

American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

FEBRUARY 1979/\$1.50

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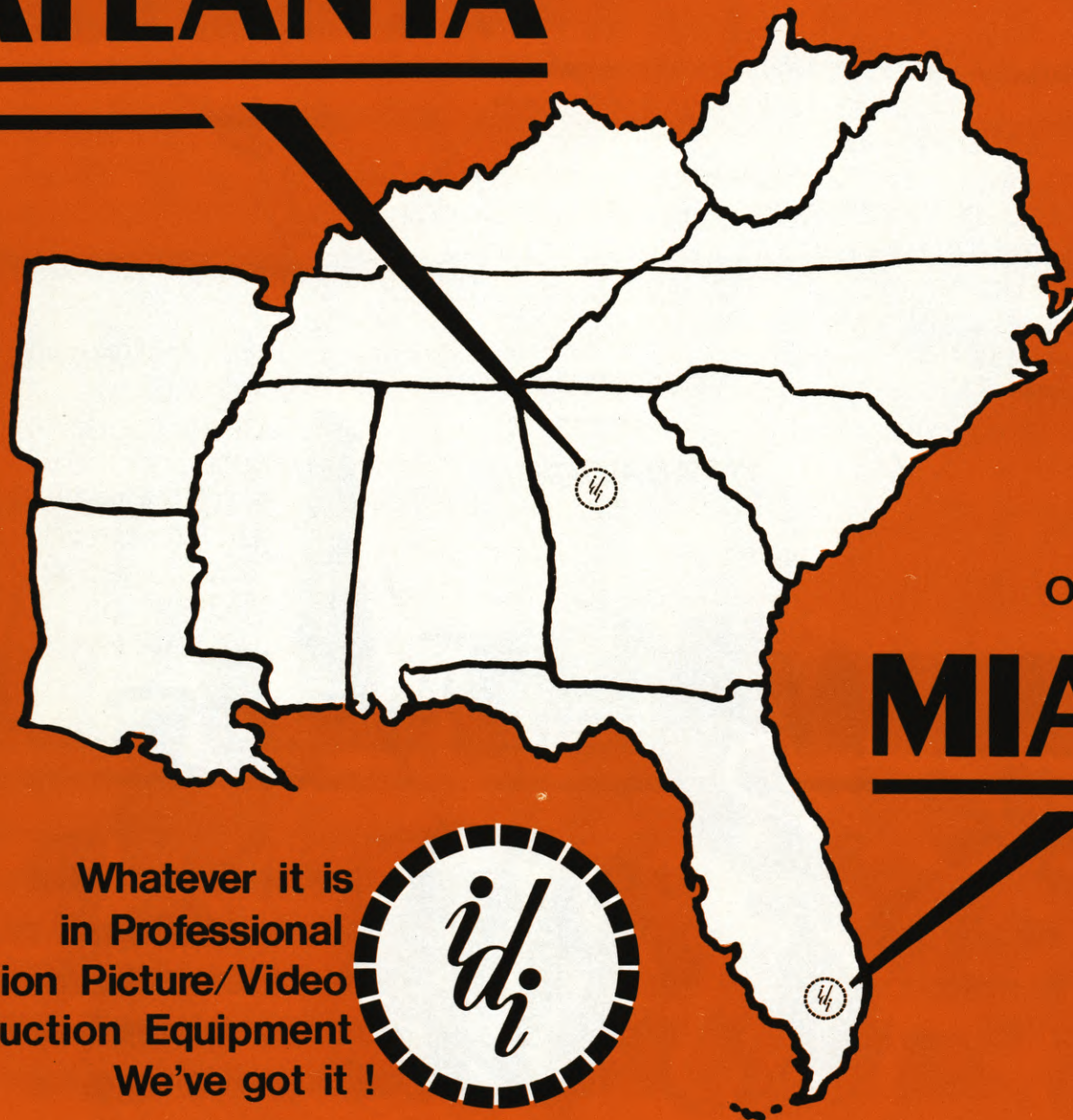
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American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

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FEBRUARY, 1979

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ON THE COVER: George Hamilton makes an impressive Count Dracula in "LOVE AT FIRST BITE", a presentation of Melvin Simon Productions, Inc. This latest screen version of the Dracula legend is a comic-romantic treatment, directed by Stan Dragoti and photographed by Edward Rosson.

