in Ireland, because John was cutting the picture there. I don't think there could be a better man helping you with the picture, so to speak, than Geoffrey.

QUESTION: What kinds of scenes did you use the "ghost glass" mirrors for?

FRAKER: Mainly for the re-creation of excerpts from the original film, "THE EXORCIST". You would have the presence of being in a certain situation and then, all of a sudden, through somebody's mind, this other thing would take place, after which you would return to the original situation. But it would all happen at once, on one piece of film, without going to CRIs or opticals or anything like that. For example, we would be shooting an actual scene supposedly happening now. Then we would want to go back four years in time. To create that transition, Linda Blair and Max von Sydow would re-create on another set right next to ours the exorcism sequence from the original film. While Richard Burton and Louise Fletcher were acting out their scene on one set, Linda and Max would be acting out their scene on the other, with the lights dimming up and down on the two sets. At times the images would blend, with the camera shooting through the mirror for one image and picking up the other image reflected off the mirror. At other times, we would take the lights down on the present scene and the exorcism would just take over. That's nothing new actually. They've used such mirrors in special effects for a long, long time.

QUESTION: Can you tell me about your use of filters on this picture?

FRAKER: The new glass that they are using for lenses is so good that you don't simply get maximum sharpness; you get "optimum" sharpness, and I think it's too much. I have a theory — and I don't know whether anyone will agree with me — that the sharper the picture, the more build-up in contrast you get. That's a belief of mine. Therefore, if you want to control the contrast, you have to work with something in front of the lens. We made extensive tests and found that the combination we liked the best for this picture, using the Panavision super-speed lenses (magnificent glass!) would include a

(LEFT) The set of the psychiatric institute shown in the film resembles a modernistic jungle of supports and area dividers with photographic lamps clamped to them. (RIGHT) In the same set, Boorman gives direction to Richard Burton and Linda Blair. Mirrors were used prominently in the set design to externalize Regan's schizophrenic state and the reflections of a many-faceted reality.

(LEFT) In the film's climactic sequence, an intricate camera rig was used to get subjective angles, when taxicab careened wildly as it approached the exorcism house. (RIGHT) The aftermath of a fiery confrontation with a demon is one of relief in this scene from "EXORCIST II". Special effects of the house disintegrating prior to this scene are spectacular.

Low Contrast #3 filter, plus a Mitchell B diffusion, plus one of a series of corals. Our corals included 1/4, 1/2, 3/4, full, 1, 2, 3, 4 and 5, and we worked with them through the whole picture. This filter combination worked terrifically for the people and for the exteriors, as well. For the exteriors we went a step heavier; instead of the Low Contrast #3, we used a Fog #2. Instead of the Mitchell B, we would use a C or D. But we always used our corals, because Skip Nicholson at Technicolor told us there was no printer light that could reproduce that coral look on the film.

QUESTION: With all this tricky color work and experimentation going on, what kind of liaison were you able to maintain with the lab?

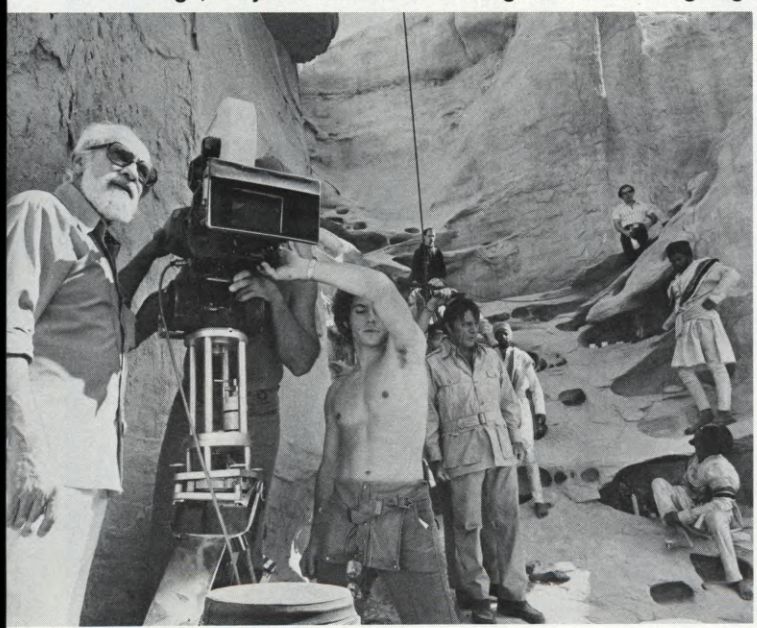
FRAKER: Every morning at 7:00, before I went in to work, I was at the lab looking at the dailies. Technicolor, through Skip Nicholson, was absolutely marvelous. At 7:00 a.m. when I walked in, they would shut off everything and run our stuff. Skip would make any corrections we wanted before it went to Warner Bros. That was a nice habit to get into. I loved it, and Technicolor's service and cooperation were wonderful.

QUESTION: You spoke earlier of a kind of theatricality in lighting the exteriors shot in the studio — actually almost a stylization, I would assume. How did you get the real exteriors to match that stylization?

FRAKER: Well, outdoors I did just the opposite of what I did on the stage. Instead of stopping down like we did on the exterior sets in the studio, I opened up. I used N9s and Polascreens and everything else I could in order to open all the exteriors. There was a f/22 to f/25 light out there and we had white sand and white rock walls, but we tried to shoot at about f/2.8 or f/3.5. We saw the dailies and we were very, very happy. They were rich and beautiful. I think that when the CRIs go in for release printing, there will be deep black shadows, but they will have a little detail instead of going completely black.

Continued on Page 842

(LEFT) Director of Photography Fraker supervises a camera set-up on the Arizona location. (RIGHT) He lines up the camera on studio set. Fraker, whose outstanding credits include "ROSEMARY'S BABY" and "BULLITT", is equally at home on location or in the studio, but favors studio shooting because of the discipline and control which it requires. "There is more creativity possible on the stage," says Fraker. "I like starting with black and going from there."



FILMING ELIZABETH II FROM CORONATION TO JUBILEE

Twenty-five years of filming Britain's beloved Sovereign have not dimmed the luster of such festive occasions—most recently the Queen's Silver Jubilee

By DAVID W. SAMUELSON

Twenty five years ago, in 1952, when Queen Elizabeth II became Queen, I was what was then called a "learner cameraman", having used a camera professionally for the first time only five years previously.

Not for my generation of newsreel cameramen the luxury of an experience-gathering period as an "Assistant Cameraman", much less the opportunity of years at film school in academic preparation for entering the industry. We were thrown in at the deep end.

My first important assignment of the Queen's reign was along the route of the late King's funeral procession. I was told to take up position outside the wall of Clarence House in the Mall, where the Queen lived prior to moving into Buckingham Palace, in the expectation that the infant Prince Charles would be held up above the garden wall to see his late grandfather's cortege pass by. Despite hours of waiting in the cold, Prince Charles never appeared, so apart from one or two crowd shots, little film passed through my camera that day. As it turned out, however, I was to learn one of the most important lessons of my professional career when later that day I looked at the evening papers and saw published a poignant picture of Queen Mary, the Queen Mother, standing on the balcony of the house next door to Clarence House watching the funeral of her son. If only I had looked about me, I, too, could have got that shot.

Fortunately, my editor was equally unobservant and did not notice the picture in the paper, but I've always remembered that lesson. There's no substitute for experience, even a bad one.

A year later, in 1953, I was one of the five cameramen assigned to shoot the black-and-white "Royal Rota" coverage of the Coronation inside Westminster Abbey.

In those days there were five cinema newsreels, British Movietone (which I worked for), Gaumont-British, Paramount, Pathé and Universal, and to cut

(ABOVE LEFT) St. Paul's Cathedral, filled with people for celebration of the Silver Jubilee of Queen Elizabeth II. The Cathedral had been lighted for BBC video camera with Thorn CSI metal halide lamps, taking their power from the normal 50HZ supply. While possible flicker from such sources is no problem for video camera, the film people were taking a definite gamble. (RIGHT) The author's camera position for the Jubilee was high above the West Door of the Cathedral, looking down towards the altar. (BELOW RIGHT) For filming the Jubilee, David Samuelson operates hard-fronted Arriflex IIC camera, with 22mm-220mm T/2.5 zoom lens mounted.

down on the number of cameras scrambling for individual close-coverage, one cameraman covered for all newsreels and dupe negatives were exchanged. There being five Abbey positions, it was literally a matter of drawing out of hat who went where. Movietone drew the South Transept, which offered a three-quarters-behind shot of the Queen as she was crowned. It was about ten feet from Prince Phillip's left ear.

In addition to the B & W rota coverage, Movietone, Pathé and Gaumont individually produced colour versions. Early 1953 being just before Eastman colour negative became generally available, there was no interchangability between the colour systems. Pathé did have a negative colour system which they called Warner colour or Pathé colour or something, Movietone used Gaevacolor and Gaumont mustered every Technicolor 3-strip camera in Europe, complete with their crews, who took a day off from whichever feature film they happened to be working on at the time, to film the Royal progress.

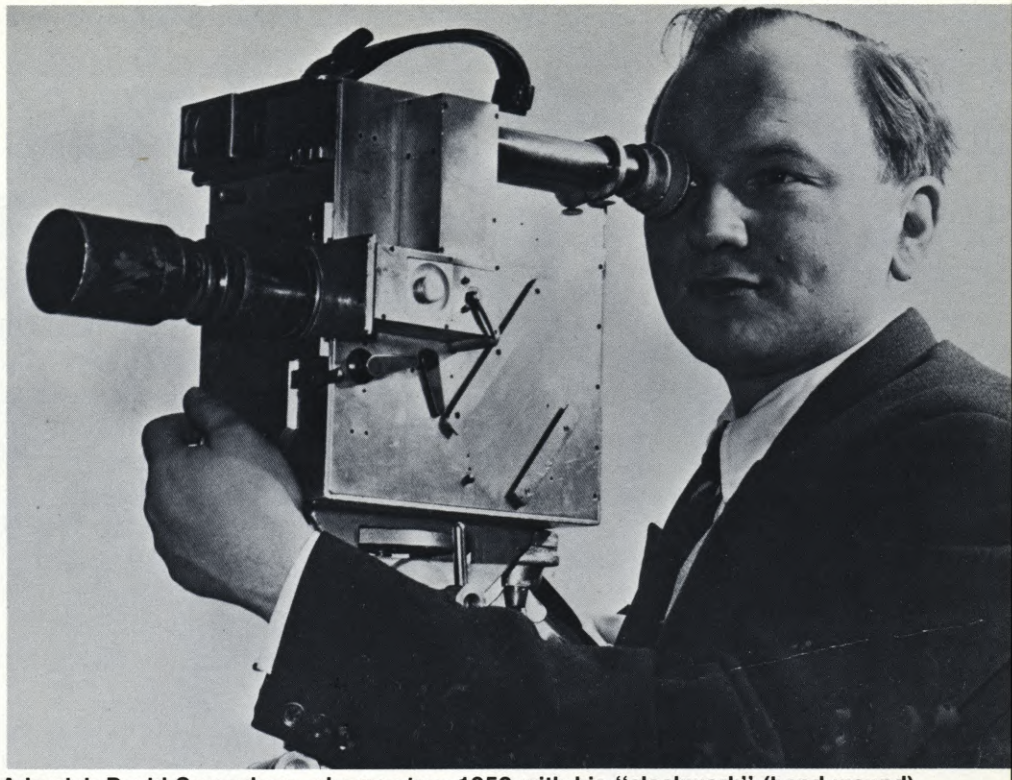
The South Transept position turned out to be a sound proof box with "shelves" about three feet apart. The BBC-TV cameras were on the top shelf, Pathé and Gaumont colour versions were on the centre and Movietone B & W rota and colour versions at the bottom. Manning the Movietone colour camera alongside me was a young freelance cameraman taken on for the day — my brother Sydney!

In those days, all of Movietone's non-sync cameras were 200-ft. clockwork Newman & Sinclairs. Gaumont was a bit more up-to-date equipment-wise with Eclair Cameflexes (Camerettes) and volunteered to provide one for my use, seeing as they would be relying on my black-and-white coverage. So I used an electrically-driven camera for the first time in my life to film the Queen's Coronation.

There being no camera rental company in the UK at that time, Sydney had to make do with my clockwork Newman. Between us we had a spare Newman just in case of troubles — he with magazines loaded with colour, me with B & W.

In a lifetime of many, many filming highlights, that day in Westminster Abbey filming the Sovereign being crowned stands out above all others. It was indeed an experience of a lifetime.

I recall that we had to be in position at five a.m., we had to be escorted everywhere (even to the toilet) by an Usher called a Goldstick. On a portable radio we heard that Mt. Everest had been conquered for the first time by a British team. We had attended rehearsals and practised our shots. We went over and over the order of Service, knew what to shoot and for how long, when to change lenses, when to change magazines and, in Sydney's case, when to wind the camera drive spring.



A boyish David Samuelson, shown *circa* 1952 with his "clockwork" (hand-wound) Newman & Sinclairs newsreel camera, used to film the Coronation of Elizabeth II. For many years a member of the British Society of Cinematographers and Fellow (and Past President) of the BKSTS, Mr. Samuelson keeps his hand in as one of the world's foremost "long lens" specialists. He is currently authoring a series of four definitive texts on the art and science of cinematography.

All went well, the Service which is very involved, very long and very traditional, proceeded perfectly.

We filmed the Annointing, the "Presenting of the Spurs and Sword and the Oblation of the said Sword", the Investing with the Armills, the Stole Royal and Robe Royal: and the Delivery of the Orb, and the Investiture per Annulum, et per Sceptrum et Baculum.

Then came the climax of the whole Ceremony. The Crowning.

The Archbishop of Canterbury took the Crown and laid it upon the Altar to make the appropriate Blessing.

This was the moment scheduled for me to reload my camera and change to a 150mm lens and for Sydney to change film and fully wind the camera. He reloaded, ran a couple of feet of film to check all was well, went to wind the camera and it went *TWANG*. The spring broke.

All hell broke loose on our shelf. Lying on his stomach, Sydney ripped one camera off its high-hat mounting, put the spare in its place, loaded colour film, focussed, set the aperture, and switched on just as the Archbishop raised the crown on high and placed it upon the head of her Majesty to the cries of "God Save the Queen".

We both learned a lesson that day, that if equipment is going to fail it will do so at the most inopportune moment.

It so happened that the Technicolor 3-strip camera on the shelf above us jammed at that vital moment and they didn't get running in time.

All these, and other memories, came back to me as, 24 years later, I was in St. Paul's Cathedral freelancing for Movietone, filming the Queen's Silver Jubilee Thanksgiving Ceremony. Golden Memories on a Silver Day.

So much has changed in a quarter of a century. For a start, there is only one cinema newsreel left, Movietone, and their product is now a weekly documentary, and who would envisage using a clockwork camera today, except on the summit of Everest where only clockwork cameras can withstand the cold?

I was now using an Arri IIC (noise being no problem where I was situated) and, like so many cameras these days, the particular model I was using had been shorn of its three-port turret and fitted with a hard front because the need for three lenses on a turret is now

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THE MAKING OF "FRATERNITY ROW"

Made on the campus of the University of Southern California, this feature utilized talents of a mixed student and professional crew

THE DIRECTION

By THOMAS J. TOBIN
Director

I have been a long-time subscriber to *American Cinematographer* and have always taken great interest in articles which featured the different members of a production crew recounting the experiences they had and the lessons they learned while making a particular film. It is a great thrill for me to be able to write this particular article about my experiences as the director of the Paramount Pictures release, "FRATERNITY ROW".

The genesis of this project is a unique and interesting story in itself, but what I will attempt to deal with here are the pre-production efforts involving myself and the production staff, and the actual day-to-day shooting experiences of our crew. I know that there has seldom been an article such as this that didn't prove helpful to me as a filmmaker. I hope that this one proves equally useful to someone out there.

The development of the script from the first draft stage to the shooting script is easily the most crucial event in the making of any motion picture. If the content is not there when the cameras roll, all the cinema magic in the world will not make it any better. On our production, which began its life with the title "OH BROTHERHOOD", all the key personnel had input to the script writer, and this collaboration brought the script through four or five drafts over a period of several months until there finally emerged something which the majority of us felt could be called a shooting script.

It was this version of the script that was turned over to Production Manager Peter Schleger, whose task it then was to tell us how long it would take to make. Students at the USC Division of Cinema are fortunate enough to have available to them a seminar in *Film Production Planning,* which is an extensive class covering script breakdown, budget preparation and the organization of shooting schedules. Both Peter and myself had taken this course from Mr. Morrie Abrams, a long-time Hollywood production manager and assistant director, and we found that his instruction had prepared us well for the task at hand.

While the rest of us dealt with casting, Peter worked with Assistant Director Richard Graves and with Stuart Bloomberg, who did not work with us on the rest of the picture. Their task of preparing a shooting schedule was greatly complicated by the fact that no precedent for such a production existed. Though I had previous experience directing educational films and live television, I had never before directed feature material with a large cast. Further, most of the crew was relatively new to the whole process of filmmaking and none had any feature experience. No one knew how long it would take for an inexperienced cast and crew such as ours to accomplish a given task or set-up.

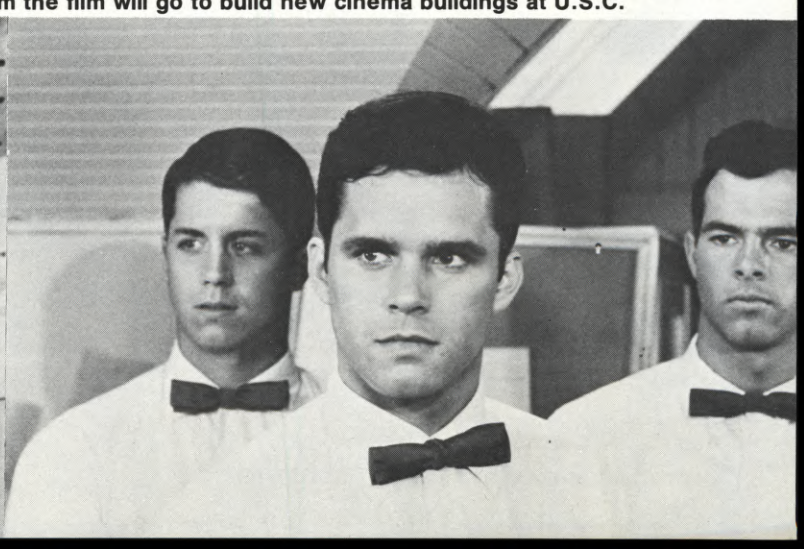
However, Peter, Richard and Stu used their experiences on Cinema Department productions, the closest thing to our situation and, with interpolations for a larger crew, came up with a 52-day shooting schedule, give or take ten days. The rest of us had been looking for something like 36 days, but luckily we didn't succumb to that ever-present thought, "Oh, it can't possibly take that long." When we finished principal photography, it had taken 45 days of first unit shooting, plus an additional 10 days or so of second unit photography. The original estimate proved to be remarkably accurate.

It was at this point that Peter Gibbons strolled through the Cinema Department and into our production. Pete had enjoyed a long career in photography and cinematography and had been a member of the camera crew on most of the Cinerama pictures. Later, he was head of the Camera Department at CBS Studio Center. Pete had enrolled in the Master's Program at USC with an eye toward becoming a film instructor, but he had precisely the experience and expertise for the key position of Director of Photography on our production. When approached about participating in the venture, he was overwhelmingly enthusiastic in his support of our attempt and remained so throughout the entire production.

Pete and I discussed the script at length and talked about the look that the film ought to have. The story is set in 1954 at an Ivy League-type small college in the East. The characters are the sons and daughters of well-to-do, influential members of the upper class who have become caught up in the sociocultural whirl of fraternity and sorority life.

No sets were to be built. We would rely instead on actual locations. Most of our shooting was to take place in the

(LEFT) Peter Fox, who portrays Pledgemaster Roger Carter in "FRATERNITY ROW", is the voice of reason in the brotherhood, but his views are unpopular with the other members. (RIGHT) The pledges, led by idealist Zac Sterling (Gregory Harrison), prepare for the inevitable hazing that precedes being accepted. The film was produced by Charles Gray Allison from his own screenplay and is being released by Paramount. A major part of the profit from the film will go to build new cinema buildings at U.S.C.



Sigma Alpha Epsilon Fraternity House and the Delta Delta Delta Sorority House on the "Row" at the University of Southern California. Both these dwellings were chosen because they were of Eastern architecture and because their interiors were ornately decorated and had a rich feeling to them. This was further enhanced by the art crew, under the direction of Jim Sbardellati, who located countless set pieces and props which were authentic to the period. Additional sites for shooting were to include exteriors along the Row, the USC Campus (both for exteriors and for classroom and hallway interiors), the Los Angeles Memorial Coliseum (which was to stand in for the Summit College Football Stadium), and a private residence in Pasadena which was to serve as the home of Brother Bob Abernathy, the aging fraternity clinger-on.

It was important that the natural ambience of these sites be captured on film and that an essentially romantic mood be conveyed right up to and through the tragic ending. Pete and I rejected the diffused, desaturated look that seems to prevail in most contemporary films, and opted for a look that was more popular during the time in which the story was set. We would go for nicely saturated colors and a hard-edged, snappy contrast to the lighting. There would be a judicious use of camera movement and we would strive for good, basic coverage. Further, we would play up the fact that we were in real locations by trying to include a window in a scene whenever practical, and Pete would gel the window so the exterior exposure could be brought into line with the interior. These locations proved to be very tough to light with their cramped spaces and low ceilings, but Pete made good use of EAL photofloods and gaffer's tape. It is my opinion that the quality of the image which he captured on the negative in these difficult locations is in a large part responsible for the acceptance "FRATERNITY ROW" has received in the film industry to date.

Even before we began shooting, I knew that it would be absolutely essential to storyboard and pre-plan our coverage. Gene Fournier, the editor, and myself prepared a shot-by-shot reference for the way in which we thought the film ought to go together, including floor plan diagrams of each scene's coverage. Once again, we were plagued by not knowing what we would be capable of doing in a given situation. However, this pre-production work did prove invaluable as we got into shooting. When everything worked smoothly it was fine, but when things got bogged down, which was more often than we would have desired, we found that at least there was a point of departure from which to work when refiguring our coverage.

Zac and Jennifer clown around in period clothes, find that they both question certain aspects of fraternity/sorority life. No sets were built for the film. Actual locations were used throughout, with the bulk of the interiors being shot in the Sigma Alpha Epsilon Fraternity house and the Delta Delta Delta Sorority house on the U.S.C. campus.

At home each night I would review our storyboards for the scene or scenes to be shot the following day and, in most instances, revise them to make our coverage simpler. It had not taken us long to discover the extravagance of our initial plans. The first thing the next morning, I would sit down with Pete and Richard Graves and explain the coverage as I saw it. I would then give them the shot list and floor plans which I had prepared and, while Peter and the crew went about getting the first set-up, Richard and I would devise a sequence in which that day's footage would be shot. Of course, this plan was often revised as the day went on.

Ours was an extremely hard-working crew, and I will never forget their loyalty to the project, particularly in the face of some grueling working days. I remember one incident most vividly. We were to spend seven shooting days in the third-floor attic of the Tri Delt House, which we had turned into the place where the pledges of Gamma Nu Pi bunked. The Fisher people had provided us with one of their fantastic camera dollies at a much reduced rate to use for the duration of our shoot, but I was bemoaning the fact that it appeared that we would be unable to make use of it in that attic, what with its tremendous weight and the narrow stairs leading up to the set.

When I arrived on the set for the first day's shooting, there was the Fisher dolly, set up and ready to go. Bob Elswit, our camera operator, Larry Smoot, dolly grip, and John Bertram, Key Grip, along with other members of the camera crew and grips, had lugged the dolly up three flights of stairs that I'd hate to negotiate just carrying a briefcase.

One particular shot is worthy of note here, partly because it is also indicative of this teamwork I've mentioned, and partly because I feel it is one of the most effective in the picture. After Rodger has lost control of the Pledge Class, Chunk Cherry, the antagonist, carries out the traditional Hell Night activities, capped off by the infamous Ceremony of the Grand Griffin, in which each pledge is first blindfolded, then asked to swallow a piece of raw liver, the theory being that those pledges whose stomachs are strong enough to keep the liver down will have passed through into active membership in the House.

Rodger walks out as the ceremony begins and slowly climbs the stairs to his room, his ideals for reform having been dashed by Chunk and the others. Meanwhile, in the background, we can hear the various members of the pledge class as they struggle to swallow the meat, followed by the cheers of the actives when they are successful. As Rodger reaches the top of the staircase, he stops to listen as Zac, his personal favorite among the pledges, undergoes the ritual. There is a delay in the actives' response. Rodger becomes concerned and turns

to go back down. He then hears the sound of Zac gasping for air, and dashes the rest of the way to the bottom of the stairs.

From the first time I had read the script, I felt that the suspense and the impending terror contained in this moment would be best brought out if we were to play everything off Rodger, while listening to the sinister activity in the background. I discussed my feeling with Peter Gibbons, who once again agreed wholeheartedly. His support throughout the picture was unfailing.

Presented with the problem of how to follow Rodger all the way up the staircase, pause at the top, and then follow him all the way back down as he ran, the camera and grip crews rose to the occasion. Rodger's height at the top of the stairs was a good twenty feet above the ground floor on which he starts the shot, and it would be necessary for the camera to pan an arc of about 200° in following him. The gaffers and grips set about to rig a makeshift grid using wall spreaders and hung a multitude of EAL fixtures running all the power cables out the second floor windows to the generator. With this arrangement, Peter was able to light Rodger's entire path from above.

Because of physical limitations presented at the SAE House, a small studio-sized crane with a boom arm was out of the question. Since it wasn't necessary to shoot it in sync, Bob Elswit and first assistant Dow Griffith suggested a bizarre arrangement in which Bob would hand-hold an Arri 2C and sit on top of the gear head to get more height. Dow would then operate the cranks and pan Bob and the camera around as Rodger climbed the stairs. We turned to Peter Gibbons who rolled his eyes back in his head as he always did when ideas such as these were suggested, then said, "Sure. Let's try it." After one run-through, Art Director Jim Sbardellati was pressed into service to tiptoe up the stairs just out of frame and hold Bob steady at the top of the shot, then drop to the floor as Rodger raced back down the stairs. Then, Larry Smoot constructed a small ramp out over some steps, so he could maneuver the dolly in for a little tighter shot, and then marked his spots for the intricate slow move in with a crane-up followed by a rapid pullback and boom-down.