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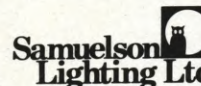
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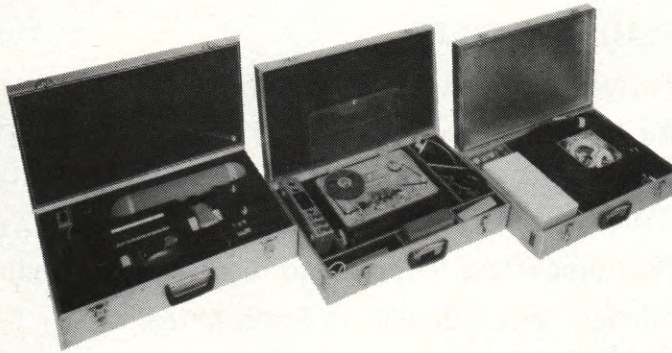
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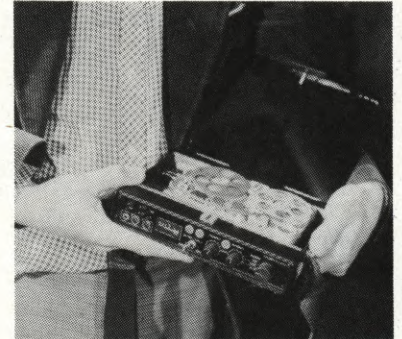
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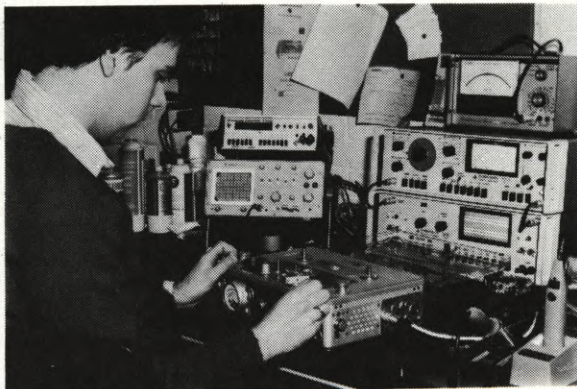
With any of them we can supply a wide range of microphones including AKG-451's Sennheiser 816's and Sony ECM 50's and, of course, the fabulous Micron Radio Microphone.

If you need hand portable radios for communication purposes from Samuelsons, you will get the latest Motorola MX300 Handie Talkie Radios and if you want to talk from afar then we can also supply the compatible Maxar Base Station complete with Regulated Power Supply to work off a mains supply if you wish.

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WHAT'S NEW

IN PRODUCTS SERVICES AND LITERATURE



ANIMATION STAND MOTION CONTROL SYSTEM

A complete motion control camera system designed for retrofitting onto existing animation stands is now available from ELICON, Inc.

The Elicon Camera Control System employs the latest in computer technology. Powered by a sixteen-bit computer with 32,000 bite memory, this system can control 7 axes of movement simultaneously. And if more axes are needed, the system can be expanded to 24 axes.

Specially designed D.C. servo controllers provide smooth, fluid movement of each axis. Since no stepper motors are used, vibration is held to a minimum. In addition, each axis is tracked by high resolution optical encoders to assure absolute accuracy in each movement.

As a standard feature of the controller, each axis automatically moves to the same start position on system start-up. This makes repeat pass moves a *true* reality.

To complement the computer is a floppy disk information storage system. This system allows the operator to record and playback up to 160 different axis moves per floppy disk. The operator can use the built-in computer file to select moves at will and playback any portion he finds useful for the job at hand.

Due to an extensive software program resident on the system, many types of effects are possible. The system is capable of both stop-action and streak effects. Furthermore, these effects are interchangeable with the computer program. In addition, the program comes with slitscan and out-of-phase printing capability. Each group of moves may be repeated at any camera speed between .01 to 12 fps (camera permitting), giving you multiple pass capability. In order to minimize human error, the computer program *guides* the operator by prompting the direction which should be taken.

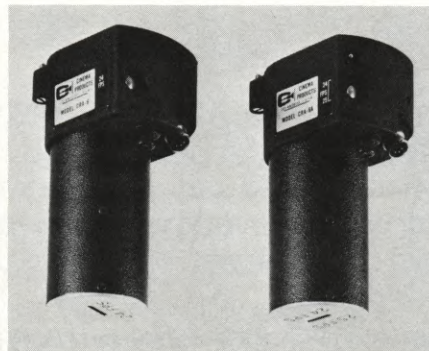
To speed understanding and usage,

standard animation terms have been employed. Also, four methods of programming each axis have been designed:

- 1) the axis may be moved by a joystick;
- 2) the axis may be cranked through the move;
- 3) the axis can be cranked to specific positions and a frame number can be assigned to each position, or;
- 4) Specific positions and frame numbers for a given axis can be typed into the computer via the CRT terminal.

The latter two methods allow the computer to fill in the points in-between. To aid the operator in complex jobs, the computer program has a host of sub-routines including a frame to frame editor and a curve former to allow full modification of the recorded information.

For further information, write Elicon, Inc., 254 Viking Ave., Brea, CA 92621.



NEW AND IMPROVED CRA-6 AND CRA-6/A MOTORS FOR ARRIFLEX 35 IIC CAMERAS NOW AVAILABLE FROM CINEMA PRODUCTS

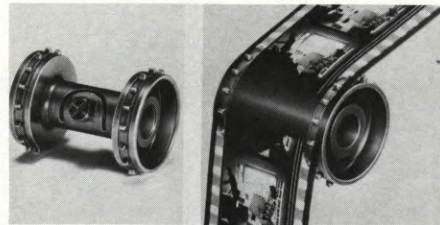
Cinema Products Corporation announces the availability of a new and improved version of its Academy Award-winning CRA-6 and CRA-6/A crystal controlled motors for Arriflex 35 IIC cameras.

Utilizing the most advanced integrated electronic circuitry for extremely compact and efficient operation (all the electronics are contained within the motor housing), CRA-6 and CRA-6/A crystal controlled motors are the lightest and most compact motors available for Arriflex 35 IIC cameras.

The CRA-6 model which runs at 24 fps only is priced at \$1600. The CRA-6/A model which runs at 24 fps or 25 fps

(controlled by a selector switch) is priced at \$1700.

The new and improved version of these extremely popular crystal controlled motors is now available for immediate delivery (all back orders for these motors having already been filled). For further information, please write to Cinema Products Corp., 2037 Granville Avenue, Los Angeles, CA 90025. Tel: (213) 478-0711 or (213) 477-1971.



NEW LAVEZZI SPROCKET ANSWERS INDUSTRY PROBLEM OF FILM TEARING AND BREAKAGE

LaVeZZi Machine Works, Inc., Elmhurst, Illinois has recently introduced a family of sprockets that is designed to reduce the chance of torn motion picture film caused by the abnormal contact between the film and the sprocket, and minimize several of the reasons for projector maintenance.

Designated as VKF sprockets (Very Kind to Film), they differ from current sprockets by the profile of the sprocket teeth. The new VKF sprockets are machined with the widest possible teeth compatible with the narrow CS Cinema-Scope film perforations, as well as the standard KS wider-perforation film. The VKF design presents an 80% increase in the width of each tooth over current sprockets, and is responsible for the protection and improved control of film through a projector.

Each tooth on the sprocket is meticulously profiled with rounded edges to eliminate any contact with the corners of the perforation—the place where film tears often start. The redesigned tooth form with its rounded edges reduces the possibility of cutting, tearing or abrading the film—even under heavy tension, uneven film travel, or other abnormal condition existing in the film path.

Dimensions of the VKF sprockets are critically controlled. Spacing between the rows of teeth and between individual teeth, alignment of teeth, the width and surface of each tooth are held to close tolerances to accommodate changes in film perforation specifications due to manufacturing, shrinkage and aging.