We got the shot in two takes, and an actual cheer went up when "print" was called. The effectiveness of that shot in the finished picture is a tribute to everyone who worked on it and on the rest of the film, for it was truly a collaborative effort.

The one aspect of this production that drove me nuts as a director was staging action which would result in pleasing compositions for the wide-screen aspect ratio. The 16mm frame at 1.33:1 is an exceptionally nice format in which to stage action and compose effectively. However, "FRATERNITY ROW" was shot in 1.85 and within that wide-screen format it was at times impossible to portray the intimacy that I thought was needed. For instance, in many scenes we would be dealing with several people, say eight or ten, in the wide shot, but when we'd move in, it would be impossible to get a nice two-shot without elbows, noses and ears protruding into the frame. Consequently, we'd pull back a little and the two-shot would become a "six-shot", and so on. Moving in tighter only resulted in what I'd call a GCU, a gross close-up.

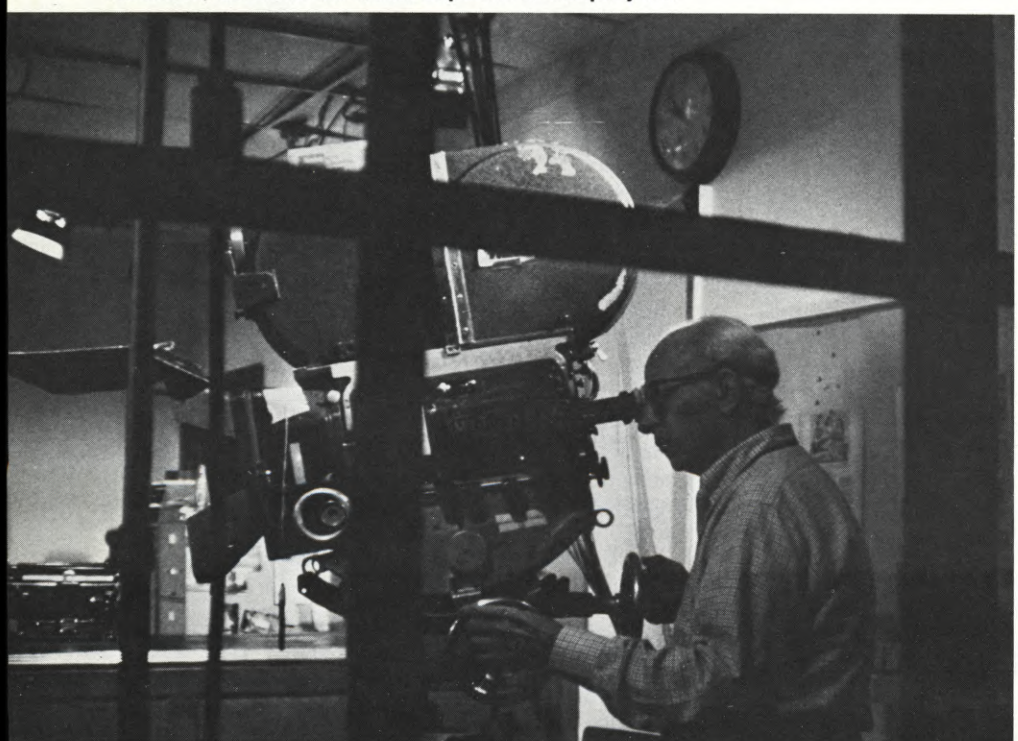
This brings up another aspect of wide-screen shooting and large-screen projection which took some adjusting on my part. It reaches deeper into the space with which you are dealing in a given scene, unless, of course, you stage everything up against a wall or flat surface. The director must be concerned about backgrounds that are normally taken for granted in 16mm. Some experience working in these wide-screen formats would be most valuable to anyone who is considering a career in theatrical films, even if it means masking the viewfinder on your 16mm camera and projecting the resulting footage in 1.85.

In retrospect, I fear that there is one negative aspect of motion picture production which is impossible to improve upon. It is inherently inhumane. You ask an individual to be on the set at a given time so that makeup and costuming can be taken care of efficiently. Then many of them have to sit around and wait for their time before the camera to be called. Because we seldom spent more than one day in a given location, we would choose to shoot a master wide angle as the first shot of the day, thus placing the most complex lighting set-up at the top of the day and simplifying as we moved in closer. Naturally, everyone who was to be in that scene had to be on hand first thing in the morning for the master. There were times, due to unforeseen complications in setting up, that the cast would wait from 7:00 AM until 10:30 or 11:00 before a shot was made. Then, no matter what we did, someone always had to be in the last shot of the day, which came anywhere from 4:00 PM until 1:00 AM the next morning. The intervening time is very boring to be sure.

We would occasionally try to forecast how the next day was going to go and call people in accordingly, but that never worked, either. The crew would prove to be especially efficient and be ready to shoot by 8:00 AM. Then we'd have to wait until the cast arrived. There were times when people would grow testy because we wouldn't be able to tell them when we would be getting to their shot. You can't imagine the frustration of wanting to do right by everyone and still get the scenes shot as efficiently as possible. So it goes.

Peter Gibbons' contribution to "FRATERNITY ROW" as its Director of

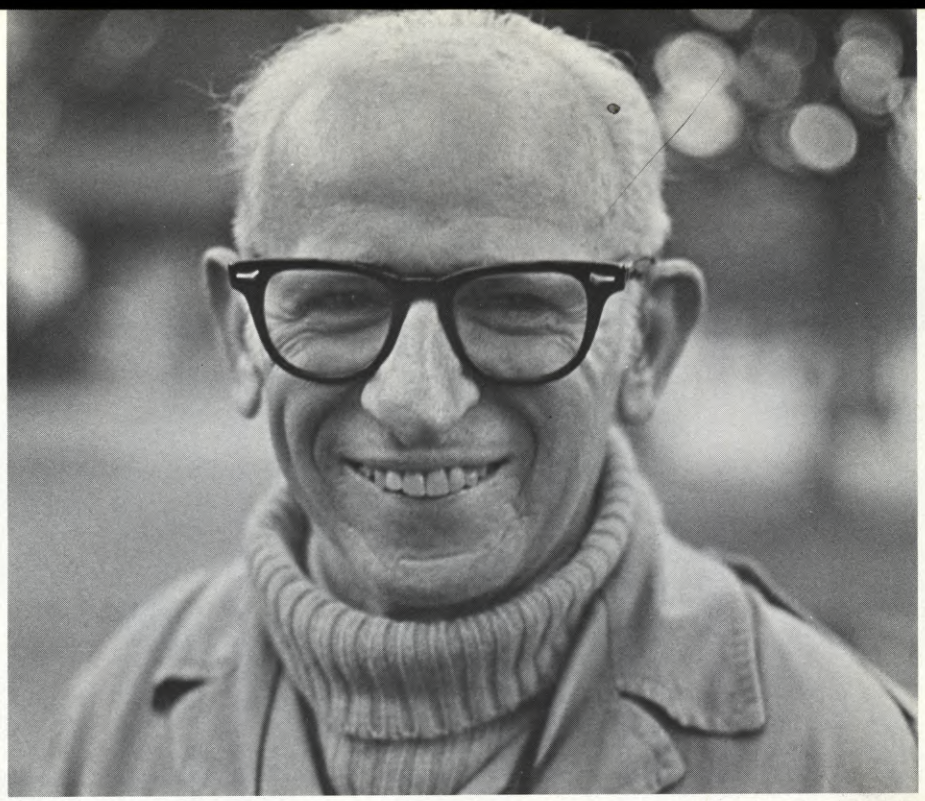
Director of Photography Peter Gibbons lines up a shot. Top grade 35mm camera and lighting equipment were made available for the production, including a Cinemobile. Although some of the crew were students, the approach to filming was strictly professional, as were the fiscal aspects of the project.



Photography and Father Superior will be forever remembered by all of us who were fortunate enough to have worked with him. It takes a brave DP indeed to try to light a set with the assistance of a bunch of know-it-all film students. Peter enjoys telling the story about how, on the first day of shooting, after having placed the various lights necessary for the shot, he pulled out his light meter to check the exposure. When he glanced up, he was staring into a forest of Spectra meters, their collector spheres pointing in all different directions. He paused, then, in a bold clear voice he announced, "f/4". After a moment or two, all the budding cameramen nodded in agreement and holstered their meters. Shooting could now begin.

The one thing I will always remember about Peter was his boundless energy. No matter what time it was, no matter how long we had been working — and some days shooting dragged on for 15 or 16 hours — there was Peter zipping about like a whirling dervish, sipping his tea and shouting, "Who turned out that light?" Of course, no one would confess, but he'd only chuckle, see to it that it was put back on, and then we'd shoot.

Peter, you were both a mentor and a friend to all of us. A large part of whatever success "FRATERNITY ROW" might enjoy is directly attributable to you. We will be forever in your debt. Thanks. ■



Veteran cinematographer Peter Gibbons, former head of the Cinerama Camera Department and the Camera Department of CBS Studio Center, just happened to be working for his Master of Fine Arts degree on the U.S.C. campus when "FRATERNITY ROW" went into production and was persuaded to serve as Director of Photography. His extensive expertise was an inspiration to the student crew. He teaches cinematography at U.S.C., Valley College and Columbia College.

THE PHOTOGRAPHY

By PETER GIBBONS

Director of Photography

I was a student in the University of Southern California Cinema Department, working toward my Master of Fine Arts degree, when Gary Allison decided to make "FRATERNITY ROW" and asked me to function as Director of Photography.

I don't regard it as a typical student project. It was done in a very professional manner. For example, long before shooting began, there were regular production meetings. These were held every Friday and the producer, director and production manager would outline their plans, the production schedule and what they intended to shoot. Everything was so well planned that when we went into production we were very well prepared.

Gary said to me: "I want you to go in there and not only do the cinematography, but show the others how and why everything is being done." That's exactly what I tried to do. At the time, I was simply a student. I was on the same level as they were, and at times we would get into some rather lengthy discussions. For example, I would try to tell them why I did certain things. I'm not a purist, but I like to do things as well as I can. For exammple, I don't like double shadows, nor do I like to see the shadow of a practical lamp falling on a wall.

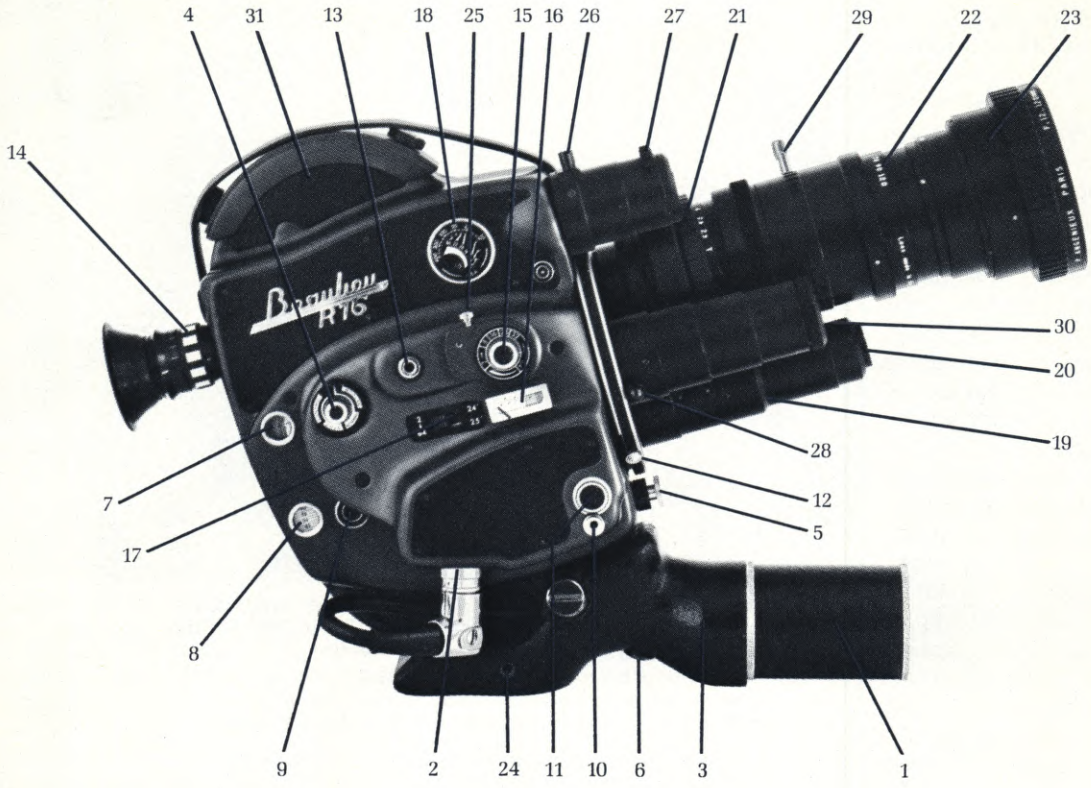
I think that the students learned a tremendous amount of technique from the hands-on exercise they went through in making this picture. For the first two or three days they were a little awkward, a little unsure of themselves, because they were inexperienced. But by the end of the first week they were really professional people and they did a very good job. I would tell them where I wanted the key light and then they would set the fill light and the background lights. They would gobo the lights off the background to keep the illumination graduated from top to bottom. They fell into it very well, and I really enjoyed teaching them.

Gary Allison, the producer, set things up in a very professional way. Those assigned to the crew couldn't just come in and work when they felt like it — or stay away when they didn't feel like it. The picture had to come first. I felt at the time that this policy was a little too strict, but I realized later that what Gary demanded was absolutely essential to the success of the project.

As far as equipment was concerned, we had practically everything that we needed. We had a Mitchell BNCR and an Arriflex from Cinemobile. We also had a Mark IV Cinemobile, a Fisher dolly and just about all the lamps we needed. We didn't use many Juniors or Seniors. We needed more of the lightweight small equipment, because all of our interior sequences were shot inside the Tri-Delt and SAE houses on Fraternity Row, which had only eight-foot ceilings. The small equipment was essential, so that the lights would not be visible in the shot. We had 20 or 30 500-watt reflector floods hidden up behind beams of the ceiling, and we were able to get as much as 15,000 watts of light just from those units.

In preparing to shoot "FRATERNITY ROW", we did exactly what the average production company does. A day or two before the start, we went over to Cinemobile for our prep session. The two assistants and the operator set up the camera and checked every lens at 20 feet, 12 feet, 8 feet and 4 feet. This is a procedure that is insisted upon by Bob Gottschalk of Panavision. Before an assistant goes out with any of their equipment, and especially the Panaflex, he has to go out to Panavision and spend a day or two with their people in order to get used to the equipment and find out exactly how it should be used. I think this is a very, very important procedure and we did essentially the same thing. We spent two days out at Cinemobile and gave our crew a complete dry run with the equipment.

Continued on Page 824



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THE MAKING OF "FRATERNITY ROW"
Continued from Page 821

There were some interior shots that were very difficult to light — and for two main reasons: lack of space and lack of time. You never have enough time to do these things. Either an actor has to leave or you have to get out of wherever you are, because people want to come in. These are the problems you run into all the time in the motion picture industry, and you never seem to have the opportunity to get the ideal shot. You're constantly having to make compromises.

A basic photographic problem encountered throughout the filming of "FRATERNITY ROW" stemmed directly from the small lighting units we were compelled to use. Larger luminaires, which have fresnel lenses, produce a nice smooth even lighting pattern and they are used on studio stages for that very reason. But with the quartz lights, which ordinarily do not have fresnel lenses, there is a hot spot in the center that can be very bothersome.

To get around this problem, I have, for some time now, applied what I call the "Isolux Line" to my lighting. This is a line of constant illumination and it permits me to make a shot of an actor approaching from 43 feet to 13 feet with constant exposure, while using only one light. This is difficult to do with a light lacking a fresnel lens, because the closer the subject gets to the lamp, the brighter the light gets. But what I do is draw a sort of ellipse, or elongated light pattern, and if you walk along that line with a light meter, you'll find that the meter doesn't vary one iota. Space limitations make it impossible for me to go into extensive detail here on the use of the Isolux principle, but I shall treat the subject in depth in a special article which I am currently preparing for early publication in *American Cinematographer*.

One of the trickiest scenes to shoot occurred in the filming of the Grand Griffin Ceremony hazing sequence. Rodger, the Pledgemaster, is sort of disgusted with what is going on. He starts up the steps, stops, and then walks across a landing and goes up a second flight of steps. Then, when he realizes something has gone wrong, he turns and rushes down again. The director wanted to follow him during all this movement, which wouldn't have been very difficult if we'd had a crane — but we didn't have a crane. So I suggested bringing the dolly in. It had a four or five foot lift and I said: "Let's put the gearhead on there, put risers on, and get it up as high as possible." I sat on top of the gearhead and spun the wheels with my feet. I said: "Alright, take me up as Rodger goes." We rehearsed it that way, going up and up and up, then coming down again as Rodger descended. It worked fine and I said to the operator: "Okay, Bob, there's your shot." He took it from there, spinning the gearhead with his feet. Such resourcefulness had to be used to get many shots, because there was often no other way.

We ran into an interesting problem while shooting the exterior picnic sequence around the swimming pool. The sun had gone down and there was no daylight left at all, but the director said: "We still have to get the shot of Jennifer and Zac alongside the pool. It's an important shot and we can't leave it out."

It was absolute night by now, and the sequence which the shot was supposed to cut into had been filmed in full sunlight. We had to try to make the shot and I did it simply by using artificial light. Of course, professional cinematographers do that sort of thing all the time, but the students were surprised at how well it turned out, just by pulling the filter, using tungsten light and illuminating the background as though the action were taking place in the afternoon.

The pledge porch of the fraternity house shown in the film was actually the pledge porch on the fourth floor of the Tri-Delt sorority house and we worked up there for three or four weeks. We had both day and night sequences to shoot in that set and there was a big window with light coming in which we had to block off for the night shots. For the daylight scenes we gelled the window. It seemed to work quite well, but there were things I would have done differently, given sufficient time and space. However, rather than waste time trying to get rid of a shadow you consider annoying, you just have to go with it and try to make it as unnoticeable as possible.

I think the big mistake which students make when they start lighting is that they try to be too exotic. My philosophy of lighting is that it should be unobtrusive. The only thing that it should do is support the drama and make the picture appear as though there isn't any "artificial" lighting there at all. But students want to set the world on fire, as far as lighting is concerned, and it's difficult to get them to go out and do their picture with just simple lighting — a key, a fill, a hair light and a background light — and make it look natural.

For the night exterior sequence outside the Tri-Delt house, we had the use of a crane. It was lit as though most of the light was coming from street lamps off to the side. However, for the night exterior of the singing, I used backlight to try to create the feeling of light coming from the windows of the house. We tried to place lights down the street to give it a feeling of depth, but they weren't strong enough. We had to use Seniors, but should have had 10Ks. What I like to do in night lighting is get depth by slashing light across trees in different layers — at 10 feet, 200 feet and 300 feet. This creates a three-dimensional effect.

I prefer not to front light for night shots. I would rather imagine that the

Scenes from the climactic sequence in which Zac, attempting to swallow a piece of raw liver during the hazing ceremony, chokes on it. The incident is said to have its parallel in real life. All of the actors in "FRATERNITY ROW" are professionals and their work is of high caliber. Shooting days often ran long, but the extremely hard-working crew gave the project their full effort and loyalty. The dedication shows on the screen.

light is coming from windows, from street lights, from the side — because I feel that if you light from the camera position, you lose the feeling of a night shot. For the night sequence of the ambulance driving up, we got a better effect because we had four or five 10Ks lighting the street for a three-dimensional effect. It looked like a street, rather than like a black hole.

I like to give a good full exposure for night shots, because if you back off on your exposure and then try to print the flesh tones up, the background will go gray. I like to have a good, rich, dark background and give it normal exposure. I always point my meter at the camera, even though the light is coming in from the side. The light simply strikes the sphere and, if anything, I will get a slight bit of overexposure — which is what I prefer. Even so, I find that my night shots print pretty much in the middle of the scale.

We had a 1,000-amp generator, but, even so, for some of the night exteriors, we had to juggle current and take some of it from buildings along the street.

An important night sequence was shot on the U.S.C. campus in front of the Philosophy Building. In one scene Zac walks toward the light, and we simply had to light it from far enough back so that the intensity of the light on him didn't change as he approached it. It didn't demand a very dark type of dramatic lighting, so I put in a fill light to illuminate the shadows to a reasonable degree. Otherwise they would have gone absolutely black. What would a realistic source for such a light be? Perhaps the kick off of water being reflected up into their faces—because there is a fountain prominently in the scene. I thought that the fountain added considerably to the atmosphere, but the sound man almost went crazy trying to get rid of the noise it was making.

Most of the lighting in this sequence was keyed from the side or the back, with a bit of rim-lighting—which is what I try to go for in lighting exterior night-for-night. For the interiors, most of my lighting was ¾-front, keyed either from the right or from the left, with a fill light as close to the camera as possible in order to avoid a secondary nose shadow. But on a large set, the formula isn't as simple as that, because you have so many other things to think about.

In any case, I think that the only thing a cameraman can do is try for realism. There are places for unusual or fantasy lighting, but not in a situation like this. I'm not against exotic lighting, but I think the situation should demand it. In this picture there was nothing that called for unusual lighting, except the scene in which Zac was actually choking. In that particular case, I let the lighting go a bit bizarre, because the shot called for it.

There are several night sequences in the film and these strained the capacity of the generator, with additional current often having to be drawn from buildings adjacent to the shooting area. Gibbons likes to light various planes of distance for night street scenes, in order to increase the awareness of depth and keep the background from going totally black.

Before we started shooting on this picture, I was given floor plans of all the sets to be shot in the Tri-Delt and SAE houses. They said, "Alright, we want you to show us where you are going to put your lights for each shot." I said, "But, I can't do that. I don't know where I'm going to put the lights until I find out whether the actors are going to be standing or sitting, what the background is and what the movements are." So much lighting comes about through "feel" when you see a scene blocked on the set. There are emotional factors to be considered. You can't just place your lights as though you were painting by numbers.

There is a certain amount of camera movement in "FRATERNITY ROW" and because we had rather narrow doorways to go through, it was done with the Fisher dolly. In the Tri-Delt house there didn't seem to be any way to get the dolly up to the fourth floor. There was a big, beautiful, wide stairway —but an extremely narrow doorway at the top. However, somebody discovered a back stairway, and the grips got hold of the thing and carried it up the three flights of stairs to the fourth floor. I'm glad they were able to do that, because I think camera movement is so important—not simply for the sake of movement, but to reveal to the audience what is going on. I like to keep camera movement unobtrusive. The audience feels something, but they don't notice that the camera is moving. We tried to do it very subtly, because we didn't want the camera movement calling attention to itself.

Thinking back of my experience in photographing "FRATERNITY ROW", I am most impressed by the professional atmosphere that pervaded the entire project. The people on the crew didn't think of themselves as students, but as gaffers and grips and sound men. Even those who had to do the most menial jobs, like gelling the windows, did them without complaint. They just did what they were asked to do and did it gracefully. Their behavior throughout the entire production was outstanding.

I really hadn't expected it to be, but it was one of the things that made the entire experience so gratifying ■

THE EDITING

By EUGENE A. FOURNIER

Editor

I've seen and counted every scratch on every frame of the 10,000 or so feet of "FRATERNITY ROW". I'm a terrible audience for the film now. I cringe at every mistake that I couldn't fix. There is a part of me that would never submit to such an experience again. There is another part, though, that realizes I could never have learned so much in any other way.

Contractually, I was the editor and Jon Torp and Jim Gauer were the assistant editors. Within the walls of the

Continued on Page 872

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An ingenious reworking and adaptation of an endoscope lens, originally designed for use inside the body, opens up exciting cinematic horizons.

by ED WINKLE
Vik Winkle Productions, Inc.

The newest, most exciting development in cinematography to come along in recent years could soon become a reality for many filmmakers. It has already for us at Vik-Winkle Productions in Studio City, California.

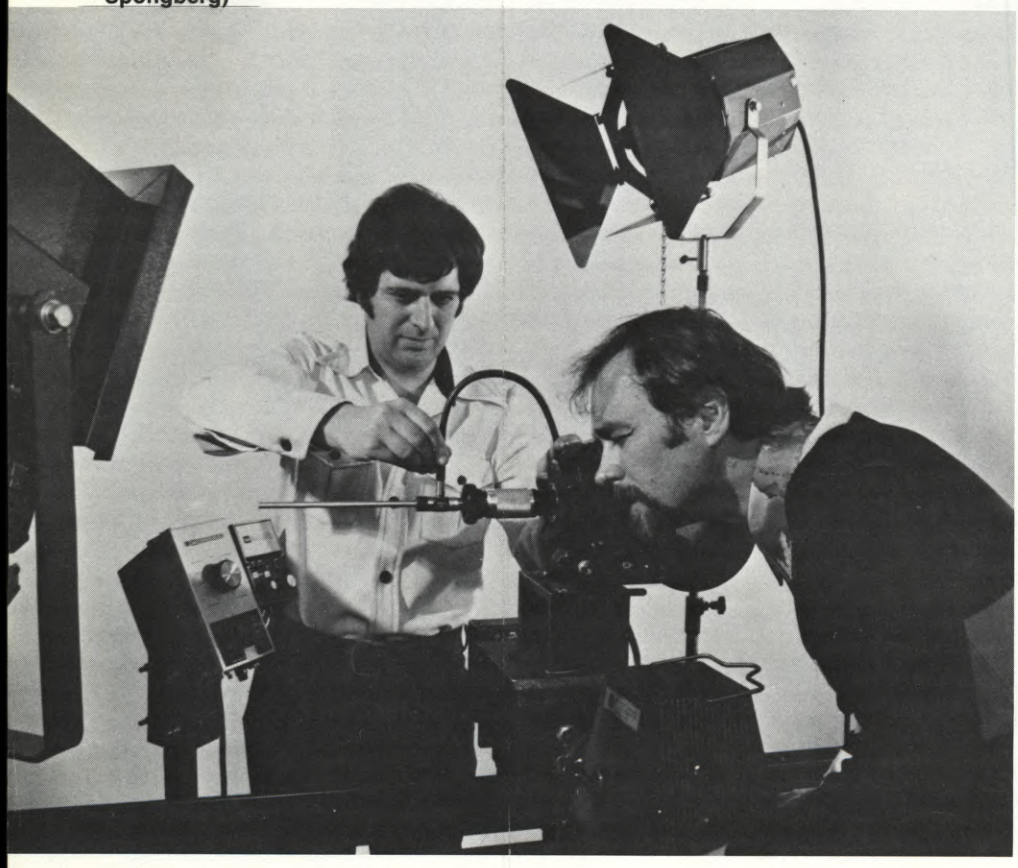
Thanks to the visual trappings of a secretly manufactured miniature lens, photographic techniques and concepts may be completely reshaped in the future. At our production company, this unique method of cinematography has been developed and used extensively in a wide variety of applications. It is a new system adapting the elements of the rod lens telescope — a highly specialized lens previously known only to the medical profession.

Long, narrow and optically corrected for photography, the rod lens telescope is the brain child of many years of theory, research and fabrication. Medically-oriented uses of the rod lens have been shown on such television specials as "THE MAGNIFICENT MACHINE" and "THE BODY HUMAN". But for us, medicine limited the lens' potential. We simply adapted the rod lens to uses other than the healing arts. At Vik-Winkle Productions, it is used as a tool in films and commercials, where a new perspective and never-before-seen angles can be attained.

Our lens has become a new force in what we now call *The New Macrophotography.* Not only does this mini-lens system work for us by rendering small objects larger, but it is able to photograph normal scenes in normal situations, making the transition from macro views to normal wide angle views easily, with little change of focus.

The lens system we have adapted is small — about four millimeters in diameter by about one-third of a meter long. Physically, it looks like a rod, hence the name in part: rod lens telescope. With a shape like that, imagine the possibilities of where you can now place your camera.

Ed Winkle (left) adjusts fiber optic light source attached to a Vik-Winkle Productions rod lens telescope system. Dave Vik (right) checks shot through Eclair ACL camera. Camera is programmed to move on a Symons-built transport system. (Photo by Ron Spongberg)



A predominant feature is the advantage of working with an almost infinite depth of field. Focus is held from about four millimeters to infinity. We have determined its effective focal length in 16mm to be about 18mm; in 35mm, about 40mm.

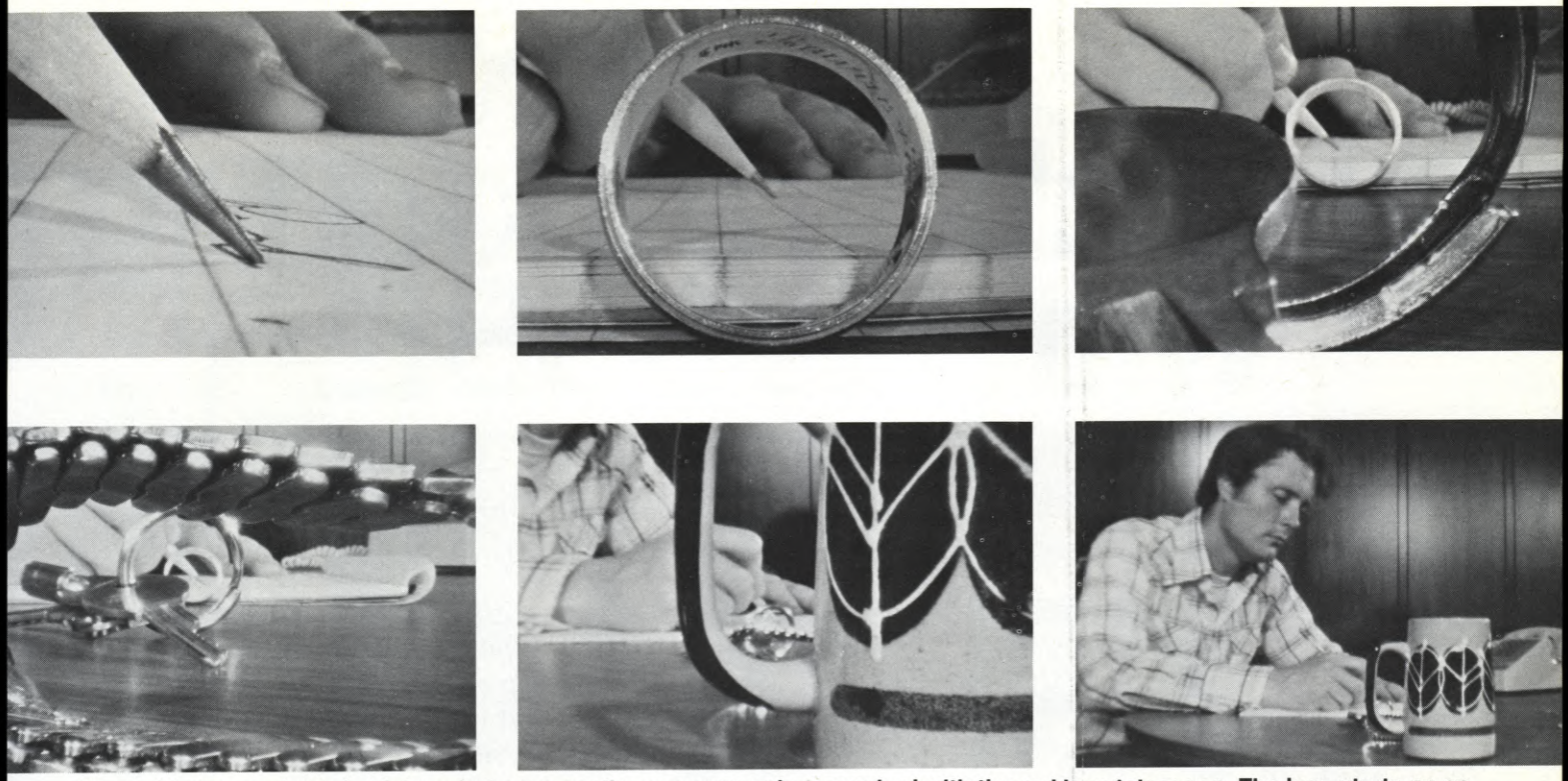
But by far the most impressive aspect of this new lens is the way it performs when very close to a subject. The probe-like lens keeps its wide-angle perspective up to the very end, rendering everything within close-up range to look larger than life through a slight distortion quality. In this age of wide-angle cinematography, this is a very desirable characteristic. Gone are the compressed close-ups associated with common macro lenses and diopter accessory elements. Gone are those hard-to-focus-on moving objects. And gone, of course, are those shallow depth of field shots in extreme close-ups.

Perspective is greatly enhanced whenever the camera is placed in motion. Especially impressive is the effect which is achieved when one dollies back. For example, we could reveal a subject we have just passed the lens through — something as small as a wedding ring, perhaps.

At the 1977 Motion Picture Seminar of the Northwest in Seattle, Washington, we demonstrated several films showing our system. One shot started on a still life of a commercial food set-up. The camera dollied back to reveal what we were looking through: a hole in a piece of Swiss cheese about six millimeters in diameter. The hole looked enormous because of the tremendous perspective as reproduced by the wide-angle lens at the tip of the rod lens. But as we dollied further back, the set-up looked just as normal and inviting as if it were shot with a standard prime lens.

Another shot displayed a close-up of a subject writing. As we moved back, the lens passed through a gold ring, a key ring, watch band and through the handle of a cup of coffee. Finally we were wide enough to take in the *entire* scene, quite normally and all in one move.

When the camera moves laterally, there is even a different look. One of our first films using this motion employed as our subject a miniature elec-



Frame-blowups selected at intervals from a continuous scene photographed with the rod lens telescope. The lens starts on an almost screen-filling closeup of a pencil point, then pulls back through a wedding ring, key ring, a wrist-watch band and the handle of a mug to reveal full shot of a man writing at a desk. All of this has been executed without visible distortion or follow-focus. For applications such as this, the rod lens must be married to a special prime lens and its circular image must be spread over the entire 16mm frame.

trical connector manufactured by Raychem Corporation. The challenge was to show this miniature connector in an interesting way, which by itself is quite dull on the screen when shot conventionally. We accomplished our objective by using a series of lateral movements of various sizes and proportions, edited in a pleasing fluid-like manner. It worked. The connector was never so interesting, and we were the talk of our client's communications department. The second film for the firm made use of our special rod lens telescope system and its tremendous versatility to peer inside heat-shrinkable tubing. Again, we were a smash with our first-time-on-the-screen pictures of what happens within their product.

The lens itself has an interesting history of development. Traditional explorations by medicine into the body were once limited optically. The first probes, surprisingly on the scene in the 1920's, were very crude and dim. Chromatic aberrations and a very narrow field of view prevented much improvement in endoscopy, as it is so named, over the years. Later, flexible fiber optic scopes were sometimes even more limiting until improvement in the 1960's.

The first rigid scopes employed a series of convex lenses to converge, diverge and re-converge light along the narrow path to the observing eye. These lenses worked somewhat like an inverted telescope, magnifying at the objective end. Light transmission was the biggest problem, however. Whenever light passes from glass to air and back again, it loses about 15% efficiency. With as many elements as the system required, there could be as much as a 98% light loss at the observing end of the scope. The human eye may be forgiving, but photography was completely ruled out because of the dim image received.

Endoscopy was to receive a shot in the arm in the 1960's in England at Reading University. There, Professor Harold Hopkins theorized that the convex lens series problem could be improved upon. He proposed that a series of elongated rod lenses take the place of numerous condensor lenses found in probes of that day. Light now traveled through the rod lenses in a straight line without being converged, somewhat akin to the principle of fiber optics.

Eventually, the Hopkins design was financed and developed by Karl Storz of Tuttlingen, West Germany. This is the famous area of the Bavarian Black Forest where 80% of the world's surgical instruments are manufactured.

Using a method that is still kept secret and guarded by worldwide patents, the tiny rod lenses are encased in the famous stainless steel sheath which has assisted physicians in carrying out what was once envisioned as twenty-first-century surgery.

Lenses are distributed on this side of the Atlantic by Karl Storz Endoscopy-America in West Los Angeles, California. The American office deals only with recognized medical applications and most inquiries for motion picture productions are referred to Expanded Optics Company in Westminster, California. There, company president Bill McMahon paralleled much of the industrial research on the Storz probe in the early 1970's on America's Apollo project.

With all these optimistic soundings on the merits of the rod lens, one might think that there has to be a catch somewhere. There is. First of all, while not as expensive as, say, an Angenieux 12-120mm zoom lens, they are quite fragile. Repair is expensive and time consuming. The sealed lens contains Storz secrets and must be sent back to West Germany for attention.

In addition, the rod lens has to be married to a special prime lens and its circular image — a familiar symbol of endoscopy — must be spread over the entire film format for motion picture use. Since there is a relatively small diaphragm opening because of the physical makeup of the lens, magni-

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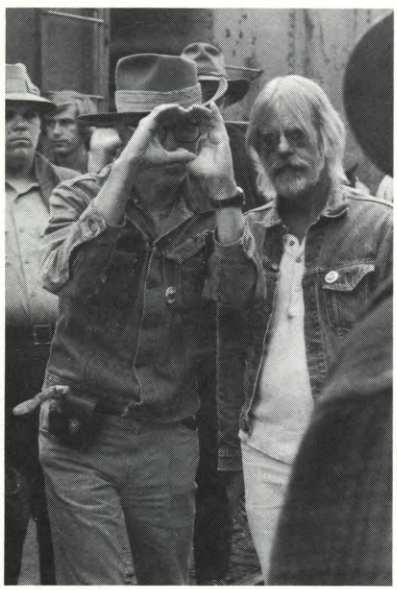
Haskell Wexler talks about shooting with his 35BL.

Mr. Wexler has won two Academy Awards for his cinematography—this year, for shooting *Bound For Glory*. He owns an Arri 35BL.

Haskell Wexler shooting *Bound For Glory* scene with 35BL. "For hand-holding," says Mr. Wexler, "This is the best balanced silent-running 35mm camera available."



Wexler with *Bound For Glory* director Hal Ashby.

"The extras were waiting around between setups, one day," says Haskell Wexler. "We were at Stockton, shooting *Bound For Glory*. The extras were dressed as migratory workers and their families."

Natural

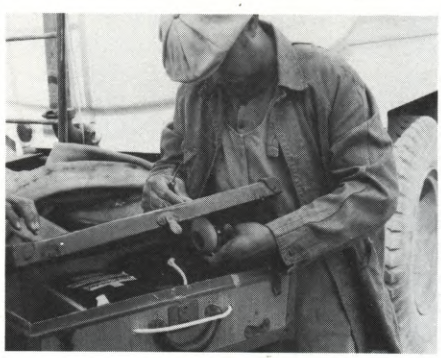
"They looked great—kids playing around—behaving naturally, because they *weren't* being photographed. So we set up secretly inside a tent, and picked things out with the long end of the zoom."

Suitcase

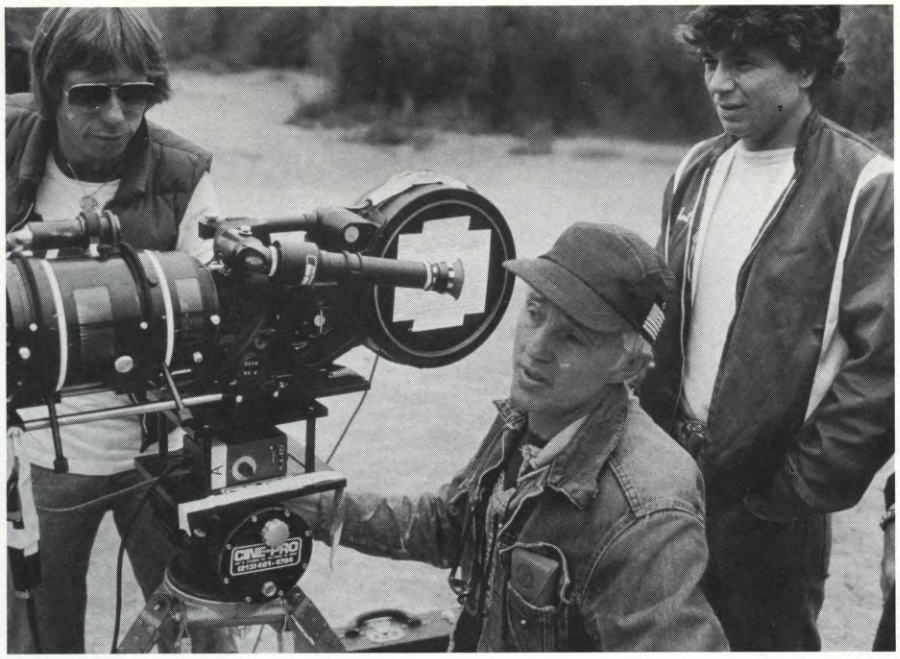
"Then we hid my 35BL in a cardboard suitcase, with holes cut for the lens and eyepiece. The second operator dressed up like the extras, and he sat down among them with the case on his lap."

Sideways

"Even when they realized what was going on, they still acted more naturally, because he was sitting down and facing *this* way, with the suitcase pointing *that* way, off to one side."



Above: Operator, dressed as migrant worker, checks fit of hole cut in suitcase for 35BL viewfinder. Below: The 35BL being positioned inside the suitcase.



Working on STP commercial with actor Robert Blake. "I much prefer to light looking through a 35BL – the image is brighter and clearer," says Mr. Wexler. "Hand-held, with the short eyepiece, the 35BL lets you see the edges of the frame more easily than any other portable 35mm camera."

Wexler and 35BL in swimming pool, shooting sync sound scene for *One Flew Over The Cuckoo's Nest*. Note relatively simple plank and stepladder rig supporting small camera.

Shooting STP TV commercial, Wexler gives instructions to cameraman perched on sidecar chassis with 35BL. Raincoat is for puddles in dirt road.

Unobtrusive

"That's one big advantage of an unobtrusive camera. Even with professional actors, there's one less thing to distract them. I often try to *ease* into a scene—using the internal slate, waving my finger to indicate *Rolling* and saying quietly to the director: *Let it happen*."

CLIO

Mr. Wexler used a 35BL to shoot Robert Blake in the STP commercial that won a CLIO award this year. For the sync-sound footage, the camera was equipped with a 1,000 foot magazine and a 20-120mm zoom lens.

Motorcycle

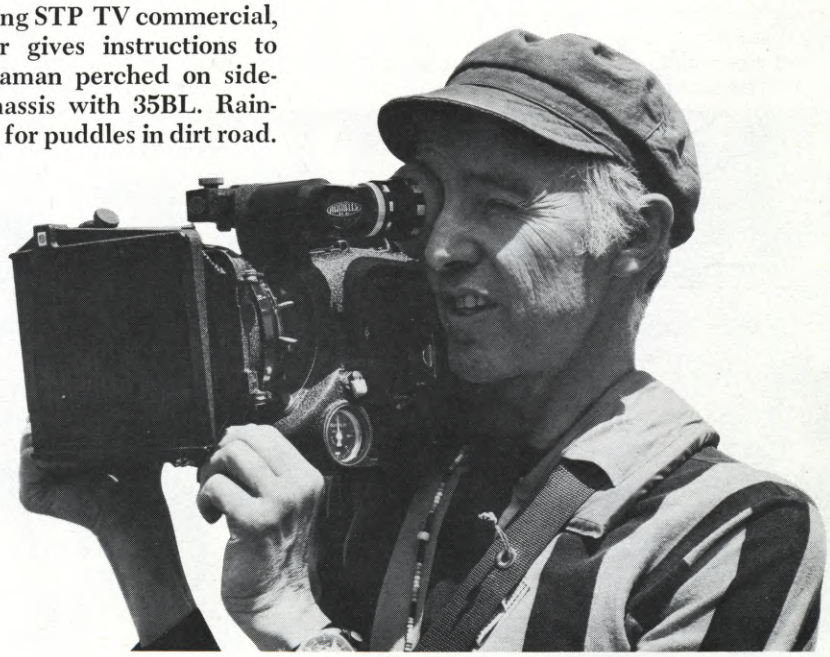
But they also needed some closeup footage of Robert Blake's face as he gunned his motorcycle down a dirt road.

Unsteadicam

"There was no room for an insert car," says Mr. Wexler, "So we mounted a sidecar chassis on the bike—and the operator rode on that with the 35BL. 400 foot magazine and a 24mm hard lens."

Lightweight

"In the bad old days, we'd have needed a separate, lightweight wild camera for that shot. But the 35BL took care of it nicely."



CREATING FRONT PROJECTION EFFECTS FOR "BLACK SUNDAY"

Intricate special effects for a suspense thriller made to order quickly and easily in the studio by means of this versatile compositing system

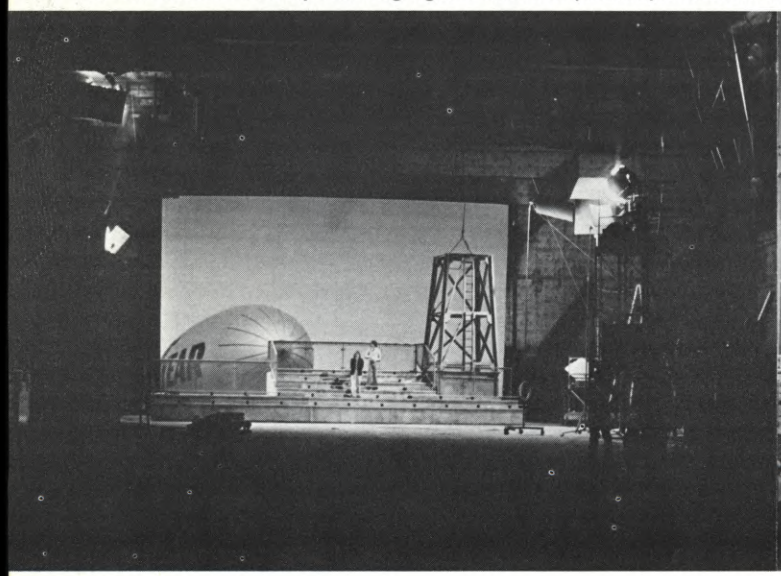
By BILL HANSARD
Special Effects Coordinator

The success of a motion picture cannot be attributed to any one of its elements. The successful film has numerous ingredients: the story, the actors and actresses, the producers, the director, and all the personnel required to shoot the picture — such as art directors, cameramen, grips, electricians, and special effects coordinators. A hit film realizes outstanding performances from *all* its ingredients, not just the actors and actresses. That's especially true of Paramount's "BLACK SUNDAY".

"BLACK SUNDAY", as does any good film, began well in advance of its first shooting date with countless meetings, script rewrites, and scoutings for locations. Officially it started in December, 1975, with director John Frankenheimer leading a Hollywood "army" through a ten-week adventure in Miami. Our first assignment was to film the activity of the local people leading up to the Super Bowl, to capture the mounting excitement.

Obviously, the most crucial shooting day was Super Bowl Sunday; the crew had only 2½ hours in which to work, with no chance to say, "Can we have that once again?" It was like planning an invasion: selecting locations for nine different cameras, deciding when and what each camera would shoot, obtaining special security clearances, filming crowd reactions before the game and actors running across the stadium floor at half-time. It was an exciting but demanding day, with no room for error.

Frankenheimer and producers Bob Rosen and Bob Evans weathered several storms in Miami — including a real one which dropped eight inches of rain on one of the most important shooting days. Contests and giveaways had been staged to lure crowds to the stadium before the day of the game, in order to shoot scenes of people getting hit by the nose of the Goodyear blimp. The downpour came on the day of the biggest contest, when 40-50,000 people were expected. High level shots were impossible to get, so they had to be restaged later in Holly-



(ABOVE) Robert Shaw atop 30-foot blimp mock-up on Stage 14 at Paramount Studios. Behind him, on 60-foot front projection screen, is a projected plate of the Miami Stadium. The system makes stark realism possible, while the actor moves in perfect safety under on-stage controlled conditions. (BELOW LEFT) Paramount's front projection screen with scene of blimp to be projected over heads of spectators. Mechanical special effects experts will trip light standard, electrical sparks and falling debris to create effect of blimp striking light standard. (RIGHT) Same set-up, but with spectators filling stands.

(LEFT) Bruce Dern in on-stage blimp mock-up, with large screen projection in background. (RIGHT) Director of Photography John Alonzo, ASC sets came to shoot blimp mock-up. As many as three projectors at one time, project onto small screens and placed at the proper angles, were used to put reflections of action below onto plexiglass windows in order to create realistic effect of outdoor movement.

wood. It was very depressing, but didn't deter Frankenheimer and his crew.

Under the direction of art director Walter Tyler, who did most of Cecil DeMille's movies, and myself, one unit was responsible for getting aerial plates and shots of police helicopters and the blimp. It was a tedious task, taking two to three weeks, but essential to the movie's success. And we only had the Goodyear blimp for ten days.

Guided by the logic and reasoning of Bob Rosen, one of the "coolest" producers I have ever worked with, we got the job done. The stuntmen were brilliant, hanging from helicopters and walking on the blimp over Miami as they doubled for Robert Shaw. We got enough shots to return to Hollywood and put the real Robert Shaw, one of the most cooperative actors I've worked with, on a 50-foot mock-up blimp built by Walter Tyler.

Filming back in Hollywood required numerous ingenious photographic special effects. After many years of a trend toward filming on distant locations, production of major motion pictures is picking up in Hollywood again, due primarily to inflated costs of location filming, to the fact that producers have more control on stage, and to the new sophisticated front projection system which produces the amazingly realistic effort of a real location.

The most brilliant but still economical way of filming Robert Shaw on the blimp was to employ the front projection system. Matting processes such as blue screen could not be used because the blue in the blimp's tail would make it show up transparent. But there is virtually no limit to what you can do with front projection. It requires a screen usually made of 3M Scotchlite material — the only successful one I've ever used — which can be built to any size. In addition to the screen, the front projection system uses a carefully synchronized motion picture camera and projector. If a film calls for big screen work, highlighting, thrift and sharpness, then front projection is the answer.

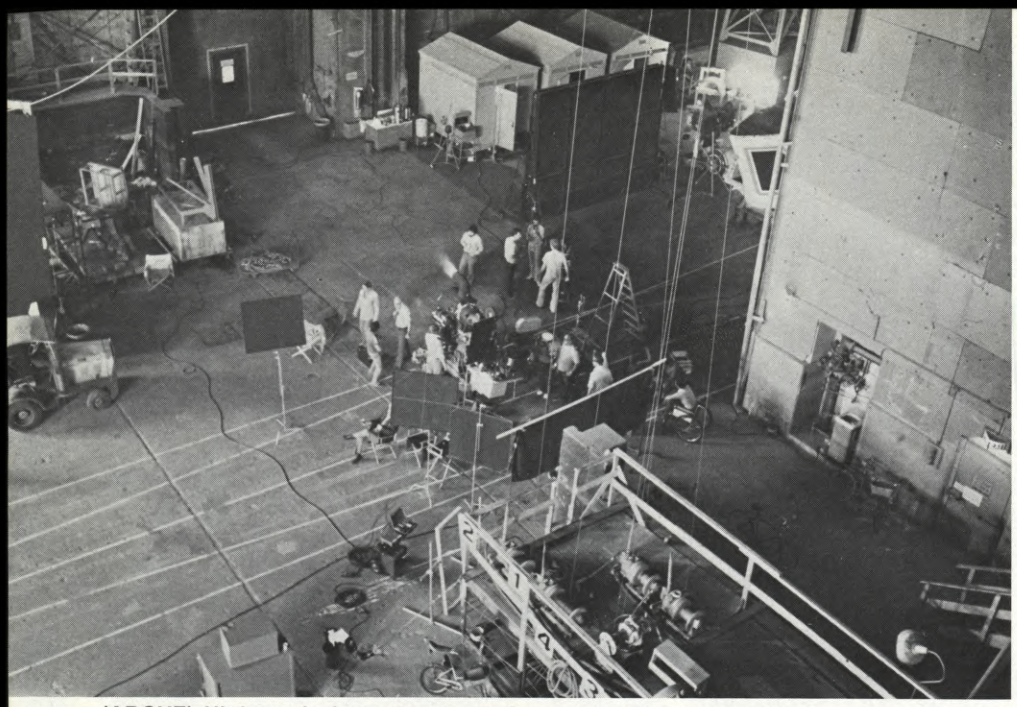
The Paramount front projection equipment used in filming "BLACK SUNDAY" is based upon a Mitchell background projector and when we designed it, we lashed up a nodal-point gearhead to the existing Mitchell projector. This is a very heavy, cumbersome type of front projection unit, but is still quite versatile and very professional.

The projector projects at a right angle to the camera. The camera shoots through a 50/50 split-beam mirror, which is approximately 15" high by about 25" wide. The reason the mirror is used is so that we can line up each lens in a nodal-point alignment. We are able to make this alignment by moving the gearhead to the right or the left, up or down, in order to make sure that when we project onto the screen there will be no shadows showing behind the actors.

The whole secret of the front projection process lies in the Scotchlite screen material that 3M manufactures. Without that super-reflective material, the process would not work. The material comes in two-foot widths in rolls 150 feet long, and there are different methods of applying it to a surface. For example, you can sew large pieces of cloth together, size the cloth, then peel this material off its paper backing and apply it to the cloth in a diamond pattern, in a jigsaw pattern or in a horizontal two-foot strip pattern.

The material itself is very forgiving. If you look at it under white light and see an imperfection, you can cut another piece of material to apply over it and cover up the spot that someone might have damaged. People write to me and ask how the material can have such tremendous reflectance. The easiest way I can explain it is to say that if you took a bunch of silver-coated marbles and pushed them all together and filled the space around them about halfway with black mastic and then etched the tops of the marbles off, you would have a highly-reflective parabolic lens surface. Reducing that concept down so that each marble is 1/2,000th of an inch in diameter completes the analogy of what the 3M Scotchlite material is actually like in its surface and reflective characteristics. If you look at the surface through a microscope, you discover that the manufacture is extremely precise and that there are very few flaws in the little beads or "lenses", as we call them.

The mirrors used in the front projection process can be obtained in almost any reflectance-transmission ratio that may be required, such as



(ABOVE) High angle from the top of Stage 14 at Paramount Studios, showing front projection equipment and crew below. (BELOW) Robert Shaw hanging by a rope, supposedly from rescue helicopter. Aerial scene on front projection screen behind him creates hair-raising effect, although he is acting in perfect safety only a few feet above the stage floor.

30/70, 60/40 or 50/50 — and you can also put an anti-reflection coating on one side to eliminate a second reflection. Personally, I have found the 50/50 ratio to be the most satisfactory. People have said, "But that means a full stop of light loss to the camera." That may be true, but because of the new film stocks we have available from Eastman, I don't consider that to be a problem at all.

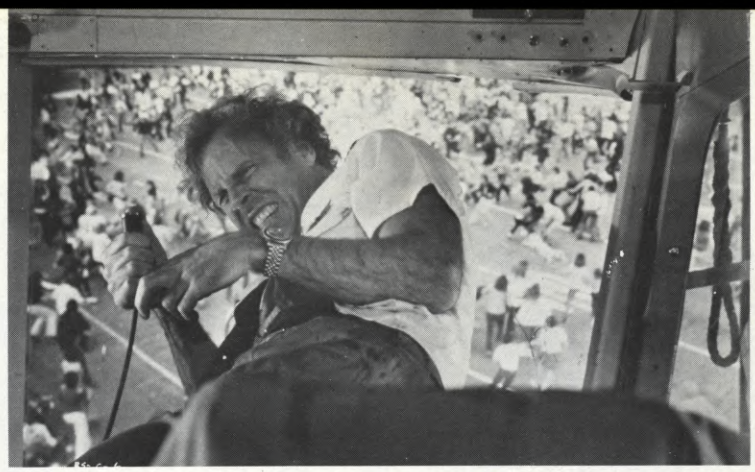
Screen sizes for front projection can vary from two feet wide on up to 100 or 150 feet wide. The only reservation is that when you get down to very small screens, the beads themselves tend to form a pattern. However, you can get around this by vibrating or rotating the screen during filming. From the professional standpoint, I favor front projection when you have a screen 18 feet wide or larger, but I find that for small screen work, where you are shooting miniatures of trains, airplanes, etc., it is preferable to use rear projection because it gives the director a bit more fluidity. However, it must be kept in mind that, when you get into smaller screens, you are faced with the depth of field problem, just as if you were shooting a straight closeup of something on a table. You have to have sufficient depth of field to keep both the subject and the screen sharp. If you are using an actor, you have to push him close to the screen to keep from shadow fringing and you have to build your key up for an f/32 exposure — which is enough to melt the actor.

Projector lenses for use in front projection are basically the standard lenses available from several manufacturers, but they do not come with the correct type of stops required for front projection work. That being the case, many of us who work with front projection equip the lenses with Waterhouse stops that can be inserted or taken out. This permits you to use a $300. lens, instead of one that might cost $10,000.

When shooting front projection, we try to copy on a one-to-one basis. For example, if we use a 50mm lens on the camera, we try to use a 50mm lens on the projector, as well. When you project a larger picture onto the background, there is a tendency for the grain to be magnified, although again, with the new Eastman fine-grain 5247 film, this is no longer much of a problem. There are times when it is necessary to project the background larger in order to facilitate zooming, panning or tilting. In panning and tilting we have to be especially careful to make sure that we are not outrigging and exposing the shadow of the subject. This means adjusting the camera gearhead so that it moves precisely on the nodal point of the lens.

Because, on stage, we are obviously using a 3200°K light source, we must also have a 3200°K light source in the projector, or filter it to that color temperature. Careful tests are made with color charts in order to achieve correct color balance, and these tests should always be shot through the actual mirror that will be used in photography, as it is possible for there to be a slight variation in the tint of the glass used from mirror to mirror.

Whereas for rear projection the background prints are made a bit thinner to compensate for a 60% transmission screen, for front projection (because of the extremely efficient screen material that is used) we make our prints very rich; if we did not, there would be a tendency for them to wash out.



(LEFT) The 40-foot blimp mock-up shown against a front projection background plate of Miami Stadium crowd fleeing in panic. (RIGHT) Plate shot of the same action at the same time, but from a higher angle, is used to film a blimp interior with Bruce Dern in the foreground. The front projection system permits compositing of intricate effects, with the complete scene being available for screening the next day.

Obviously, when shooting background scenes for front projection, it is important to use a camera that has very good registration. Otherwise, if you are projecting onto a 50-foot screen and you have a 1/4-inch movement, it's going to become a six-inch movement on the screen and it will look as though there's an earthquake going on. For this reason, the laboratory takes what we shoot with our precise registration camera, and puts it through a step printer to assure us of a steady print for rephotographic work on the stage. We don't like to order just one print, because we could find ourselves in trouble if a scratch were to develop, so we order two or three prints in order to protect ourselves.

As front projection units have become more sophisticated, they have also gotten smaller. Last year I sold units of this type to studios in North Korea, Bangkok, Hong Kong, Kyoto and Tokyo. This year I'll be delivering units to Moscow, Peking and other places around the world. I have been using a very small light source (300 watts), with which I am able to fill a 60-foot screen for shooting in the f/5.6 to f/6.3 area. The light source has a dichroic reflector on it which allows the heat to pop out the back instead of the front, where it could warp the film and cause a focus problem.

Front projection is being used heavily in Europe and in the Orient, but not so widely in Hollywood, where we are "spoiled", so to speak, by having 20 or 30 excellent optical houses at our disposal. For this reason the people in Hollywood tend to favor the blue screen process, whereas in the Orient, where there are few top-notch optical houses, they would rather shoot front projection, see the result the next day and, if they have made a mistake, correct it by reshooting.

I'm often asked to compare the relative merits of front projection and other available composite processes. For example, if you are shooting blue screen, it may be that the star of the film has to leave to fulfill another commitment before the background scene is ready. Then, if there is a problem in respect to the mattes and the actor has already gone, you are in trouble. By way of contrast, if you shoot front projection today, you can see the composite in dailies tomorrow. Should there be any problems, you could reshoot instantly and the actor could leave.

Another important advantage of front projection over blue screen is the

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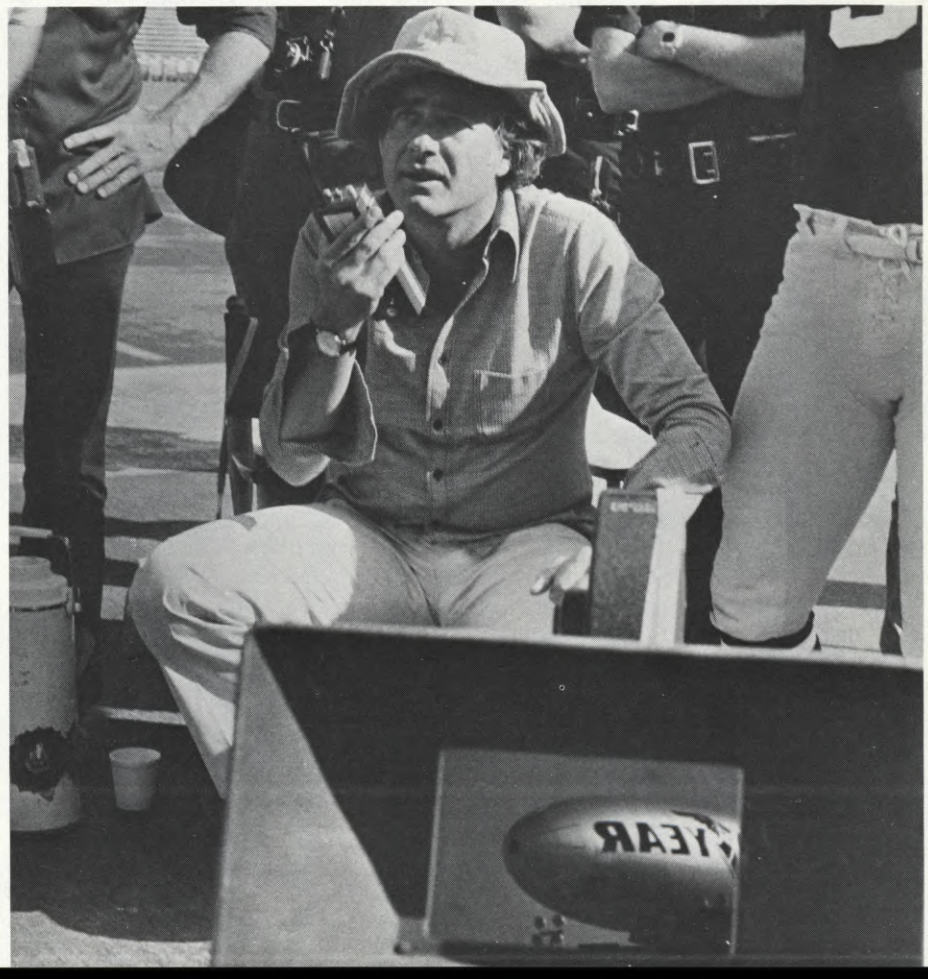
Director John Frankenheimer, shown on location during filming of the Miami Super Bowl sequences. He used ground-to-air video viewing through the camera lens in order to direct some of the required aerial scenes. Image of the blimp can be seen on monitor screen in foreground. As many as nine cameras shooting simultaneously were used to film the complicated action at this event.



THE CREATIVE PRODUCER IN THE HOLLYWOOD MARKET

The changing scene is reinforcing the image of the independent producer as a creative entity who supervises film-making from beginning to end.

By ROBERT LOVENHEIM

(EDITOR'S NOTE: The following has been excerpted from a presentation made by Mr. Lovenheim at the recent Tenth Motion Picture Seminar of the Northwest, held in Seattle.)

Producers have been around as long as there have been motion pictures to be made and people with money to make them. The independent producer, I believe, probably started the Hollywood industry, then vanished during a long period of its heyday when the studios were turning out 500 pictures a year. But in the last 20 years, mainly through the emergence of television, the independent producer has reasserted himself as really the dominant force, I would say, in the feature film business.

I'd like to speak to you today on three subjects. One is my own background. The second is what the function of an independent producer is today in Hollywood, and the third is to try, in some way, to define (or give some sort of advice on) what the best avenues are that exist currently for entering the film or television community in Hollywood as a writer, producer or director.

I might say also, in just trying to define what a producer is, that about the finest moment I can ever remember of what I think typifies a producer relates to a film we did about a year ago down in Mississippi called "THE MINSTREL MAN", which was a CBS special back in March. In one of those inevitable slip-ups we were scheduled at seven in the morning to go out and film a cemetery scene — a very crucial scene in the film — in a small rural wayside location we had set up with our own gravestones, fence and so forth, next to a rural church. Well, after eight hours of rain, the road going in there was a swamp and our trailer trucks couldn't make it through. In fact, three of them got stuck and had to be pulled out by the County at seven in the morning. So, with a troop of about 15 vehicles we started searching through a little town called Greenwood, Mississippi, for another site to shoot and, as the entourage went from place to place, from field to field, looking for some place where we might be able to set up our cemetery and cars of extra actors, campers, dressing rooms and equipment trucks, plowing through the morning traffic of Greenwood, we had an accident. And our three grips were incapacitated with whiplash.

Well, the next stop was the local hospital, which we finally found, so that they could be treated. Lo and behold, next to the hospital was this wonderful open field fronting on a river, it had everything we'd ever want, so we quickly sent our Production Manager in to see if we could get permission to shoot there — which was promptly granted by the Hospital Administrator — and we started setting up. Lacking grips, the producer then became one of the grips and, at about 9:30 in the morning, in pouring rain, I remember standing there, drenched to the skin, with the director and a prop man, picks and shovels in our hands, digging graves. But we were really enjoying it; everything was going fine and it was, at least, a little exercise in the morning. That is, until the Hospital Administrator came running across the lawn — and I've never seen a man more frantic and more scared in his life — and he said, "Mr. Lovenheim, I'd love to cooperate with you; we'll do anything. I know that this town needs this picture and we certainly want to cooperate, but you can't dig graves on the hospital lawn here. There are outpatients that are coming in every day."

Well, the only answer to what you do as a producer is you find some way to convince that man that it's good to have a hospital and graves in the same site. We did shoot; it was a wonderful location and, as far as I know, no one was scared away from an operation that morning — but, at any rate, that's what a Hollywood producer does.

My own background is really through the film schools. I have a Master of Fine Arts degree from USC in film, and from there I went on to Columbia Pictures where I became what is known in the business as a reader, which is someone who reads scripts for the executives and makes some sort of judgment. With a lot of luck, soon after I joined Columbia, there was one of the inevitable palace revolutions that usually take place in Hollywood studios every two years. The usual problem is this: Films are not making money; someone has to be blamed; the people who are running the studios, inevitably, have to take the blame. They are thrown out. Six months later some picture that they developed three years before makes a fortune and the new people are given the credit for it. This is a syndrome that has been going on for at least 40 years and is an accepted part of the business.

After about six months there was a palace revolution and suddenly I found that everyone who was in the creative side of management had either been fired or quit in fear that they would be, and my greatest qualification at that point, I think, was that I knew how the file system was kept up. Suddenly I found myself in a position of great authority, since no one else knew how the filing system was set up — and since I was a reader, I somehow assumed that maybe they couldn't read. At any rate, I spent the next four years working for Columbia as an executive in charge of production and then for Screen Gems, which has since become Columbia Pictures Television, in somewhat the same capacity.

In television, I found that my film school background was invaluable, mainly because the same mistakes were being made there that were being made in the film schools. Over and over again I was exposed to some of the same phrases we've all heard. The director pleading for those two extra days to go back and reshoot, while the editor sits there slowly shaking his head, telling him that of course it can be put together, and those two days aren't going to make much difference after all. Sitting and looking at the rough cut when somebody, always the wild optimist, gets up at the end and says, "Well, if we can get a great musical score . . ." Also, beware of the "great shot" philosophy, of the shot that cannot be cut out of the film because three days were spent getting it, but it's the one thing that is killing the pacing of the film and must inevitably be lost. The scripts that never worked, but we were convinced by writers and directors that this was something that could only be explained on film. And inevitably the same mistakes that were made in the script were the mistakes that were made in the film.

So, after a good several years of this kind of seasoning, I decided to throw my own hat in the ring and go out and try to produce. My own avenue towards producing was through television because, after watching the demise of the feature film industry in Hollywood for several years from the inside, I was convinced that the opportunities for someone there are quite limited. If anything, they have gotten far more limited

since I began producing.

I am involved in several feature film productions, but I do not consider this the mainstay of my business. It's an avocation; it's a question of raising huge amounts of money, spending years in development of screenplays, waiting sometimes a year or two years for the right director, with the right star who can carry the budget of a feature film.

Today, 80% of the production in Los Angeles is probably in the television market and most of the more interesting projects that are being done, especially in film (feature-length film or television-length) are being done for television. If you look at what the fare is at your local theaters compared to some of the more interesting shows that you are being offered on television, you can see where some of the creative imagination is going. So, my move to Screen Gems, my learning the television business and my finally deciding to start producing in television all went towards saying that this was a market which is insatiable, which needs people, which needs fresh ideas, which needs product — whereas, the feature film business today is always shrinking.

When I started working for Columbia, there were about 120 feature films made in Hollywood every year. Today that number is down to less than 50. These are the films made by the major studios. Warner Bros, for example, has just announced that they are taking their seven releases for 1977 to Cannes. That's very interesting, since they have at least eight executives in the studio. That isn't even one picture per executive. In the old days (the old days I'm talking about is just five years ago), they made at least 15 to 20 films a year. So, that's where the business is; that's where the opportunity is — in television.

What an independent producer does in television or feature films, as opposed to what a non-independent producer does, is that he supervises the production from beginning to end. In many ways, it's a throwback to what was always one of the greatest creative forces in this industry, which was the producer. There is an old phrase that maintains that movies are not made; they are forced into existence — and I think a producer is very much both the *forcer* and the *enforcer.*

Most of the projects that I work on are based either on my ideas or ideas that come out of conversations with writers, or with other creative people, about what we think could be interesting to the public, what could be interesting to the market, what represents a trend towards something that is going to capture the public's imagination. Then we will take that idea and either form it into a treatment screenplay or just an oral presentation and go to either the studios, the networks or independent financial sources and find some way of financing the next step in the development of that idea, via the treatment, screenplay, whatever.

Usually we supervise every phase of the screenplay. We are acting as almost an editor to a novelist in developing screenplays with writers, developing them both from our own knowledge of story and our knowledge of what is necessary in the marketplace to make something viable as a film. The next step, hopefully — which we sometimes get to, but rarely, in terms of the number of things a producer develops — is actually filming the picture. I would say that the ratio of projects that I develop to those that actually get made is about five-to-one, or perhaps even greater than that. Most of my time is spent in creating ideas, creating screenplays, and relatively little is spent in actually shooting movies. Because you must consider that the cost of just a two-hour television film today is about $1,000,000. The cost of a moderately budgeted feature film (this is not including the low-budget independent productions, but the Hollywood film) is about $4,000,000, and many, many feature films today are in the $8,000,000 to $10,000,000 range. The decision to make a film is a staggeringly difficult one, either for a network or a studio, and the competition for the money to make those films is intense, so the number of films that are actually made is very slight. In fact, I would say that writers are probably in the best position of anyone, both to break into the business and also to get good remuneration for their work, only because there is a great market for screenplays, but a limited market for films.

Anyway, if a network or a studio makes the decision to go ahead and make a film, I then become both a supervisor of it and a guardian of their investment. I will supervise the hiring of a director, the hiring of a crew, and casting of the picture. I will supervise the making of the picture, the cutting,

Continued on Page 877

A "working producer" in the most literal sense of the term, Robert Lovenheim dons Casey Jones drag to tend a steam locomotive, while on location in Hattiesburg, Miss. for the filming of "MINSTREL MAN", a two-hour CBS dramatic special. The company shot for two weeks in the local trainyards, during which time Lovenheim learned all the requisite hand signals and jumped in to help marshal the trains between producing chores.

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A new model of the popular IIIB 35mm/16mm Director's Zoom Finder is now available from Alan Gordon Enterprises Inc.

The new Finder has been recalibrated to include all widescreen formats and film ratios from 1:1.33 (Academy) to Safe-Action TV and other formats, including Panavision and Cinemascope. The Finder also has a new, easy-to-read scale on the barrel which simplifies the selection of lenses in the various formats.

The Zoom Finder is used as a guide in the selection of lenses and composition by cinematographers, directors, producers and anyone else involved in filmmaking. Because most motion picture cameras are equipped with lenses of different focal lengths or a zoom lens, the Finder helps in two ways. It can show what the camera reveals through its available lenses and, conversely, it can aid in selecting the best composition by determining what focal length lens should be used.

The Model IIIB 35mm/16mm Director's Zoom Finder is adjustable for various widescreen formats and film ratios. Built-in adjustable masks frame the view at 1:1.33 (Academy), Safe Action TV, 1:1.66, 1:1.75, 1:1.85 and 1:2.35, the latter setting being the popular Cinemascope and Panavision anamorphic formats.

Two simple controls operate the Director's Finder: the top ring (Ratio Scale) and the bottom ring (Focal Length Index Scale), both adjusted in relation to the two stationary white dots below each ring.

FILMING IN 35mm FORMATS

First set the top ring at the ratio scale in which you will be filming, i.e., 1.33 (Academy), Safe Action TV, Cinemasocpe/Panavision (2.35), etc., by lining up the top ring and white dot to the correct format ratio. (Note: This setting need not be changed as long as you continue to film in the selected format.)

Next, depending on the focal length lens you are using to film a particular scene, refer to the chart on the barrel of the Finder for the following information: Lens Focal Length, Film Format and Lens Focal Length index number.

Let's assume you are filming in 35mm, using a 25mm lens in the 1.33 (Academy) format. Having lined up the top ring so the white dot is just below 1.33, you would now refer to the horizontal line of numbers to the right of the Lens Focal Length 35mm column, stopping at number 25, which corresponds with your 25mm lens. Moving down vertically to the 35mm Academy 1.33 column under Film Format, we see the number 7 is beneath 25. By turning the bottom ring of the Finder so the 7 lines up over the white dot, you can now look through the Finder and see how your scene will compose with a 25mm lens in the 1.33 format.

If you were to switch to a 50mm lens in the same format, the number 39 now appears under 50 in the vertical column. Simply turn the bottom ring to 39 and you will view your scene as it will appear with a 50mm lens.

The same procedure is used for all film formats. Note that the widest angle lens available for Cinemascope and Panavision is 40mm, hence the first setting for these formats (2.35) is 2, which appears under the 40 in the vertical column.

FILMING IN 16mm FORMATS

The same steps are taken when shooting in 16mm, except reference must be made to the 16mm Academy 1.33 box in the Film Format column and to the 16mm line in the Lens Focal Length column. **Example:** Filming in 16mm with a 30mm lens, you would set your top ring to 1.33 and your bottom ring to 52.

If the field of view is not satisfactory in either 35mm or 16mm formats, the Finder can be a valuable aid in selecting the desirable composition and the corresponding lens. Simply rotate the bottom ring until the desired composition is achieved. Then, refer to the number on the bottom ring which is aligned with the white dot. Locate that number (or the nearest number to it) on the chart on the barrel, Film Format section. Refer to the number in the vertical column above and you have the focal length lens that should be used. For example, let's assume you are filming in the 2.35 format and the bottom ring stops at 39. By referring to the 35mm column you will find a 100mm lens will achieve the composition you desire.

SIMPLE STEPS TO USE THE DIRECTOR'S ZOOM FINDER

1. Adjust top ring to your film ratio.
2. Adjust bottom ring to desired composition.
3. Refer to chart and match Film Format to Lens Focal Length column to find correct lens for desired composition.

— OR —

1. Adjust top ring to your film ratio.
2. Refer to chart and adjust bottom ring to the number that corresponds with focal length lens you are using.
3. Look through Finder to see how scene will compose.

Price for the Model IIIB is unchanged, $149.50. It is available from Alan Gordon Enterprises Inc., 1430 N. Cahuenga Blvd., Hollywood, Calif. 90028. Telephone (213) 466-3561. ■

The Model IIIB 35mm/16mm Director's Zoom Finder is adjustable for various widescreen formats, including anamorphic. Two simple controls operate the Finder: the top ring (Ratio Scale) and the bottom ring (Focal Length Index Scale), both adjusted in relation to the two stationary white dots below each ring.

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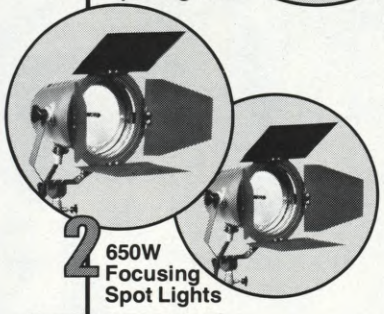

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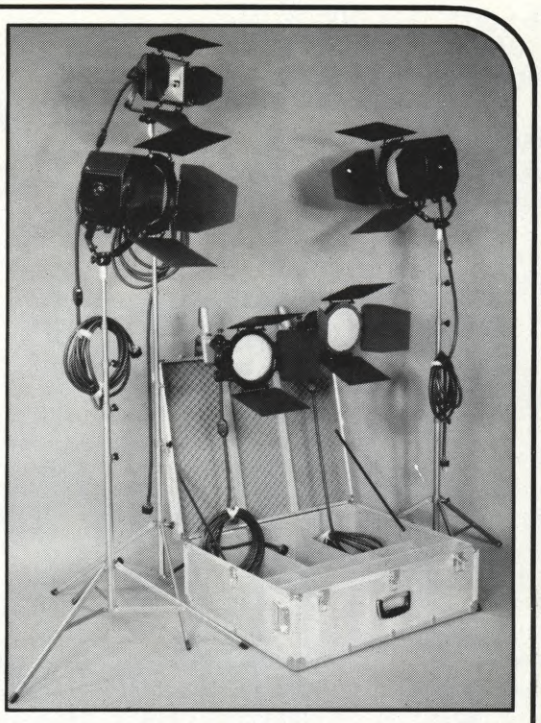

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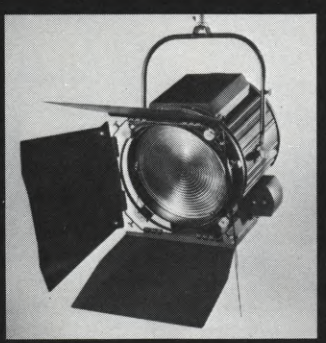

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THE PHOTOGRAPHY OF "EXORCIST II: THE HERETIC"

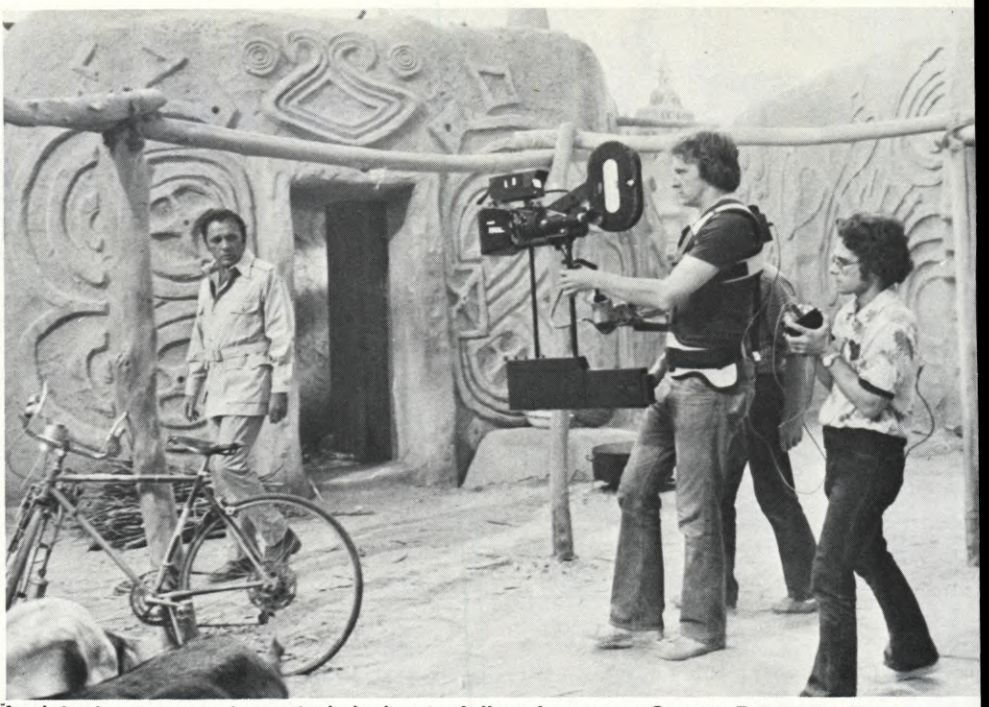
Continued from Page 813

QUESTION: Do you consider that you have a distinctive, identifiable photographic style?

FRAKER: There are certain cinematographers in the industry who have a specific style that is identifiably their own — and that's alright, but I don't believe in giving every picture the same look. I think that the look of a picture is inherent in the material. In other words, the material dictates what that look should be. But there are extemporaneous factors, so to speak, which also influence the look of the film. You have the director's influence, the actors' influence, the influence of the locations — and, lastly, the influence of the schedule. All of these factors are influential in what the look of the picture is going to be. Directors have asked me, "What do you think the picture should look like?" I never really know how to answer them, but Richard Brooks hit it right on the head. He says, "What is the point you are trying to make?" And that's it. He got it down to the common denominator.

QUESTION: How did you arrive at the photographic style you adopted for "THE HERETIC"?

FRAKER: Well, John Boorman and Richard MacDonald and I discussed it in advance, but didn't arrive at anything definite. It was only when the decision was made to shoot in the studio instead of on location that we decided to make it look what we called "theatrically different". We stylized it with the help of MacDonald, but we didn't quite know what we were getting into. We did some of the toughest stuff right off the bat — the Ethiopian desert, for instance. But when we saw it, we loved it, and it was then that we knew what the rest of the picture was going to look like. We did the Ethiopian rock church interiors, which looked gorgeous. Then we did the inside of the Vatican, using arc lights and light gold filters. It's all there — the frescoes, the paintings, the red vestments, the richness of Rome and the Vatican — but all done on the stage. At the end of the picture, the Georgetown house where the exorcism took place disintegrates (caused by the demon) and ends up as smoking ruins, while in the background you can still see the key bridge with cars going across it. All of that was shot on the stage, and it really turned us on to see that we could do it. John led us on very strongly in that direction.



Assistant uses remote-control device to follow focus, as Garrett Brown performs incredible maneuvers with the Steadicam. Of the Steadicam, Boorman says: "We had to have some special quality of movement that was beyond what people were familiar with. This camera was ideal for our purposes. It has extraordinary mobility; it is absolutely smooth; it is beyond muscle or machine and suggests the supernatural."

QUESTION: You sound quite enthusiastic about having shot all of this on the sound stage. What is your feeling in general about location versus stage shooting?

FRAKER: That's a terrific question. I love shooting on the stage because you start from black and then you go. You place one light and fill and you build from there. That's always turned me on. But the challenges of working on location are different from the challenges of working on a stage. It's a different trip. I'm not opposed either to shooting on a stage or shooting on location. I think they both have their specific merits, but I really feel there is more excitement on a stage. I like stage shooting.

QUESTION: Why do you feel that there is more excitement on a stage?

FRAKER: Well, I think there is more creativity possible on a stage — and I know there are a lot of marvelous cameramen who will disagree with me on that point. Shooting in color gives you a big break because the colors provide their own natural separation, and outside on location you've got all that working for you. But inside on the stage, you've got to do it all — just as if you were shooting in black-and-white. Don't misunderstand me; I love going on location to New York or around the world or wherever you go, but I like the control and discipline that are possible on a stage. I like starting with black and going from that point. I don't know which is tougher, to tell you the truth. They're both tough.

QUESTION: You did have some shooting in New York for "THE HERETIC". Can you tell me about that?

FRAKER: You always have tremendous problems when shooting in New York because of people crowding up to watch. New Yorkers are extremely curious, so you have this major problem of fighting the crowds. However, they have terrific film technicians in New York — very cooperative, hard-working and fast. It's more costly to shoot there than almost any other place in the world. Man-for-man and hour-for-hour, Hollywood is really the cheapest place to shoot. In New York we shot a sequence in Linda Blair's penthouse apartment. We also shot the boarding of Amtrak trains in Grand Central Station and Pennsylvania Station, and a couple of sequences showing the exteriors of buildings. That was about it in New York.

QUESTION: You shot nothing in Georgetown?

FRAKER: Nothing in Georgetown. We created Georgetown on the stage — one little intersection where the house

Continued on Page 844

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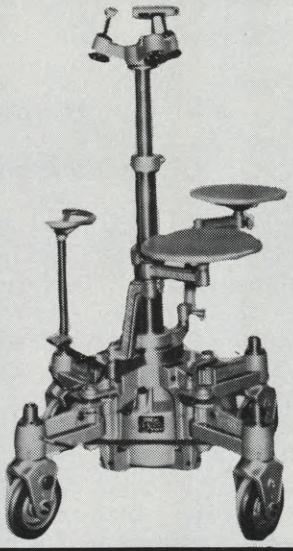

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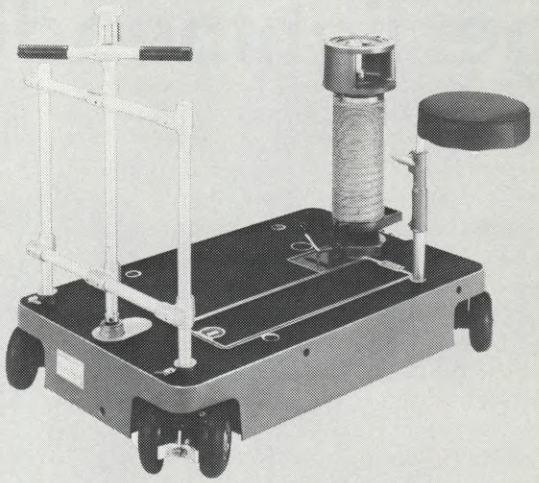

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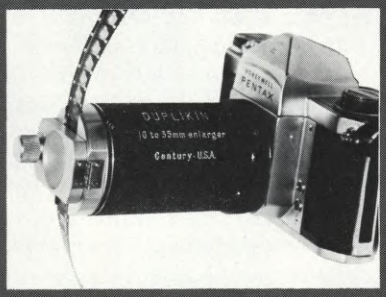

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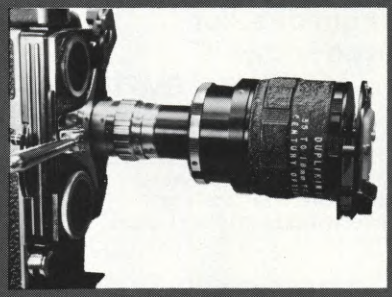

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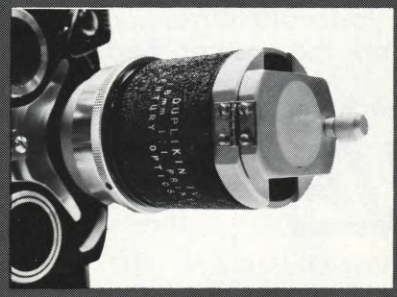

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THE PHOTOGRAPHY OF "EXORCIST II: THE HERETIC"

Continued from Page 842

was, the house where the original exorcism took place.

QUESTION: Can you tell me about the use of the Steadicam in shooting "THE HERETIC"?

FRAKER: There is the extensive sequence where we go to the Ethiopian rock churches to track down a demon, and it was there that Garrett Brown and his Steadicam came into play. It worked sensationally. Brown did the operating with the Steadicam and did an absolutely marvelous job. Before we started work on the picture, I said to him: "Garrett, we know that the Steadicam works and works terrifically. Now, forget about it working and become a camera operator. Start making a picture. Listen to what the director is saying and start working dramatically." I saw him really grow from being terrific to being sensational and he got everything that we wanted into the picture. It was very gratifying to watch. Garrett uses the Steadicam 100% because he's so big and has the back and frame to jump from stairway to stairway. Some of his shots are really phenomenal.

QUESTION: Is there anything about the filming of "THE HERETIC" that you haven't said, but would like to say?

FRAKER: Only that a lot of very talented people worked very hard to get it onto the screen. No one person makes a film; you need help from every direction. You don't do it by yourself. I speak at a lot of universities and I always tell the kids: "If you want to get into this business, accept the fact that it is a business that is going to take all your time and energy. Your family, your children, your house, your car — everything else becomes secondary. All of that stuff has to be put aside. The most important thing in your whole life is going to be film. And don't expect to lead a normal life; don't expect to have a camper and go off on weekends with your kids. Forget about all that stuff. If you don't want to do that, stay out of films." At least, that's the way it's been for me and most of the people I know. ■

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ON LOCATION WITH H.G. WELLS' THE ISLAND OF DR. MOREAU

A fantasy-adventure with science-fiction overtones, requiring off-beat technical skills for believable translation to the motion picture medium

By HERB A. LIGHTMAN

(EDITOR'S NOTE: The following report was filed from the location site during the actual filming of "THE ISLAND OF DR. MOREAU". However, because it was thought inadvisable to reveal at that time some of the unusual techniques involved in the filming, it was decided to withhold publication of the piece until the release of the film.)

ST. CROIX, U.S. Virgin Islands

The long haul from Los Angeles, via Miami to this Caribbean island paradise is worth all the bother once you touch down at the airport. I haven't been here for a couple of years, not since the first Virgin Islands Film Festival (see *American Cinematographer,* January, 1976), but the magic is still the same — scenery almost too lush to be real, a near-perfect climate, friendly local people who walk, talk and dance with a calypso lilt. It's good to be back.

It's good, also, to see at the airport the familiar figure of Win deLugo, Director of the U.S. Virgin Islands Film Promotion Office, waiting to collect me. It was Win and Eric Matthews (Assistant Director of the Film Promotion Office) who have invited me here to observe the filming of the American International Pictures production of H.G. Wells' "THE ISLAND OF DR. MOREAU".

For Win and Eric, both ex-actor producers, this picture represents a special sort of milestone. Budgeted at almost $5,000,000, it is the biggest project that they have lured to these islands and shepherded all the way through production. It represents the culmination of a dream they had four years ago when they opened their office, convinced that since the U.S. Virgin Islands were the only English-speaking islands under the American flag in the Caribbean area, they might become the center of a thriving new film industry. There was good reason for such optimism. This American territory, a duty-free port since 1917, boasts a stable government, U.S. currency, standard Stateside 115-volt electric current, excellent hotels capable of accommodating a large film company, catering services, building facilities, etc. In addition — and perhaps most important of all — there is no need for customs bonds, visas or work permits, and shooting permit red tape has been reduced to an absolute minimum. All this and a wide variety of spectacular scenery, plus year-round favorable shooting weather. It adds up.

The track record of the Film Promotion Office is impressive indeed. Prior to its approval by the Virgin Islands Legislature in the fall of 1972 (and the actual opening of the bureau in July, 1973), film production on these shores was virtually nil. But each year since its opening, the Office has managed to double the amount of money put into circulation by film and television production companies shooting here. This happy result is largely due to a willingness on the part of Win and Eric to make their facilities available 24 hours a day, seven days a week and to provide preproduction, scouting and logistical services to producers free of charge. They have never worked harder than on the current project, but it is paying off.

On the way out to the location site, Win tells me a bit about the "DR. MOREAU" film. "This H.G. Wells classic was brought to the screen once before — 35 years ago — under the title of 'ISLAND OF LOST SOULS', and it starred Charles Laughton, Richard Arlen and Bela Lugosi," he tells me. "The current version stars Burt Lancaster, Michael York and Richard Basehart in the same roles. The executive producers are Samuel Z. Arkoff and Sandy Howard, and the director is Don Taylor. The period of the story is 1896 and the central character, Dr. Moreau, is a dedicated scientist who is seeking to isolate and recombine the chromosomes which determine the

(LEFT) In a verdant valley at Davis Bay on the island of St. Croix stands the compound built by American International technicians and local labor to serve as the main set for "THE ISLAND OF DR. MOREAU". At left is the tropicalized Victorian mansion of Dr. Moreau. To the right is a private zoo and the "House of Pain", where Moreau's surgery is located. (RIGHT) The camera is placed on a parallel above the water to shoot an ocean scene at dusk.

shape of all living things. His experiments in shuffling DNA molecules result in the creation of half-man/half-beast mutations called 'Humanimals', and then all hell breaks loose. Considering the experiments which are going on today in the controversial field of recombinant biology, the theme of this period piece seems strangely up-to-date."

The Perfect Location

We arrive at the entrance to Davis Bay, the location site in which virtually the entire picture is being filmed. The guard at the gate, recognizing Win, allows our car to pass through and we follow a winding road deep into dense undergrowth. This is, in fact, a rain forest, the only one in the archipelago — but to my fascinated eyes it appears to be a proper Tarzan-type jungle, complete with dangling vines suitable for swinging from tree to tree.

A bit farther on, we find ourselves in a clearing filled with animal cages. The occupants include lions, tigers, black panthers, bears, wild boars, bulls, hyenas, and a cunning spotted and striped little wildcat known as a serval. There are also two tiny, newborn black panther kittens. The 30 animals which comprise this mini-zoo got here the hard way. "Affection trained" by Ralph and Toni Helfer, they were shipped from the Enchanted Village near Los Angeles by truck to Miami, and then by a slow five-day freighter to the Virgin Islands. The poor critters, I'm told, were seasick all the way.

You'd never know it now. They all appear hale and hearty. Even the hyena

(LEFT) Black tarpaulin shrouds block out the fine weather, so that night interiors can be shot inside the mansion. (CENTER) Director of Photography Gerry Fisher, BSC discusses a camera setup with Director Don Taylor. (RIGHT) Young animal handler takes a tiger for a walk. (BELOW LEFT) Cast and crew people stand by warily as untamed wild boar runs loose. (CENTER) Trying to get a hyena to hit his marks for multiple cameras is no laughing matter. (RIGHT) Burt Lancaster, starring in the title role, gives an interview to Bob McCoy, Entertainment Editor of the San Juan (Puerto Rico) Star. (Photographs by David Leighton Cover, Win deLugo and Herb Lightman.)

(LEFT) Setting up to shoot a jungle scene with Nigel Davenport and Michael York. (RIGHT) The home of Dr. Moreau is a triumph of architectural characterization by Production Designer Philip Jefferies. Basically a Victorian mansion with a few tropical touches — such as jalousie shutters and a thatched roof — it accurately reflects the personality of its owner. Built of new lumber only a few weeks before shooting began, it was skillfully "aged" by painter Jimmy Woods.

is a laugh a minute. The two black panther cubs, Burt and Mike (named after Lancaster and York, respectively), seem especially chipper. A young trainer strolls by with a huge Bengal tiger on a leash, just as casually as if he were walking a poodle in Beverly Hills.

Just beyond the animal compound area sits a structure that defies description. From the outside it looks vaguely like a big bundle of kindling wood supported by overhead beams, but when inside, I find that it is a man-made cave, the lair of the Humanimals. As man-made caves go, it is a masterpiece of construction. Fabricated of sprayed and moulded Styrofoam, it looks like something that nature would have taken millions of years to carve out. There are even "wild boulders" that can be hauled out to make room for the cameras, but it strikes me that lighting this set would be something else again.

As we drive farther into the jungle, we see temporary structures that have been thrown up to house Wardrobe, Makeup and whatever. There is also a stone structure that looks quite permanent and this has been converted into the commissary.

Charles Addams in the Jungle

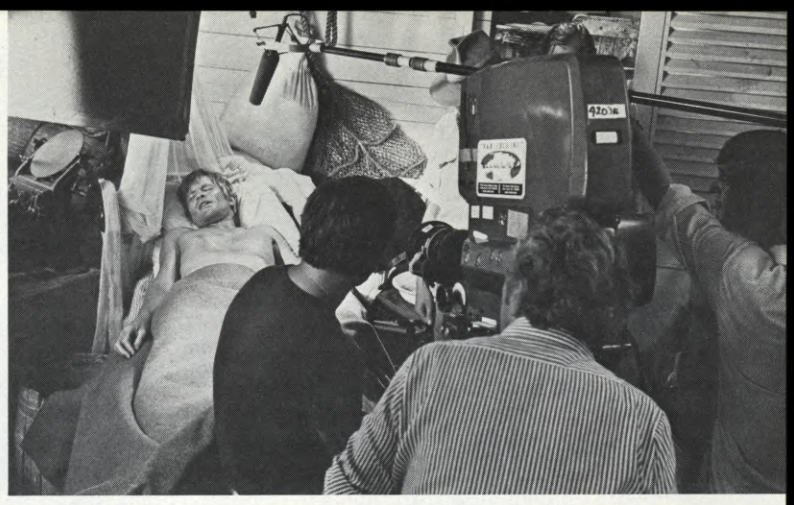
Up ahead there appears to be a sizable compound surrounded by a tall bamboo stockade. As we draw closer, I see that a two-story frame house dominates the compound. Though the architecture is basically classic Victorian, it has a few jungle touches — Somerset Maugham shutters and a thatched roof — and there is a definite Charles Addams aura to the design. Most of the interiors are practical and are furnished with the incongruously rococo pieces that colonials typically used to drag through jungles.

Dr. Moreau's house is a triumph of architectural characterization by Production Designer Philip Jefferies (perhaps best known for his design of "BUTCH CASSIDY AND THE SUNDANCE KID"). A former comic strip cartoonist who later became an illustrator, Jefferies, quite surprisingly, has never had academic training in architecture. Instead, he studied it on his own, but strictly as it related to motion picture set design. He is a firm believer in the theory that a good set is an extension of the personality of the character who inhabits it. For this reason, the operating room in Dr. Moreau's home (even though the Humanimals call it "The House of Pain") is no bizarre Frankenstein lab fit for a mad scientist. It is, rather, the tidy surgery of a dedicated medical experimentalist, who just happens to be slightly nutty over chromosomes.

Some of the credit for the believability of the sets must go to set painter Jimmy Woods, a master of the art of aging brand new buildings. Such a triumph is Dr. Moreau's house, built only a few weeks before of choice new lumber, but now appearing to have stood rotting in the jungle for at least a century. From his 17 years of experience in the film industry, the youthful-appearing Woods knows that color film tends to flatter just about everything, so it is necessary to overdo the aging in order to achieve a credible result. In order to do this, he sprays the surface first with asphaltum, followed by white latex. He then uses such "aging" colors as raw umber, sienna and burnt sienna. The final result features water stains, bleached-out pigments and peeling layers of paint. If that isn't enough, he adds a dirt-colored wash.

It was Woods, also, who was responsible for creating the rocks of which the man-made cave is composed. He did this by shooting foam into a plastic bag and then painting it, being most careful to duplicate the actual color of the

(LEFT) A somewhat unnerving sight, if you happen to have a hangover. Hyenaman Fumio Demura cranks off a few snapshots. (RIGHT) This truck with its twin generators (brought over from mainland U.S.A.) provided 1500 amps of electricity in the middle of the jungle. Except for the British camera crew, this was a transplanted Hollywood production, with technicians, actors, stuntmen and even the animals brought in from the West Coast.



(LEFT) Looking a bit like a hobo lean-to from the outside, this cave set served to introduce the "Humanimals", creatures that are half-beast and half-human. Lighting the interior of the cave was a considerable challenge, even though ports for lights and camera were built in. (RIGHT) Filming a scene of Michael York as he awakens from chemical-induced coma to find he is changing into an animal. There are no studio scenes in the film. All interiors were shot in the sets built on location.

rock native to that area.

Browsing about the compound, I get my first glimpse of the Humanimals. Dressed in tattered rags, they sport the heads of bulls, boars, bears and hyenas. It's like Saturday night on Hollywood Boulevard. The makeups are masterful in design and execution.

Hanging by the neck in the pathway to the compound is a dummy, "standing in" for Dr. Moreau himself. Burt Lancaster, who plays the role of the chromosome-mad doctor in the picture, has already completed his acting stint and left the location, but the dummy turning in the trade wind is a grim reminder of his rather forceful presence.

We make our way down to the beachfront where the company is shooting, and here there are a couple of familiar faces. Director Don Taylor is blocking a scene with Michael York, whom I'd last seen on the set of "LOGAN'S RUN" at M-G-M. But this time he's not the clean, scrubbed Sandman of the 23rd Century; he's made up to appear more like a cross between a hippie and a werewolf. I gather that, at this point in the script, he's had a shot of Dr. Moreau's magic chromosome juice.

Atop a parallel, busily setting up a camera angle, is another old friend — Director of Photography Gerry Fisher, BSC. When last we met it was on the set of "THE ADVENTURE OF SHERLOCK HOLMES' SMARTER BROTHER" at Shepperton Studios in London. When he sees me, he takes time out for a brief but warm reunion; then his eye is back in the viewfinder.

The scene to be shot has Michael York and the lushly feline Barbara Carrera apparently trying to escape from the island in a small boat, while a rabid little Hyenaman goes thrashing out into the water in an attempt to prevent their departure. Getting this scene satisfactorily onto film involves a tough struggle, but finally it's in the can. The doughty little Hyenaman, somewhat waterlogged, but still game, staggers ashore to dry out.

Turning Beasts into Men

The story line of "THE ISLAND OF DR. MOREAU" is based upon the premise that the good doctor, with all his juggling of chromosomes, never succeeds in transforming so-called lower animals completely into humans. They always get stuck somewhere in between — an awkward situation, to say the least, and one that leads to his ultimate undoing.

To materialize these hybrid creatures on the screen, so that they are credible — and not laughable — takes a bit of doing. Who better to do it than the award-winning team of John Chambers and Dan Striepeke ("PLANET OF THE APES"), aided by former apprentice Tom Burman?

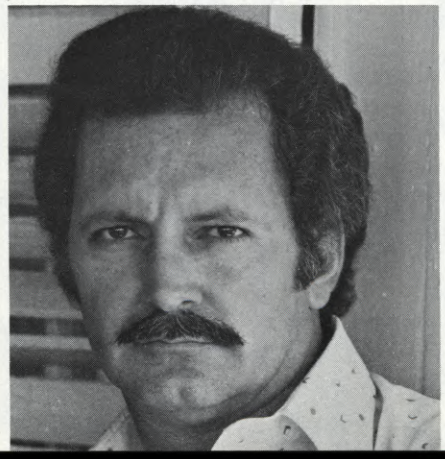
Watching them convert actors, extras and stuntmen into a wide variety of Humanimals is a fascinating experience. In most cases, it takes four hours to do the complete job, starting at 4 a.m. The process is most complex. It begins with the application to the face of latex foam "appliances", which are segments that change the contours of the features. In the case of the Humanimals, the appliances included such exotica as snouts, muzzles and forehead pieces complete with horns. These are affixed to the skin with spirit gum, sealed with liquid rubber and blended at the edges with castor oil-based makeup.

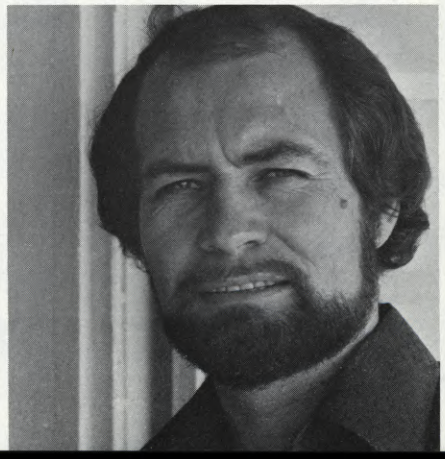
But that's only the beginning. Also involved are wigs, facial hair, body hair, fangs, claws, hooves and (in some cases) full "animal" contact lenses. The latter are special lenses that completely cover the front of the eyeball, radically changing the appearance of the actor. An expert local optometrist, Dr. Peter Kumpitch, has been trained by Chambers to insert and remove the special lenses. He tells me he's enjoying the novelty of the experience, even though it takes him away from his normal practice.

The Fiery Finish

Judging from what I can gather of the story line, not having read the script, "THE ISLAND OF DR. MOREAU" ends in fiery cataclysm. Moreau is left hanging by the neck; the Humanimals and real animals tangle in mortal combat; the compound catches fire and the Vic-

Win deLugo (LEFT), Director of the U.S. Virgin Islands Film Promotion Office and Eric Matthews (RIGHT), Assistant Director, both former actors and producers, have a unique first-hand understanding of the problems of film production. Their office is on call 24 hours a day, seven days a week to aid producers in every way, providing preproduction, location scouting and logistical services without charge. They were instrumental in bringing "DR. MOREAU" to St. Croix and provided constant aid to the company throughout production.





(LEFT) Lining up for a low-angle shot of the Hyenaman, as he takes a spill while trying to ride the wild boar. (RIGHT) Twenty-two-year-old animal handler David Wilson plays tag with a tiger. The big cats romp and play like pussycats and are especially fond of the chase. (BELOW LEFT) The front facade of Dr. Moreau's mansion — right out of a story by Somerset Maugham. (CENTER) Looking like tourists in beach togs, the camera people line up a scene. (RIGHT) A fairly high beach shot, filmed from a parallel. In this case, Michael York's arrival on the island.

torian mansion is ultimately consumed by the flames. After all, you've got to give the paying customers something they aren't likely to see on TV.

All through this production, Win deLugo and Eric Matthews, representing the Film Promotion Office, have been bending over backwards to secure for the film company everything it needs or wants — and they have done in incredible job. However, the one time they are stymied is when they receive a request from the top production brass for permission to set nearby Buck Island on fire. Since Buck Island happens to be a national park, the request, of course, has to be denied, and the film-makers decide to settle for setting their own compound on fire.

The filming of this sequence takes place over several days, and it's anything but simple. Gas pipes have to be strategically placed and the fire department stands by constantly to put out the flames after each take. As if that weren't complicated enough, in the midst of all the fiery bedlam, the real animals are running amok and fighting with the Humanimals. I have immense admiration for the animal handlers who are controlling the beasties so well with all that fire blazing forth. However, the one animal that spooks even them is the wild boar. He really is *wild,* and everyone gives him a wide berth.

I talk with second unit cameraman Ron Taylor, who is responsible for getting all of this onto film and he says: "The sequence we are shooting at the moment, with all the fire and the multiple action of lions, tigers and bears, could be very exciting. I'm trying to coordinate my effort with that of the animal experts, so that we can get the greatest visual impact out of the action. One major problem is that some of the animals — the lions, for instance — have been brought up with so much love and care, and are, as a result, so gentle, that we've had a job making them look ferocious. We shot a fight between a tiger and the Bullman and, in order to get the tiger really annoyed, we gave him his food and then tried to take it away from him. We got some very good close reaction shots in which he was extremely annoyed, but it took him a long time to cool down afterward."

Before departing from St. Croix, I have dinner with Director of Photography Gerry Fisher, during the course of which we are able to have a relatively quiet chat about the visual aspects of the production. Our conversation runs as follows:

QUESTION: What do you regard as your foremost challenge in photographing "THE ISLAND OF DR. MOREAU"?

FISHER: Capturing the interest of the audience to the point where they will forego their suspicion and, more than that, suspend their disbelief. In a fantasy-adventure film such as this, you have to make people want to believe what you are going to show them — even though it may not be acceptable according to strict standards of credibility. This, of course, is a problem for the screenplay writer, the director and the actors — but it is equally a problem for the cinematographer.

QUESTION: Could you enlarge upon that latter point?

FISHER: Well, for example, the writer takes a pencil and a blank piece of paper and he writes: "The man looks up and sees something indescribable." Now, all it takes for him to write that is a pencil and a piece of paper, but you, as a cinematographer, have to photograph something "indescribable". So now you can't do that physically, but what you have to do is produce an atmosphere in which someone can react as if there were something indescribable in front of him. Then, when you look at what he sees, it isn't something indescribable; it's just something used to give the effect of something indescribable. But you've got to photograph it — and that's our problem.

QUESTION: And how have you been coping with that problem?

FISHER: There's really only one way to cope with it. Frankly, you have to seduce the audience to the point at which the indescribable and the unimaginable become visible to them — and it's only possible to do that if you've captured their imagination in the first place. Once you've done that, they will want to believe, because they want to be entertained. They're not sluggards. They're not trying to hold themselves back. They want to be stimulated by adventurous movies. They want to have excitement. They want to go to see a film and be detached from their ordinary lives. They want to have the whole experience of the adventure. They are very willing, even anxious, to be in your hands, as far as the molding of their minds is concerned. They're not holding back; they're not being critical all the time and saying: "I noticed in that scene that somebody's foot didn't look right." They don't care about those things. They want to be carried along by the swell of the story. We've been trying to do our bit behind the camera to make that happen.

QUESTION: What do you think of the choice of the St. Croix area as a basic location for this film?

FISHER: I think it is an outstanding choice. I don't think I've ever been on a film for which the location site was so well chosen. We had to have an island situation and we have it here. It's a perfect situation, both in terms of weather and tropical atmosphere. We have the beach, the jungle, the palm trees and, in the middle of it all, a wonderfully contrived set designed by Phil Jefferies. It's a grand stockaded compound — outrageous, unbelievable, yet completely in character with a

Director of Photography Gerry Fisher, BSC, who loves a challenge, found plenty inherent in the problems of filming this most unusual fantasy-action melodrama, but, by his own admission, loved every moment of it.

Victorian novel of this kind. I think it is outstanding. I think the entire production and the provisions for us to make the film have been truly outstanding. There has been nothing that we've needed that we haven't had.

QUESTION: To what extent were you involved in the planning during the pre-production phase?
Continued on Page 860

(LEFT) Filming at Davis Bay, St. Croix, in preparation for Michael York's escape scene with Barbara Carrera. (CENTER) Shooting hand-held scenes of York's escape from the island. (RIGHT) Technicians look on, as local firemen hose down the flames. The body of Dr. Moreau (Burt Lancaster) can be seen in silhouette, hanging in front of his flaming empire. (BELOW LEFT) Hand-holding cameras, as Michael York surveys damage to his boat. (CENTER) A liberated bear comes lumbering toward the camera from the burning building. (RIGHT) Flames, ignited repeatedly for the filming, were so well controlled by St. Croix fire department that very little vegetation suffered from heat or scorching.

LIONS AND TIGERS AND PRACTICALLY EVERYTHING

Fierce jungle beasts that rage and fight their way across the screen for "DR. MOREAU" are actually much-loved gentle pussy-cats off camera

If "THE ISLAND OF DR. MOREAU" proves to be a box office hit, part of its success will have to be credited to the magnificent animals that appear in the film and to their skilled and patient trainers. The animals were provided by the Enchanted Village in Buena Park, California, which is owned and operated by Ralph and Toni Helfer.

The comments which follow detail some of the problems of working with the animals on this picture and the methods used to solve those problems and get the spectacular action required:

RALPH HELFER
Animal Supervisor

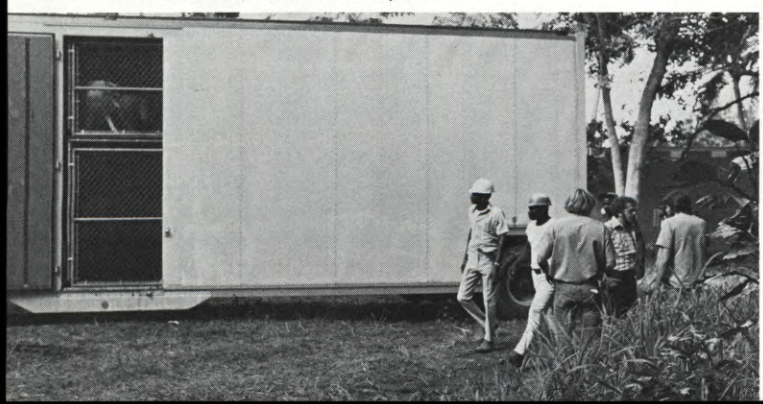
We've been in the business of working with animals for about 26 years and, during that period of time, we've done about 5,000 motion picture and television productions.

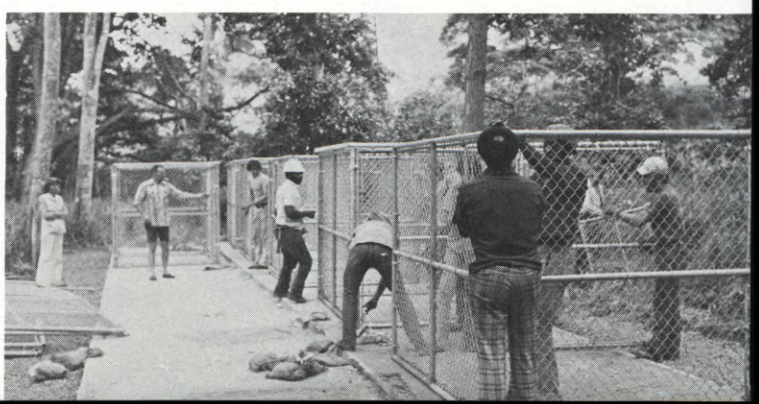
Many years ago when I was quite young, I was doing stunt work and working animals in movies for other people. I was doing it their way — which was referred to as "Fear Training" — and that method kept putting me in the hospital, because it was the wrong way to do it. The animals didn't enjoy it and neither did I. It was nothing but fang and claw, which I believe was largely an ego trip in those days.

It was at that time that I developed a new concept, a new way to go, and I called it "Affection Training". It is a type of training based on the emotional relationship between man and animal. It's also based on love and respect, plus patience and understanding. That procedure has revolutionized the motion picture and TV industries, in that it permits them to do things that never would have been possible with Fear Training. It has made possible such shows as "DAKTARI", "GENTLE BEN" and "COWBOY IN AFRICA".

Because of the way "THE ISLAND OF DR. MOREAU" is written, it could not have been done without Affection Training. Fear Training could not have accomplished what this script called for. The whole concept of love with respect, we now know, is the way to go, and we hope other people will pick up on it. We would like to see it used in conservation programs and veterinary medicine and progress to a point where it will help animals to survive. As it is today, most animals are not Affection Trained and they are leaving the earth very fast.

(ABOVE RIGHT) Animal Supervisor Ralph Helfer, shown here with feline friend, owns and operates the Enchanted Village wild animal park in California and has trained animals for some 5,000 film and TV projects. (BELOW LEFT) Animals in containerized module arrive at location site on St. Croix, U.S. Virgin Islands. (RIGHT) Cages for the animals are set up on location. What did it take to get them from Buena Park to St. Croix? It took six days cross country by trailer and then a five-day boat ride from Miami to St. Croix at a total cost of $70,000.





(LEFT) Head animal trainer Carl Thompson has a heart-to-heart chat with one of the actors who just can't bear inactivity. (RIGHT) Thompson stalks a leopard, as it leads him out on a limb. All of the animals appearing in "THE ISLAND OF DR. MOREAU" were Affection-Trained — except for the wild boar, which wasn't trained at all. Such training, based on an emotional relationship between man and animal, requires love and respect, plus patience and understanding.

There is what we call the "wall of fear", and under those conditions animals do not breed. You walk into a zoo and there's a wall of fear between you and the animals. That's a horrible existence for an animal — knowing that during every waking moment the enemy is walking around him. With Affection Training, that's not the case. There's a great emotional love between the people and the animals. Therefore, the breeding programs are good. It's a whole new outlook on how man should work with animals, and we are very excited about it.

"THE ISLAND OF DR. MOREAU" is a unique project in that the producer, Sandy Howard, said to me: "Ralph, would you literally write the last ten minutes of the film for me? I want a cataclysmic ending with a lot of animal action, but the scriptwriters couldn't be specific because they are not sure what your animals can do."

Well, they can do quite a lot of things. For example, in that final sequence we have a Brahma bull jumping through a simulated solid wall with a Lionman on his back. We have tremendous tiger fights. We have a black leopard falling off a two-story building. We have a wild boar that charges out of the barn dragging a man. We have a man being mauled by a 500-pound lion. All sorts of things like that are cut together at the end of the film to make it quite a finale. It could end up as a classic of its type.

The producers are super people to work for. They have given us everything that was needed to make a picture of this type. My wife, Toni, has been here during the entire time of shooting. I've had to go back and fourth quite a bit, but she's literally baby-sat the whole production. We're looking forward to the release of the picture.

DAVID WILSON
Animal Trainer

Before we even start filming, there is a rapport that I must build up with each animal that I'll be working with. They have to trust me; they have to know that I am friendly, but that I also demand a certain respect. If they get a little wild or out of hand, I've got to be able to come down on them. They have to expect that, so that when I slack off and tell them to do something again, there will be no trouble. Sometimes we have to make as many as 25 takes on a scene, and those tigers or lions will do that for me without giving it a second thought. They will attack me or run through a fire, or whatever is required in the scene, and they will do it repeatedly. They have an awful lot of trust in the person on the other end of the leash.

I've been with these animals for about a year and a half now and I'm with them every day. I clean them, feed them and take them out for exercise. All of this builds rapport. When I sit down next to them, they know everything is alright. They know that there's nothing in the world that's going to hurt them. In fact, they'll crawl right over onto my lap and

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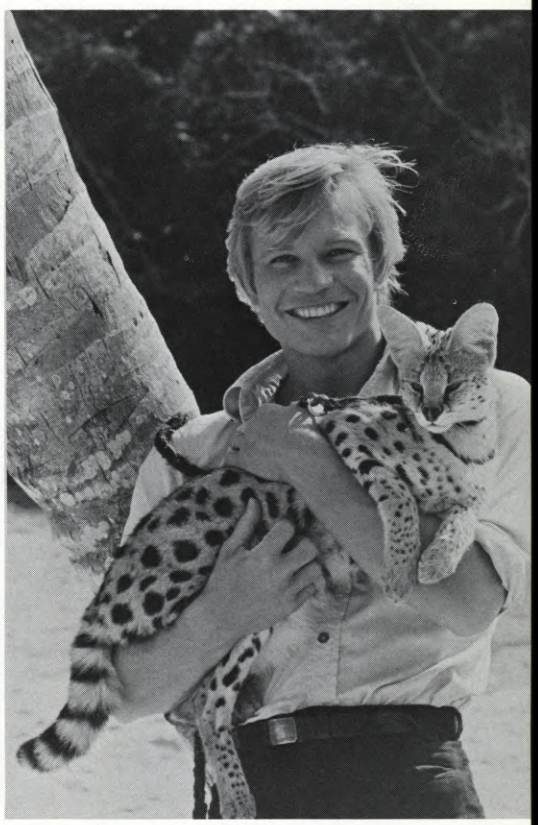


(ABOVE RIGHT) Star of the film, Michael York, cuddles a *serval*, the beautiful little South African wildcat featured prominently in the film. (BELOW) Twenty-two-year-old animal trainer David Wilson romps and plays on the beach with his favorite lion, while Carl Thompson looks on. Wilson doesn't care if the big cats chase him and jump on him. They're showing affection and doing what comes naturally.

CHANGING BEASTS INTO MEN–ALMOST

It took four hours of highly technical creative makeup each morning to synthesize convincingly the hybrid "Humanimals" for "DR. MOREAU"

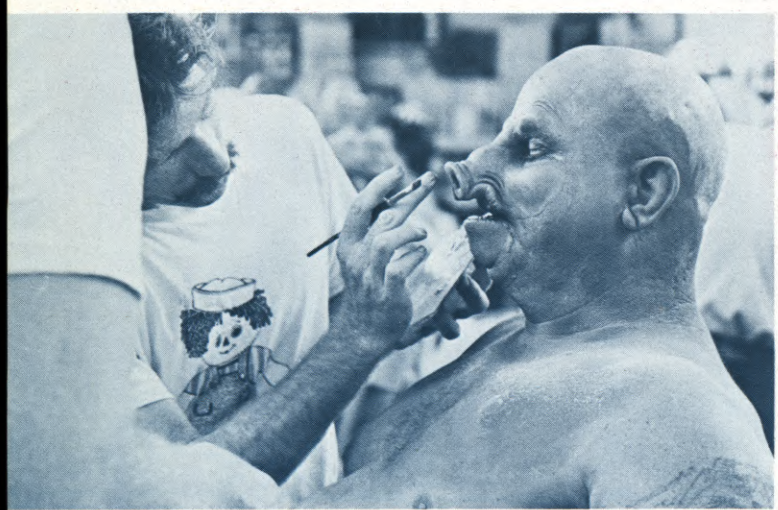
By JOHN CHAMBERS

Based, as it is, on an H.G. Wells story, "THE ISLAND OF DR. MOREAU" is, in my opinion, a winner to start with. It had been made once before by Paramount under the title of "ISLAND OF LOST SOULS" and had become a classic, but we felt that with the new makeup techniques that are now available, we had a marvelous opportunity to go beyond the original, while in no way detracting from it. The challenge was there, and that's what we tried to do.

Dan Striepeke, who is my associate, and I started about a year-and-a-half ago to work on the project for Sandy Howard Productions. We hired an artist and gave him some input on how we wanted the "Humanimals", as we named them, to look. He sketched these visual concepts on paper and we seemed to get a good working type of character for each one of these creatures right from the start. From there we went to small, three-dimensional models of the basic creatures — the Boarman, the Lionman, the Bullman and all the rest. Again we were fortunate, because the powers that were — the people who controlled the budget and those who had the creative say — all liked what we came up with, and we got our go-ahead.

The next step was to select the people who would wear these elaborate disguises and this was done in collaboration with Ralph Helfer, who was to supply the people who would handle or work against the many actual

(ABOVE LEFT) The Hyenaman, one of the "Humanimals" most prominently featured in the film, was called upon to make his nose quiver constantly in closeups — no small feat in such makeup. (RIGHT) The Boarman takes a break to have his makeup touched up. (BELOW LEFT) The Boarman, played by a rotund actor who calls himself "The Great John L", has a bit of color added to his snout. (RIGHT) A chic wig is positioned to enhance the Boarman's image. The eight principal Humanimals, assigned very demanding roles, were played by skilled actors and/or stuntmen.



Affixing latex foam "appliances" to the hide of the Tigerman with spirit gum. At right is makeup wizard John Chambers, who won a special Academy Award in 1969 for "Outstanding Achievement in Makeup Artistry" in recognition of his work on "PLANET OF THE APES". For this film, Chambers had to develop new materials and procedures to cope with the demands of the tropical climate.

wild animals in the film. Whereas on past pictures like "PLANET OF THE APES", we had a certain license in picking people to meet our requirements, now we had to choose people who could work with the animals, in addition to being actors and stuntmen.

When the proper people had been selected, we started the actual impressions and created the three-dimensional facial characteristics with foam-latex appliances. From there we designed and executed the full makeup. It took us many months of working in the laboratory at 20th Century-Fox, which we had rented for our chores.

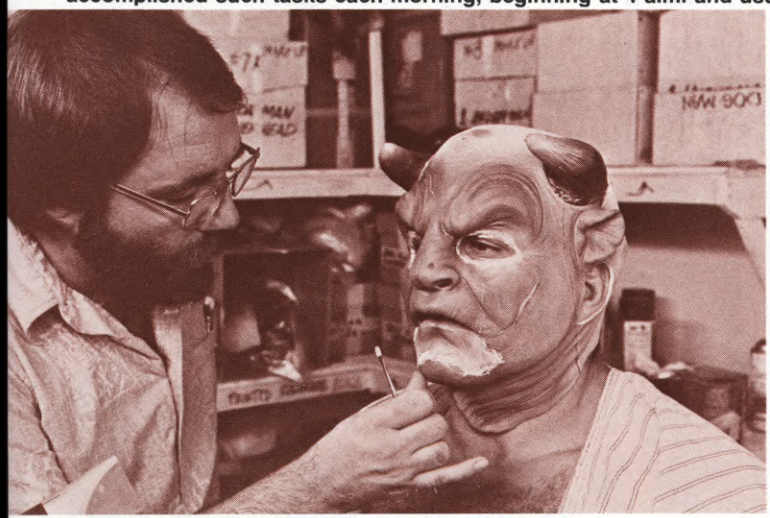
The producers reached a point where it was decided that there should be a rewrite of the script, but we clung to our original concepts of how we felt the creatures ought to look and, fortunately, the writers stayed within those confines. They wrote their new script around what we had created, and we didn't have to "remake" any of the creatures. However, they did add more of them and up until the time that we arrived on St. Croix, a couple of weeks before shooting was to start, we were still testing and refining the various makeups. As luck had it, on the last day before the start of shooting they saw rushes of our tests and liked what they saw. From there on it was the familiar story of hard work, of getting up early in the morning and going to bed late at night. But when you are on a project that you feel is worthwhile and seems to be progressing well, you accept that routine with pride and keep going at it.

Throughout the production we've had 12 makeup artists and three hairstylists working full time. It's a very intimate production and there are only eight principal Humanimals, but the intricacy of their makeup usually requires two persons to each creature. It is not the head alone that is involved; there are the feet, the hands, the teeth and the eyes. In some cases we've been involved "bodily", too. We've had to reach over into wardrobe and help them develop the fur garments, because they didn't have technicians to do that sort of thing. It isn't like ordering a fur suit for the Ice Capades or something like that.

When we did "PLANET OF THE APES" we were involved with ape creatures — various members of the simian family. Once I arrived at a concept and it was accepted, we just varied it to suit a gorilla or a chimp or an orangoutang. They were all members of the same animal family, but with different facial characteristics. On the other hand, in "DR. MOREAU" we were dealing with creatures that were very different from one another. The Lionman and Tigerman were similar up to a point, but then there were the Boarman, the Bullman, the Hyenaman and the Bearman — all varied types.

For the Boarman we wanted a piglike, brutish look. For the Bullman we were after a big bull-shoulder effect and, even though the man selected to play the role was a pretty good-sized athlete, we had to be careful not to pack him up with a lot of hokey-pokey that would have made him look like a teddy bear. There is a very thin line between something that is believable and something that gets laughs, and it's really very easy to get laughed at. However, I'm positive that no one is going to laugh at our creatures. They haven't yet. They've marveled at the effect, but no one has laughed or said, "Isn't he

(LEFT) The complex makeup for the Bullman required an intricate headpiece, complete with horns. In a fight with a real tiger, he wore a protective fiberglass headpiece under the makeup, which saved him from injury when the tiger bit him on the head. (RIGHT) The physiognomy of the Hyenaman required several appliances, painstakingly built up and then covered with hair. A corps of twelve makeup artists accomplished such tasks each morning, beginning at 4 a.m. and usually requiring about four hours to do the job on each Humanimal.



(LEFT) Latex foam appliances hanging on a wall, ready for use when needed. Many sets of appliances were made for each character, but due to unscheduled demand for the services of certain types, supplies were depleted and used appliances had to be carefully salvaged and cleaned for reuse. (RIGHT) A poignant closeup of the Bullman, in which the almost human expression accurately conveys the sadness of the Humanimals' plight — trapped, as they were, in limbo between two worlds.

cute!" I don't want to hear that. I want them to say, "Wow, isn't he *strange.*" That's what we've been getting, so I feel pretty secure that we are on the right track.

I mentioned the fact that we had eight principal Humanimals. These are the creatures that figure prominently in the action and appear close to the camera. They wear the soft rubber-foam appliances that have to be critically adapted. Then there are background creatures that wear over-the-head masks. We started out with 10 or 11 of those, but found that we didn't have nearly enough, because they kept getting killed off. So we've been devising new makeup types as we went along — taking a cast-off creature that they felt wasn't going to be appealing enough and compositing it with something else to make another creature. This is improvisation, but it has been working out and we've been providing them with an abundant supply of creatures. Some pretty weird characters keep popping up here and there, but the masks hold up well, as long as these types stay in the background. I think that the director, Don Taylor, is very wise in not trying to get more out of them than what they were intended to be.

There is one factor in this assignment that makes it especially difficult. Whereas, in "PLANET OF THE APES" we would design a set of appliances for each character and that was it, in this film we have to show metamorphosis from pure animal to something that is almost pure human being. That turned out to be a very ticklish situation and for cosmetics we got a bit too involved in some instances. There was the question of how many phases of

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(ABOVE) John Chambers aids local optometrist, Dr. Peter Kumpitch, in inserting special "animal" contact lenses that fully cover the eye. (BELOW) A distinguished group of Humanimals. (Left to Right:) The Boarman ("The Great John L"); Sayer of the Law (Richard Basehart); The Tigerman (John Gillespie); The Hyenaman (Fumio Demura); and The Lionman (Gary Baxley). In less skilled hands, such bizarre characterizations could have proved laughable, but they come through with absolute credibility on screen.

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Beau Gest	Gerry Fisher
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All Things Bright and Beautiful	Arthur Ibbetson
The Adventures of Sherlock Holmes	Gerry Fisher
Lisz to Mania	Peter Suschitsky
Rosebud	Denys Coop
The Romantic Englishwoman	Gerry Fisher
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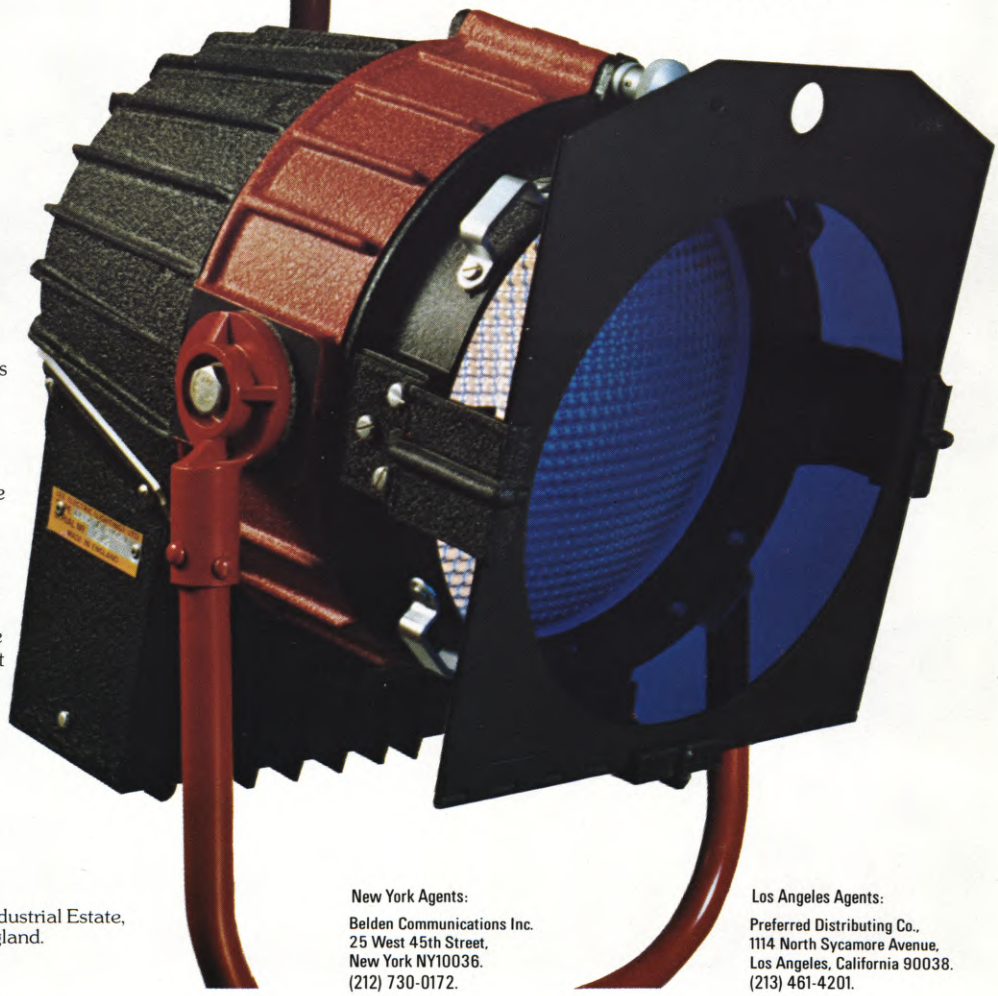

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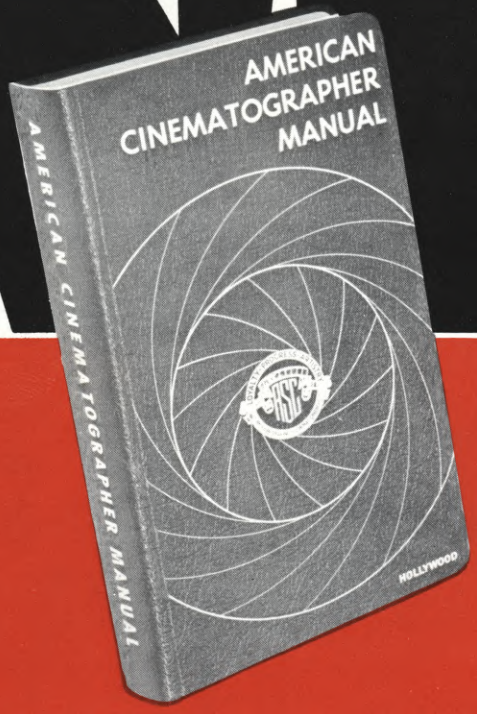

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just lie there, knowing everything is alright.

It's either that, or I get down on all fours and give them their cue to attack. They'll come running and hit me and knock me flat on the ground. That's how they get their feeling of security. It's just reinforced natural behavior, but it has to be reinforced with a certain cue.

There have been a few unusual problems on this picture. For example, some of the animals were not ready for the fire we've been using. They all have to work around it, but there are some that it doesn't bother at all. We staged a lion and tiger fight while a building was completely engulfed in flames, and everything came out beautifully. Nobody got hurt, and as soon as we pulled them apart they were great. We just walked them back home.

They needed a shot of the little serval cat running through the forest, and we couldn't figure out how to get it to run through the forest. We noticed that the cat really likes a certain dog that we brought along, so we put the dog in front of her and the guy who owns the dog went way off in the distance and called the dog. The dog took off, and the serval cat chased him all the way. You've got to know those little tricks, but mainly, you've got to know animal behavior. You've got to understand their natural habits and be able to work on them to get what you want.

The hyena we're using in this picture is the only working hyena in the world, as far as I know. Hyenas are really different. They're wild dogs and they're extremely smart. They can look at you and read what is going on. They can pick up your heart beat, your perspiration and whether you are nervous or not, from six or eight feet away. Their senses are very keen. The hyena we have here has been raised by Toni Helfer and he's really good around her — but he's still a hyena. Hyenas have the strongest jaws in the world, so you don't want to push your luck with them.

It would appear from this photograph that expert animal trainer and stuntwoman Toni Helfer has learned to stand like a bear. The tiger behind her doesn't seem to mind. Mrs. Helfer was part of a party that rescued from Haiti a much-abused tiger that was destined to fight a "duel to the death" with a Japanese karate expert. The weakened animal was nursed back to health on St. Croix.

Most of these animals we've had for a year or two and everybody knows their histories, because they've been hand-raised. But the boar we have is a completely *wild* boar. Nobody has ever handled him. A European wild boar is a very healthy animal and he can make mincemeat out of you with his tusks. He also has wicked claws on his hooves. When he comes at you and swings with his head, that's like having 400 pounds throwing you into the air. You can have eight guys on the end of his rope and he'll still pull the eight guys all around the place. You just have to watch yourself around him.

We have some nice stunts with the animals in this picture. We've had several lion and tiger fights. The leopard falling through the skylight with the stuntman into the house that's on fire looked very good. The black leopard and the man falling off the second story balcony together looked good, too. The black leopard went off that balcony twice and it was nothing for him. He separated from the man and immediately went down on all fours. Then he looked around, grabbed a mattress and started chewing on it, totally unconcerned.

Now, with the spotted leopard it was a somewhat different story. He was a bit

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(LEFT) In what might be a scene from *"A Passion In the Desert,"* Kent Douglas demonstrates what Affection Training is all about. Lavishing love on this lion makes the otherwise wary creature feel secure. He is also responsive to training cues and quite happy to repeat an action over and over again for multiple takes of a scene. (RIGHT) Affectionate lion sprawls on top of David Wilson, who doesn't seem to find it at all depressing.

ON LOCATION WITH "THE ISLAND OF DR. MOREAU"

Continued from Page 851

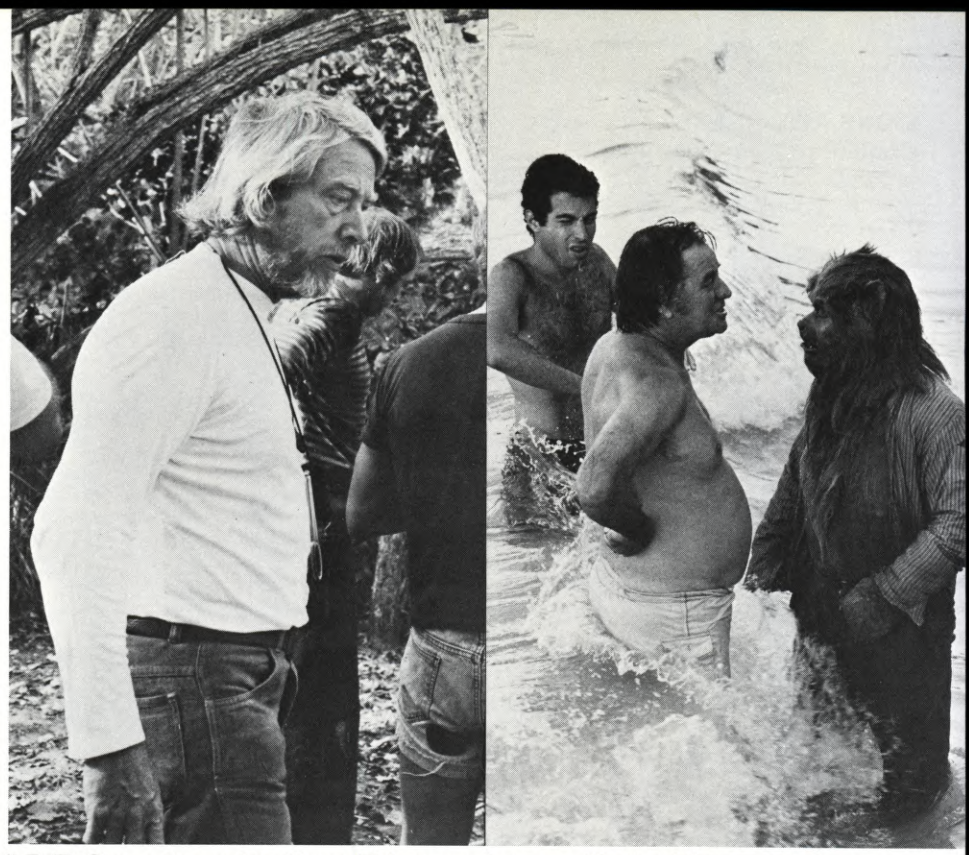
FISHER: I wasn't present during that phase because I was busy on another picture in Europe, so my pre-production contribution involved only a few conversations on the transatlantic telephone with Phil Jefferies and Don Taylor, the director. I remember saying to Phil: "Whatever you do, don't be afraid of giving me problems, because I like them." All I can say is that when I arrived I was delighted, because he did give me a few, and he said: "Well, I've got to give you a few problems and I'm sorry about that." I said: "Don't be sorry. You've given them to me for very good reasons." Mostly the problems had to do with how the set was oriented — where he'd had to build it, in order to avoid having to cut down trees. Because of that, the light began in the morning totally in back of the building and finished in the afternoon totally in front of the building. This, of course, gave us a complete variance and made it very difficult to match light, but it simply meant that you had to plan your day's shooting very carefully, and that was worthwhile. It was not a bad thing; it was a good thing to do. Then we had this two-story Victorian house — Moreau's house — which had large open windows that looked out onto the jungle, which was brilliantly lit on one side and completely black on the other. But challenges like that are very valuable; you need them.

QUESTION: How do you feel about the design of the sets in relation to the script requirements — atmosphere, characterization, etc.?

FISHER: I think they are brilliant. The story is a Victorian fantasy, but it is also a huge adventure story in which, as with all adventures, the incredible becomes credible. In this case, you are asked to accept the premise that a man can be washed up on an island and discover a situation, as he does here, in which an intelligent doctor is carrying out rather weird research in his own private compound. The sets must suggest that what he is doing is unseen by the rest of the world, screened from the rest of the world, during a time when there was little communication. To me, the sets further that concept of the picture most successfully. The whole visual interpretation, in terms of set design, is brilliant.

QUESTION: From the purely mechanical standpoint, in respect to photography, how have these sets worked for you?

FISHER: They have worked very well. There are a lot of elements, a lot of textures, that have worked especially well — a lot of white, bleached wood, for example. The construction crew worked for weeks in bad weather to prepare the main set for us before we arrived and they achieved a miracle, really, in the time that was available to them. They managed to age the set to look like the natural atmosphere had been attacking the surface, which meant that the place looked as though it had been there for some time, instead of having just been put there. Our greens man planted grass seed and shouted and stopped people from walking over the ground and did an enormous job of nurturing plants out of nothing. But the whole texture of the set became vital. The only problem actually was the natural light itself, because the sun, being very high and very bright, created a harsh, brilliant exterior light. In many cases we would start with exterior action and carry it through to interior action — all in the same shot. That meant that we had to move the camera from the brightly lit exterior — usually an f/16 light — to an interior. Well, it was just not technically feasible with the equipment we had available, to light an interior to balance with an f/16 exterior. My problem, therefore, became one of making smooth transitions and exposure changes, which I did by manipulating the aperture of the lens whenever we panned from exterior to interior. I was working with the aperture rather like a focus-puller does, in terms of changing what was in front of me, while tapering the lighting. I tapered the light from f/16 to f/8 to f/5.6 to f/4 to f/3.2. With a properly adjusted aperture, you just can't see those changes; you think you're seeing a perfectly natural transition. The aperture changes have to be made right alongside the camera by hand. There's no substitute for it and you have to design your shots with that in mind.



(LEFT) Cinematographer Gerry Fisher ponders an effect, while moving from one set-up to another. Davis Bay, an ideal location site, offered varied settings in a compact area. (RIGHT) Director Don Taylor has an eyeball-to-eyeball (or navel-to-navel) confrontation with the Hyenaman, while wading knee-deep in the surf. The tricky makeup held up well, despite furious activity in the water.

QUESTION: In such a situation, how do you feel about changing the aperture opening, as opposed to varying the shutter angle?

FISHER: Quite naturally, I would prefer to vary the shutter angle. But if you start with a 200° shutter angle and close it down to 50°, you have a variation of only two stops. The stop variations I required were far in excess of that quite often, so I was forced to use aperture changes. Now, aperture changes will work as long as you don't have visible depth-of-field changes. On a pan there is no problem, because there is no apparent change in depth-of-field, but you couldn't do it on something coming straight toward you, where you'd

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FILMING ELIZABETH II FROM CORONATION TO JUBILEE
Continued from Page 815

so rare for general filming purposes.

The shutter has had to be modified to 172.8° to make it usable with 50Hz metal halide lighting at 24 fps (the standard Arri IIC shutter opening is 165°) and it had a crystal controlled motor, so I didn't have to worry about checking the camera speed.

St. Pauls had been lit for the BBC with Thorn CSI metal halide lamps taking their power from the normal 50Hz supply. Flicker being no problem for TV, we film-makers had to live with it. No problem, of course, just so long as the frequency/shutter angle/camera speed arithmetic is reasonably correct. To use CSI, or HMI light to illuminate such a large area is so easy compared with other means. That's an advantage which has come within the last five years, much less twenty-five.

The camera was on a fluid head, another item unheard of 25 years ago, but indispensable today.

While it is not true to say there were no zoom lenses in 1952, they were few and far between and, in fact, Gaumont had one which had been designed in Britain by Cook and manufactured in the U.S. by Bell & Howell in 1934. I believe that only three were made.

Who could envisage doing a newsreel coverage now without a zoom lens?

It so happened that the position I now had for the Jubilee was high up above the West Door of the Cathedral, looking down towards the Altar, and was ideal for one of our 22-220mm T/2.5 zooms.

The 165 steps up to the Triforum level of the Cathedral were not a problem in 1953 because I was at ground floor level in the Abbey and, anyway, I was younger then. Fortunately, these days Assistants are part of the scene so the several journeys up were shared with my 16-year-old son, Adam, who carried the heavier items.

In twenty five years the equipment we use has changed almost totally, even for news coverage. In the feature world, with all the latest Panavision equipment, the change has been even greater.

As I mused backwards from the Silver Jubilee to the Coronation and considered all this, I wondered too if Adam should be called upon to film a Golden Jubilee in 2002, what now unimagined film production equipment will be in use then?

Will there be film?

I sincerely believe so. ■

FRONT PROJECTION EFFECTS FOR "BLACK SUNDAY"

Continued from Page 835

fact that whenever you change a camera position or lens while shooting blue screen, another separate matte is required. The cost is approximately $1,200 to $1,400 per matte in Hollywood, and if you have 30 or 40 setup changes during the day, that adds up to a lot of money. On the other hand, if you use front projection, you can shoot all day long without having to make a new matte for each setup change.

However, there are certain situations in which blue screen offers definite advantages. If, for example, certain snow backgrounds are required and it is the wrong time of the year to shoot them, the actor can do his thing against the blue screen and leave, and the background scenes can be shot later.

Another disadvantage of front projection is that anything between the camera and the screen that has a distortion factor — such as the plexiglass window on a jet plane or a bonfire — will distort. In such cases, it is better to use rear projection.

Also in the disadvantage category is the fact that some of the front projection units that are now available are not properly soundproofed. This means that if they are used within 25 feet or so of the microphone, there will be a very high dB level of camera noise. I soundproof my portable units so that this noise is kept to a very low level.

A third drawback to front projection is the fact that you are tied down to a position. In other words, while you can zoom to a certain extent, and pan and tilt across the screen, you cannot dolly. The same is true with blue screen, unless you have a computer system available. However, with rear projection you have the capability of putting the camera on a boom and floating up and down and moving around, at least within a 20% area.

Paramount felt confident with the new system because they have the most outstanding front projection equipment in the world at their studios. In "BLACK SUNDAY" a 60-foot front projection screen was mounted on Stage 14 for use behind scenes with mock-ups of the 50-foot blimp nose section, the cabin of the blimp, and helicopters.

We began with the scenes inside the mock-up gondola of the blimp. We didn't want to simply have projection out the window so people could see the stadium and say, "Oh, there's Miami." We wanted to be more realistic. So instead we used several projectors to

beam various reflections of the stadium and the crowd onto the windows on the opposite side of the gondola. Bob Evans claimed these were the finest effects of this type he'd ever seen.

For days we filmed the various shootouts involving helicopters, people falling from windows, engines on fire, the blimp shooting down the police helicopter, and finally the second police helicopter wounding everyone in the blimp, which was headed toward the stadium to blow it up. Shot against the gigantic Scotchlite front projection screen, the colors were vivid and sharp. We then moved into the blimp's tail section to get Robert Shaw coming down from a helicopter to hook up with the blimp and drag it out of the stadium before it blew up. Real spectators were used for added realism. It was a thrilling scene and its excellent use of front projection received high praise from John Frankenheimer, a demanding director who usually does most of his features on location.

Next came one of the picture's most exciting, realistic effects, a segment in which enormous light standards crashed down onto the spectators in the stands. With the screen located behind mock-up stands, the blimp came across them on the screen and at that precise moment a mechanism triggered a gigantic light arm. The lights began falling while the fans fled.

Once finished with the actors and actresses, it was time for still more special effects, including miniature shots. Under John Alonzo's photographic direction, we moved to Stage 2 at Paramount and set up a 20-foot front projection screen with a 6-foot-long duplicate of the blimp for shooting miniatures, such as the blimp diving into the stadium. One of several problems encountered was to make the blimp dive and react without any wires showing. I devised a scheme whereby a rod poked through the screen behind the blimp and attached to the miniature model allowed us to move it freely without wires.

"BLACK SUNDAY" was a special photographic effects film delight — a truly visual feature. I think every type of special effects was used in it, from car wrecks to explosions, to heads blowing off, to rear projections and front projections and even a blue screen shot. The quick-pace cutting job by Tom Ross made these shots all the more effective.

"BLACK SUNDAY" has the pace of a "FRENCH CONNECTION," while retaining its own individuality. In my opinion, it's an entertaining film with something for everybody. ■

BEASTS INTO MEN — ALMOST

Continued from Page 856

change to show and how to indicate who was changing into what. We couldn't very well have them wearing football jerseys with numbers on them. We've had to change them very carefully, leading the audience without confusion right into acceptance. For example, when the Bullman is 70% bull and only 30% human, he has full horns — but when the proportion is reversed, he has only little nubs of horns.

From the audience standpoint, the fact of metamorphosis was established by showing the Bearman go from 80% bear to 85% human right in the laboratory. The audience was able to see the transformation directly in this case, but the transformations of the other creatures were usually handled in three steps. We eliminated a lot of confusion by omitting the intermediate steps.

The character played by Richard Basehart (designated in the script as the "Sayer of the Law") required an especially delicate makeup, because, as the leader of the Humanimals, he is closer to being human than any of the others. He represents one of Dr. Moreau's most successful attempts at turning beasts into men. At any rate, it was felt that he should suggest a wolf, because the wolf is a very strong creature. Now, everyone has seen "THE WEREWOLF OF LONDON" and pictures like that, where they put a canine snout on a guy to make him look wolfish. It has become a stereotype and we didn't want the audience to identify our character with a familiar werewolf. So what we did was keep a basically human aspect and we never came right out and said he was a wolf. But we slotted his human type of nose and blunted it a bit, and we gave him thin little animal teeth and clawed hands and the furry hair grooming of a wolf. He still retains his human characteristics and when you look at him you're not sure he's a wolf, but it is implied in a very subtle way.

We've had to make certain adaptations in regard to our materials because, whereas in California our air is dry, St. Croix is in the tropics, where the air is balmy, but moist (although, fortunately, not as moist as I thought it might be). At any rate, the techniques we used in Hollywood could not be applied in the Virgin Islands. For example, we had been using liquid rubber to blend the edges of the foam latex right into the facial features, but in St. Croix that peeled off within half-an-hour; it simply broke loose. We had to

find a new type of adhesive that would withstand the tropical moisture and still hold the appliance to the tissue of the face. What I used was an adhesive on which I had been running a field test — something that will be available in the future. It got its "acid test" when the Hyenaman did a prolonged sequence in the water, swimming under a boat with all those rubber appliances on. In California perspiration alone would tear them loose from the stuntmen, and salt water will cut any kind of adhesive, but the Hyenaman spent nearly three hours working in that ocean water and we didn't have to touch a spot on the foam rubber that was stuck onto his face. This new adhesive doesn't injure the skin any more than regular spirit gum. It's a real innovation — something new that we discovered in the interim since "PLANET OF THE APES". We've also been using new paints which held up well in the water. We brought these two two new products along because we anticipated problems on this location — and thank God both of them worked.

It's been more than ten years since I started the first of the "PLANET OF THE APES" films and a lot of improvements in makeup have resulted from the basic trials and tribulations we encountered in making those pictures.

A lot of unusual teeth have been worn in motion pictures, going back as far as the original "HUNCHBACK OF NOTRE DAME" and "THE PHANTOM OF THE OPERA", but I have been very fortunate in being able to devise an upper and lower articulation of animal fangs, as will be seen in this picture. They have clasps so that they can be snapped onto the upper and lower teeth and they are actually feline or animal in appearance. They have that sinister grin quality and everything. I've never seen this done before and I'm proud of the result. These teeth distort the mouth of a human enough to make it animal, yet it is in the functioning instead of the extension — the functioning of his own lips with a little bit of foam rubber over the outside. He is actually animating the fangs. They look very sinister — as if they could take a bite out of you.

Ordinarily the foam rubber appliances we work with are so delicate that they can be used only once and then have to be discarded, but we have run into another exceptional situation on this picture. Certain of the Humanimals have been used much more than we allowed for, so that, even with the considerable margin of safety that was provided, we have been running out of appliances. As a result, I've found myself salvaging appliances, very care-

fully washing them in solvent and saving them to be used again. What made this possible is that there is so much animal hair on the faces that we were able to cover marginal edges with the hair and get away with reusing the appliances.

It was very difficult, even with the most careful preliminary planning, to estimate how many appliances would be needed for each creature. For example, we allowed for 28 days of shooting with the Lionman, including both of his changes. We allowed so many days for the 70% animal shots and so many days for the 30% animal shots. Well, in the actual shooting they changed the ratio around because they decided that they wanted more 30% shots. That's where we ran short and had to reuse appliances.

The Bullman, who has a full head with horns, has had some arduous workouts with the tiger. A tiger was specially trained to tear off one of his bull horns, which meant that we had to make a 1/2-inch-thick fiberglass helmet with horns on it. One day the tiger got to him and bit him on the head, but the helmet saved him. The fiberglass was strong enough so that the tiger's teeth bounced off of it.

The protective helmets we've made have saved several of the other stuntmen, because the animals on this picture don't play. They may be trained, but they've got real teeth. When they attack they go for the back of the neck, because their objective is to break the neck of any animal they kill. The other day a fabulous young trainer was playing around with one of the lions. The trainer fell into a pit, but the lion caught him, dragged him out and started dragging him along the ground. The kid said, "Well, I had him under control." But as far as I'm concerned, that lion was going to have him for lunch. These are uniquely brave guys. They get scratched up by the animals, the nurse puts a patch on them, and there they are — fighting away in the next round.

Three of the Humanimals in the picture wear full animal contact lenses to completely change the character of their eyes. They were made by one of our California optometrists who has a contact lens factory in El Monte. He was the one who made the lenses for "KING KONG" and he did a marvelous job for us, too. We engaged a local optometrist on St. Croix to put them in and I had to teach him how to do it. Although he's a top doctor in the Virgin Islands, he had never had an assignment like this before. He was willing to learn and it was simple teaching him.

He's an expert at it now.

I used to make artificial eyes and contact lenses for the Veterans Administration many years ago. The specifications for the lenses used in the film were mine and they have worked out very well. The little Hyenaman has worn them for sequences in which there was heavy fighting and he also wore them during his three hours of shooting in the ocean.

It took a great deal of research to arrive at the masks and appliances which we've used in this picture. We made many trips to the Los Angeles Zoo. We studied animal books from the libraries and did research at 20th Century-Fox Studios. We went to Ralph Helfer's compound where he had his animals quartered and studied them there and, in certain instances, we had animals brought in for us to study. In this way we were able to get a feeling for the various animals and study how they react facially to certain situations.

There are certain things you never see unless you purposely study them. For example, consider the problem of contriving a grimace for an animal face. We couldn't get it just by means of the animation of a man's face, because we were limited as to how much animation from the individual himself could be transmitted through the appliance. We had to build a semi-grimace into the appliance. This we had to find out through studying the animal and his moods and his way of grimacing and growling. This was the input we put into the sculpture of our masks and appliances.

Applying intricate makeup like this is very time-consuming, and because there is so much hair work, we've required at least a half-hour more than was necessary on "PLANET OF THE APES". We start at 3:00 a.m. for a 7:00 a.m. call, or 4:00 a.m. for an 8:00 a.m. call. This includes 3½ hours for makeup and another half-hour for wardrobe. The combined makeup and wardrobe operations add up to four hours, and we've held to that schedule all the way through.

Dan Striepeke, whom I mentioned before and who has worked with me on projects like this for the last 22 years, has been on "THE ISLAND OF DR. MOREAU" from its original concept. Sometime later, when I needed final finish, I brought in Tom Burman, my former apprentice. He's a fine, talented young man and I'm proud of him. Both of these men have contributed as much as I have to this effort, so we will share credits on the picture, good or bad. But I'm pretty sure that what we've done will show up on the screen as a good effort.

ON LOCATION WITH "MOREAU"
Continued from Page 860

suddenly see areas going out of focus. The limitations are severe to that extent.

QUESTION: On some lenses the aperture scale is so "tight", so to speak — the stop scribings are so close together — that it's difficult to effect subtle stop changes smoothly. Do you have any formula for overcoming that problem?

FISHER: What I usually do is hold the aperture ring in my hand and just physically sense the amount of hand movement that I need, so that if during the shot I am unsighted, which I might be because we are doing a fast pan or track, I'm calculating the movement of my hand to where I'm going to end up. When the take is completed, I check it and I know whether or not I have achieved the movement I wanted. In many cases, I've not necessarily been able to see the aperture scale up to that point. I may well have done it quite blindly, but that's the gamble, the risk one has to take — or not do it that way at all. Trying to build up the interior light level to a point where you don't need a stop change at all is technically feasible, but would be unbearable, especially for the actors.

QUESTION: Each separate feature, of course, ideally demands a specific photographic style, and especially in a period-fantasy film like this such a style is indicated. What style did you adopt and how did you arrive at it?

FISHER: Well, you could quite correctly say that this is a Victorian, melodramatic adventure-fantasy of the type that I associated in my sort of boyhood days with reading what used to be known as comic strips. We used to have these boys' papers that captured your imagination and whisked you off to the realms of fantasy and adventure, in which someone like Robinson Crusoe could be washed up on a desert island shore. But I realized that what we've got here is actually a very intellectual subject. We've got Dr. Moreau, a man who is experimenting in his laboratory along quite modern lines — experimenting with the grafting of genes of animals onto the genes of humans. He's ahead of his time — just as H.G. Wells, a fantastic writer, was ahead of his time. So I wanted to do something photographically that suggested a Victorian melodrama, but was illuminated in the light of that other element. There was a natural contrast

to the situation — a sort of jungle setting with high sun and bright light, and interiors lit by means of oil lamps as the only source. I felt that because of all this and the story line, I could give the photography a kind of romantic quality at the beginning of the film and then slowly move to a more dramatic, more horrific style as the story becomes more bizarre and extraordinary and the pace of the film quickens. At that point, a complete transition has been made from a romantic Victorian melodrama to a fantasy-horror story. I hope we have achieved both elements photographically and made the transition smoothly.

QUESTION: From the logistical standpoint of lighting for this film, what sort of units have you been using?

FISHER: In that area, we have been very well equipped, really. I was in Spain shooting a picture and I had to make a kind of long-range assessment as to what lighting equipment we were going to need, based on sketches. We ended up with a complexity of equipment provided by F & B/Ceco, the camera equipment company, which sent us a big trailer outfit with two 750-amp generators. So we had 1,500 amps, three arcs (plus a spare mechanism), plus some 10K's, four or five 5K's, and a dozen 2K's (mostly quartz lights) — all fairly new equipment and very, very good. Our only problem has been with the quartz lights, because the heat they generate is so great that, when you are working in daylight, it demolishes your filters in short order. You put a blue filter on a lamp and, even though you have to put it in front of the barndoors, within a half-hour it has deteriorated to the point where it is beginning to go yellow. I think that's a problem. The temperature of these lamps — the 2-kilowatt quartz and the 5-kilowatt quartz — is really enormous. But other than that, I have no complaints. Like everything else the producers did, they provided us with the facilities to make the best film we could and there have been no handicaps.

QUESTION: I've seen all the sets for this film and the one that strikes me as the most difficult to light is that man-made cave. Can you tell me a bit about that set?

FISHER: Yes, the cave was a special problem which Phil Jefferies had to grapple with and overcome. It was the set used in what I consider to be the most difficult-to-believe part of the film,

the sequence in which the "Humanimals" (the animals that have been partially humanized) first appear. The cave is the place where the rejected Humanimals of Moreau's experiments live, and I felt that, by their very nature, they would be more effective if they were not fully illuminated. Michael York discovers the cave as part of his suspicious exploration of the immediate surroundings of the compound, and his first view of these creatures is that of a man who stumbles into the cave from daylight and finds himself surrounded by shapes. I tried to light the sequence to convey only an impression of the animal forms, because it would have been difficult, at that point, to gain credibility for a fully lit figure of something with a man's form and an animal's face. One had to kind of subdue the area around them and simply suggest being surrounded by strange creatures. I hope I succeeded in doing that, so that later on in the film, when they emerge into daylight, the audience will be persuaded to believe that they are what they are. The makeup department did miracles in working with those faces.

QUESTION: Did you use much camera movement in this film and, if so, was the camera on a dolly, hand-held or what?

FISHER: Well, there was a mixture of things. In the main sequences, especially near the beginning of the film, there is not much deliberate camera movement, because those sequences, as written, are very, very stylized. But as the pace of the action built up, we adopted more and more camera movement. Gradually we progressed from static observed positions to that of panning, to that of tracking and, ultimately, to that of hand-held. So we've used all systems, and we may yet finish up with a helicopter. Who knows?

QUESTION: I've observed the second unit shooting some tricky stuff with the animals. Can you tell me a bit about coordinating your shooting with that of second unit cinematographer Ron Taylor to make sure there was a good match with your primary cinematography?

FISHER: Of course, Ron Taylor was working with me as my operator on the film until we reached the sort of seventh week of shooting, at which point we felt that we should form a second unit to shoot certain visual elements that didn't involve the principals at all. For the past couple of weeks, Ron has been filming

elements that tie in directly with what he was shooting in the first unit — so there is a direct relationship. It was a good thing that he was available to do the second unit photography, because his work can only relate to what he was doing as an operator on the first unit.

QUESTION: In view of the fact that this is a period piece, and rather stylized, as well, have you been using any special filtration to enhance those elements?

FISHER: I did some tests in that area when we thought that we might shift the tone of the film sort of midway between sepia and yellow. It's something that I hope to be able to control ultimately with the lab in the timing, but apart from my normal changes of filtration which I do all the time, I didn't use an overall filter on the camera. The negative is normal.

QUESTION: In other words, as I understand it, if there are any filtered alterations for effect, you would prefer to have these made in the laboratory, rather than try to hold them consistent in the camera. Is that so?

FISHER: Yes, up to a point, that's true. I think that one can control the filtration to a certain degree in the camera, but I think, on balance, that you have to use the lab in conjunction with your own work. I think it's a dangerous step to nullify the ability of the lab to recover what you are doing, in the sense that if you step too far, no one will be able to do anything about it. I prefer to work with a combination of camera and lab work to arrive at my result — but that means that there must be a close relationship between myself and the lab.

QUESTION: What has your experience been in regard to working on this film with the local people of the U.S. Virgin Islands?

FISHER: People sometimes speak of a certain place as "a gem of an island." Well, this gem of an island is a diamond, because it has a wonderful atmosphere, tremendous character and historic towns. It is full of intrigue, full of history. It has wonderful weather and charming people. They have been helpful all the way. Nowhere have we met any resistance or any kind of resentment — just complete and utter friendliness and willingness to accept us. We are very grateful for that. I've worked very hard on this picture — 12 to 14 hours a day, six days a week — but I've enjoyed every moment of it. ■

THE MAKING OF "FRATERNITY ROW"
Continued from Page 825

editing room we worked as equals. We joined this film for the experience, and in that spirit we approached the editing. If an impasse occurred, and we couldn't resolve it, then my word was final. This rarely happened. For the most part, the man cutting a sequence was his own boss. All three of us would sit down and watch a string-out of shots for a particular sequence and make an assessment of the damage to be fixed. An approach would be decided upon which seemed to best protect the actor and improve the film. After that, the person assigned to the sequence just began to work. When he felt ready, a first cut of the sequence would be run for all three of us. Jon relied heavily upon initial impressions during the first viewing of a cut sequence. He often reminded me that an audience will only see a film once, and if we want them to understand something, we had better make sure they can understand it the first time through. In a large measure, he was right.

Dailies were a nightmare. I say "dailies", but I mean "free-for-alls." The entire cast, crew, friends, stragglers, lost dogs and unemployed film teachers all dropped in to view our laundry and offer suggestions. The editors were changed into projectionists in the evening. That's a long story; funny, but unnecessary.

It's important to explain the conditions under which we worked at dailies. First, it was summer, so after the lamps were started, the temperature in the booth leveled off at 279° F. Second, these hand-modified projectors were temperamental and perfidious. Third, there were never any take-up reels. This meant we would have to rewind the viewed film onto cores during projection in order to free some reels for take-up. Fourth, the motorized rewind system in the booth was permanently broken. In addition, the sound system had a permanent "rasp" built into it, so the signal-to-noise ratio was inverted. It didn't matter very much, because the audience only came to laugh at the boom shadows, cheer for the missed lines and pound on the projection wall to get our attention.

During projection, the editors operated like the members of a *Klingon Warship* about to engage the *Starship Enterprise*. In other words, we worked like madmen, but knew inside that we could never hope to win. While one projector threshed up its reels of film, Jim and I reloaded the other machine.

In the meantime, Jon grabbed the viewed reels, raced out the door, down a hall, up a flight of stairs and into another booth with a working rewind system. If nothing snapped, he'd spin the film onto cores and race back with the empty reels. When everything worked, we would have just enough time to thread the take-up reels and punch the change-over button. As we started the cycle all over again, inevitably, out of the wall would come the angry thud of fists and the shout, "Frame it up! Frame it up!"

Then one day, the editors were asked to form an additional photography unit. There was no other way to keep the shooting schedule within reason. As a result, the dailies became merely infrequent, Herculean events. To this very day, I am frustrated that at no time could I ever sit down with the director and evaluate dailies properly. I am told that the dailies helped to boost the morale of the crew, but for me, they were a complete waste of time. Later, the only time we could spare for dailies was in the morning at the lab. These viewings, of course, were without sound. A week or so later, if we found the time, everything would be synched-up and we'd realize that the takes we had been so fond of the week before, proved to be the very ones with Hiroshima running over the dialogue. Of course, by this time, the primary photography unit was on to a new scene, and had no time to spare. All we could do was add the shot to our growing list of material for the additional photography unit. As a result, the editing fell further and further behind. All things must end, and so did the shooting stage of "FRATERNITY ROW". Finally, we could afford to spare ourselves some time for the job we were hired to do, editing.

Our next weeks were filled with little deaths as we sought to make the film come alive. We stretched this, to save that. We shortened a perfect moment to hide the hell out of an awful one. We robbed, faked and cheated lines. We argued with mythical audiences; when they began to argue back, we would call it a day. Each evening, as we drove the lumpy streets of Los Angeles on our way home, Jim and I would create vast metaphysical fogs as we probed the depths of the film. Each morning, I'd try to impress Jon with the truth and beauty of our conclusions. He'd laugh and say that if the film didn't keep moving, the audience would hate it. If they hated it, the film wouldn't make any money. And if it didn't make any money, it would never be seen. Anyway, as I said, Jim and I had great

conversations. When I see the film now, I'm reminded of the countless car rides we took, but, for the life of me, I can't exactly remember what it was we talked about. I do recall checking my face in the rearview mirror to see if I could still talk in sync.

We all discovered an important truth about editing rooms. Namely, that the floor is a great provider. No matter what system I devised, the shot I wanted was always on the floor. The only time it wasn't on the floor was when I looked there first. I don't know how the normal cutting room floors are, but ours steadfastly maintained a sticky layer of used splicing tape. Anything touching that floor stayed put. It was not uncommon to observe an important series of cuts arrive from the floor accompanied by a host of mylar tape. If you failed to notice them going into your Moviola, you were very aware of them when they came out. After awhile, particular *slugs* became like old friends.

At some, presently indistinct, date a complete cut was obtained and evaluated. The next step has been called the *polishing* of a motion picture. That sounds like rubbing an apple on your shirt before biting into it. In our case, moving toward a final-cut was more like a *wrenching*. For example, we decided to eliminate the original first and last scenes from the film. These were the only moments that had featured any actors with readily recognizable names. I felt very insecure as I watched my hands toss Cliff Robertson into the out bin.

There were a basketful of sound problems that plagued us at this point. I don't mean the score, because the score was excellent and extremely kind to our scenes. I mean the sound effects. I think that one or more of the editors presently appear on the soundtrack in a major portion of every single scene of this film. After stepping on cornflakes, pounding each other, giggling, rustling, milling, murmuring, running up steps, snapping fingers, digging holes, and on and on, I began to wonder why we didn't just shoot the whole thing MOS in the first place. In fact, we became so attached to certain sounds that, at the mix, it was painful to be forced to favor story-line dialogue over a hard-won background shuffle. Without the tireless help of Tom Joachim in recording effect after inane effect, the film would have been much the poorer in sound.

By this time, Jim Gauer had returned to Berkeley to pick up the pieces of his much-delayed degree work. The rest of those connected with the film had long ago written it off as another of those

good but now dead ideas. Only Jon and I were left to finish the film. Scenes began to resist us as we fought to shorten it from two hours and ten minutes to 100 minutes. It was around this time that Jon became so starved for levity that he would tell a joke to his Moviola and then run a laugh track after the punchline. At one point, in desperation over delays, Jon ran his laugh track behind the death sequence that climaxes the film. I can't tell you how iconoclastic we felt laughing at the result. Still, these were the kinds of things that kept our spirits up and allowed us to carry the film to its conclusion.

When Paramount Motion Pictures agreed to purchase our film they also allowed us to make the final cut. It is, I think, unusual for editors to have as free a hand as we had. I'm not sure, but I suspect that we will never have such freedom again. We presented our final version to a Paramount representaitve and were told simply, "No changes. Go to final mix." The ease with which the words were said amazed me. They were the best news I'd heard in way over a year and a half.

The decisions in the final mix were my own. As always, though, Jon Torp had excellent advice. I think the most complicated reel we mixed had sixteen sound tracks and a few loops to fill in as needed. On an average, we ran about ten reels deep in sound. Jon and I are aware, perhaps more than anyone else, of the number of problems in the tracks that no one could fix. I can only say that we were blessed with sufficient time and superlative mixers. It's hard to believe how much help a good mixer's ears and fingers can give to a flawed sound track. Jay Harding, our dialogue mixer, covered a vast multitude of sins.

It takes a lot of expert help to bring anything like a feature-length motion picture to fruition. It's easy to forget about the help when the release print is running on the screen and everything appears to work so effortlessly. There's a voice inside that wants to say, "That's mine. I was really the secret one who did it all!" It's important to remember that this voice is untrue. No one person ever makes any one film. I was part of the whole. Whether we all got along, or not, is immaterial to the fact that without the other people, this project, like so many others, would still be on paper, in a drawer. If this film does well, it'll be because everyone pulled some weight. If the film does poorly, it will in no way affect our accomplishment. It will only mean that fewer people will be aware of it. ■

LIONS AND TIGERS AND PRACTICALLY EVERYTHING

Continued from Page 859

older and when he crashed through the skylight and fell into all that fire, it scared him a bit. He came down and hit a fire bag where they had flames coming out right in front of the camera. He knocked it right into the camera and immediately headed for the corner. You couldn't visibly see any singed hair, but you could smell it a little bit. Once we got him outside he was fine. The cameraman came out worse than anybody else.

Bit cats like to run and they like to jump on you. For example, I'll be walking down the road with my little lion and I'll see him start to prance, wanting to do a little running and jumping. If I look at him, he can tell by my expression whether it's okay for him to do it. If it's not okay, he just starts walking again. But if I let him, he just cuts loose and we go for a run. Then he jumps on me and we fall and tumble. He's an attack-trained cat and this is what he does the best.

When I want a cat to chase me, I start running. That makes him hot to catch me, so I let him catch me. I've outrun a tiger for a short distance, but I've always had water to jump into in order to get away from him. Cats get very frustrated when they can't catch you, so I always let them do it. I've found that a cat that doesn't get a chance to wrestle always wants to jump on you. I let my cats jump on me almost any time they want to. If we aren't doing anything in particular, they'll just jump on me. Then I'll push them off and we'll go walking down the road together.

All of this is reinforced play, and you've got to let them play. As far as practicing this sort of thing is concerned, you start with a small cub, because it's easier that way, and then you build up to the larger cats. If you start out with a big cat, you can get the everloving stuffing knocked out of you, because they just don't know how powerful they are.

I started working with animals in a nursery. I began by training elephants and chimps. Then Ralph Helfer hired me and taught me almost everything I know about cats. But I like my elephants. They're just so crazy with what they do. I had an elephant that I took out of the barn to water every morning. Out in the field, all the way to the watering hole, she would go around me in a big circle, just dancing and prancing, with her ears flopping, her trunk up roaring and her tail spinning around like a little kid, because she was so glad to see me.

Elephants are very affectionate animals. ■

THE CREATIVE PRODUCER IN THE HOLLWOOD MARKET
Continued from Page 837

and on into the advertising and marketing of the film. So, in the sense of the classic producer role, the independent producer today is carrying on all phases of motion picture production. This is opposed to someone who is what you could term a studio line producer, which is basically a person brought in at the time that a film commitment is given or when a screenplay is already developed, who will supervise the physical production — and the skills for that are towards physical production.

My job, the way I look at it, is far more creative, in the sense that I am in from the inception of the idea through to the final answer print and beyond into advertising. As far as breaking in to the feature film business today is concerned, I'd say there has never been a time when it has been more difficult — mainly because there are fewer films made, both in terms of television and feature films, than there have been in the past. Nor has there been a time when it is more promising, because I think we are all aware of the futures that will exist in our business when other markets are established. Basically, we are in a transitional phase where we are caught between antiquated marketing systems, distribution systems, and so forth, in feature films, and some new technological breakthroughs which will be in the form of subscription television, large-screen television, and all sorts of video home entertainment devices which are not available today, but which will provide a market for the theatrical film or the entertainment film.

Also, in television, we are in a stage where such things as "ROOTS" have proved that the audience is willing to accept a far more varied kind of entertainment than the networks themselves had ever imagined. The half-hour series, the hour-series, I think, will be replaced to a large extent with what is called the "limited series", and this does not mean that we are going to be subjected to years of dismal best-sellers presented by NBC. I think it will take a few years for some of the lesser experiments to shake themselves out and some of the more promising ones to come forward.

I also look towards a time when regionalism will reassert itself in television. I think what is happening in public broadcasting today is indicative of what is going to happen eventually with the major networks, and that is that the ability of local stations to pro-

gram more than just news and game shows, is going to carry over into network affiliates having more independence towards programming, better shows, regional shows, off-network shows. The success of programs like "MARY HARTMAN", for the brief time that it was successful; the emergence of a show called "TESTIMONY OF TWO MEN", I think it is, which was done by Universal, are indications that there is a market out there that no one has ever touched — so, in the coming years, there is going to be a need for talented people that there never was before, because there is going to be more opportunity and I think the one thing that I can say to you all this morning is that the best thing I can offer towards working in what is today termed the Hollywood film community, but which, in a few years, I hope, will be just the entertainment film community, is the hope that the market will be increasing.

As far as the best avenues today towards entering that market are concerned, I would say that the best possible way is as a writer, because there is always a need for good ideas. Unfortunately, there is no way that you can really crack into that market as a diversion to what you are doing in other places. It's almost essential that you be in Los Angeles, that you be involved in the industry, that you be getting to know how it works, who is there and who you can deal with, rather than feeling that there is some way to do it by mail order. There just isn't. I'm sure that, whatever business you are involved in now, you can realize that most of what you do is involved with people you know, people you've gotten to know over years of being in business, and experience in how to work in the business, whatever it may be. The same thing is true of our industry. I'd say that, except in the case of a very few gifted geniuses, it's very, very difficult to make any inroads in the business if you are not daily involved in it. As far as directing is concerned, the only thing that the Hollywood studios, networks, and even producers seem to respect is films that have been made that bear some relationship to the kind of entertainment films that are being done successfully in the industry. It does not really impress anyone to see a good documentary or a good educational film or industrial film that has been made as a way of showing what you can do with a feature film. The amount of money is just too great for anyone to take the kind of risk on an unknown person just coming in with something that doesn't quite convince them that they know exactly what they

can do with a full union crew and a 20-day schedule, or whatever it might be, and working with a lot of reluctant actors.

As a producer, again, it's a question of my being in the marketplace. Most of my work is in selling, is in developing ideas, is in anticipating what the market might be for ideas, is working almost as a literary editor on scripts with writers. My background in production, my ability to physically produce films is probably the least important of all of the skills that I have, because there are many people around who can physically produce a film. There are very few ideas and the ideas, in the end, are the thing that make something worth doing or not. So, again, it is a question of being involved in the market long enough, and getting enough experience, to be able to anticipate what it will need, what it's about — to have the kind of reputation where you have a good reception at the networks, at the studios — and, as in any game, it's a matter of knowing the players.

I should like to emphasize the fact that distribution is always the most essential part of any financing package. No bank will loan you money unless you have distribution. No studio, no financial source with any kind of fiscal responsibility would ever get into a project if they couldn't distribute. The reason that, in television, very little is done on risk capital beyond treatments, beyond buying options on books and so forth, is that the networks represent the distribution. There are only three of them. If you can't sell something to one of those three, you are basically out of business. But distribution is absolutely essential.

I know there are many independent features made every year without distribution, but this is a different business than I am in. Making a film on three or four hundred thousand dollars with a group of local investors and hoping for distribution is a very risky business. Sometimes it pays off; sometimes it doesn't. When it pays off — as it has in several cases, especially with the product shortage that is around these days in the theaters — everybody feels good about it and the investors are rewarded handsomely and it seems like a very easy thing to do but if you could go to any of the labs in Hollywood, you would see shelves loaded with unsold films that are sitting there waiting either for someone to bail out the lab or, hopefully, for the producers to cough up what they owe the lab. I would say that there are probably more unreleased films in Hollywood than there are released ones, so distribution is essential. ■

APPLIED ROD LENS TELESCOPE CINEMATOGRAPHY

Continued from Page 829

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WHAT'S NEW
Continued from Page 784

contain a special ultra-violet inhibitor allowing them to be used with hot, tungsten halogen fixtures and making them highly resistant to fading. Life expectancy of Gelatran is also considerably lengthened.

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CINEMA PRODUCTS WILL CONDUCT TWO-DAY "CP MAINTENANCE TRAINING SEMINAR" ON OCTOBER 14-15, 1977, IN LOS ANGELES

Cinema Products Corporation announces an expanded two-day "CP Maintenance Training Seminar" for working cinematographers, professional equipment dealers and technicians to be held at the Cinema Products factory in Los Angeles. The two-day event is scheduled for Friday and Saturday, October 14-15, 1977, directly preceding the opening of the SMPTE 119th Conference & Equipment Exhibit in Los Angeles.

According to Ed Clare, Assistant-to-the-President and seminar co-ordinator, the program will again include a comprehensive training seminar for the CP-16 reflex and non-reflex camera models and related accessories, led by Cinema Products technicians Marty Prager and Chuck Jackson. As in past years, representatives from other equipment manufacturers will also conduct important sessions on current practices and developments in their field.

One of the main new features of this year's seminar will be a special Saturday morning maintenance and repair session for STEADICAM technicians.

For complete information and registration forms, please write to one of the following people at Cinema Products: to Wilbur Russell (if you reside in the United States) or to Ray Tamba (if you reside outside the United States), c/o Cinema Products Corp., 2037 Granville Ave., Los Angeles, CA 90025. ■

PROFILE
Continued from Page 800

mile-an-hour speed limit, which reduces the pleasure of Porsche driving, according to Len. His wife has a Volkswagen station wagon.

"Once, I tried amateur car racing with Porsche, and it was a real thrill," he said. "But not any more. I'm happy now with the BMW."

Len South stems from an English family, though he was born in New York City. His father was a stockbroker, and Len probably inherited much of his love for the sea and for cars from him.

After his father died, his mother brought Len and a younger brother, David, to live in California. They settled into an early tract home in North Hollywood, in 1940.

A year later, Len took a job at Warner Bros. studios in Burbank, in the loading room. At the time, he was interested in art (drawing) and cameras — in that order.

The Japanese attacked Pearl Harbor not long after, and within a few months, Len had enlisted in the air force, as a photographer.

"I first tried to become a pilot, but I got washed out in pilot training because of a stigmatism in one eye," he told me. "In a way, though, it was probably better for me in the long run, that I wound up as a fulltime air force photographer."

He was assigned to an Army Air Force unit stationed on Attu, in the Aleutian islands, with a B-25 bomber group. They worked alongside a Russian fighter squadron which was training there.

Eventually, in 1945, Len South came home to California, and an Air Force discharge. He was quickly rehired at Warners, but this time (because of his service experience) he was assigned as an assistant cameraman in the special effects department.

And it was there, soon after, that he became a friend of Bob Burks, the man who launched him on his impressive career.

"I guess you'd have to say that everything in my life has fallen into place, a piece at a time," concluded South, puffing contentedly on a cigar. "And I'm sure there are quite a few more pieces still to come!" ■

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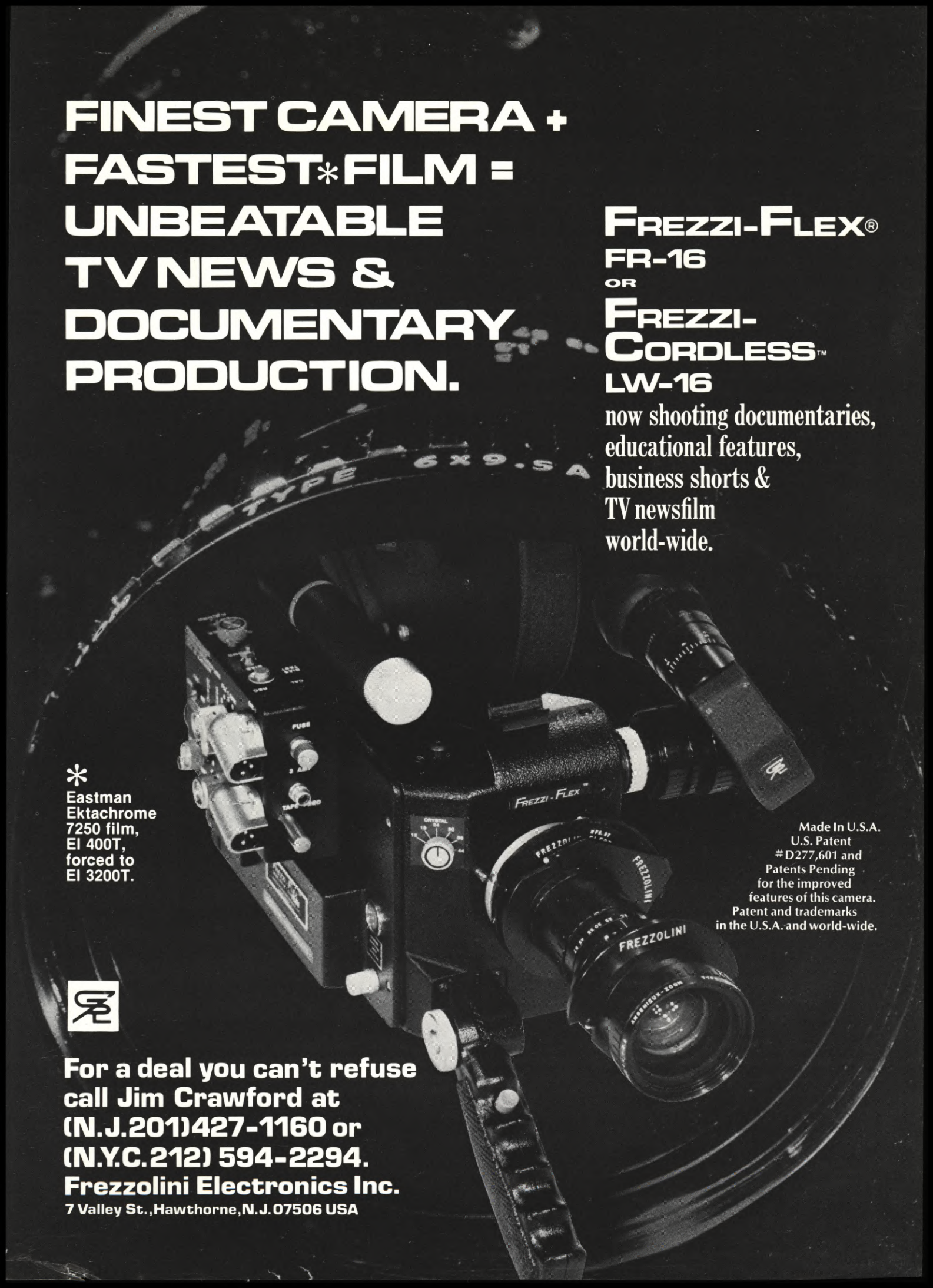

* Eastman Ektachrome 7250 film, EI 400T, forced to EI 3200T.

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"Universal Model" STEADICAM system shown with CP-modified Arri IIC 35mm camera, CP-16R 16mm camera and TK-76 video camera. Other cameras of the same general weight class can also be adapted for use with the STEADICAM system. For further information, please write to:

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