Worth Baird, sales manager for La-

Continued on Page 206

ACMADE Compeditor

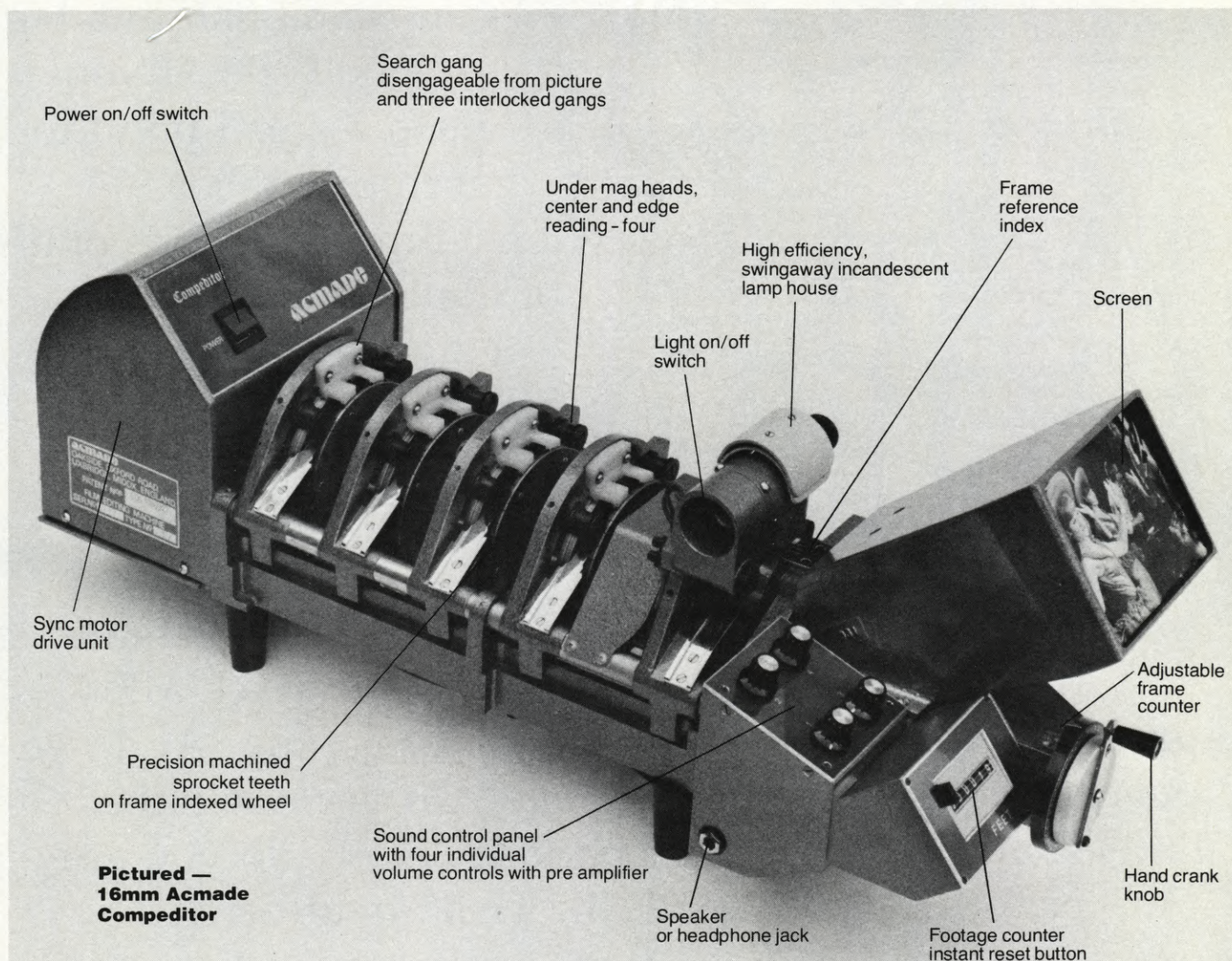
The Acmade Compeditor, available in both 16mm and 35mm models, was designed for the working film editor. It is a compact, table-top editor which combines a four-gang synchronizer, under mag sound heads, pre-amplifier, large screen viewer and synchronous motor into an efficient, one-unit editing machine.

Featuring both motorized and hand-cranked operation, the Acmade Compeditor allows an editor to sync dailies, assemble scenes and split and lay tracks faster than any other editing machine on the market. It is ideal as a complete editing system or as a companion to a flatbed editing machine. The Acmade, when being used

for the first or rough cut, doubles editing manpower by freeing the flatbed editor for fine cutting.

Extremely easy to operate because of its compact design and physical layout, the Acmade has a simple threading pattern and easy-to-reach controls. Quick access to all its operating features make the Acmade ideal when speed and efficiency is desired in film editing.

Why not put the Acmade Compeditor to work for you today? Check with us for additional information and prices.



**Pictured —
16mm Acmade
Compeditor**

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Major Flick (the ghost of Hollywood past), it's better to be a big fish in a small

pond, rather than a small fish in a big pond. So, if you

need a small pond to get into; my boss,

Gerry Brodersen, has one of the best. It's

Foto-Kem, America's biggest little lab. A lot's been happening at Foto-Kem too; like the new wet-gate printer,

and then there's the optical wet-gate,

the contact wet-gate, and the silver track ME 4 process. There's round-the-clock developing. And, we develop Eastman's #47 negative. Oh yes, we have plenty of convenient parking. Now, do you get the picture? If you want "Big Fish" treatment . . .

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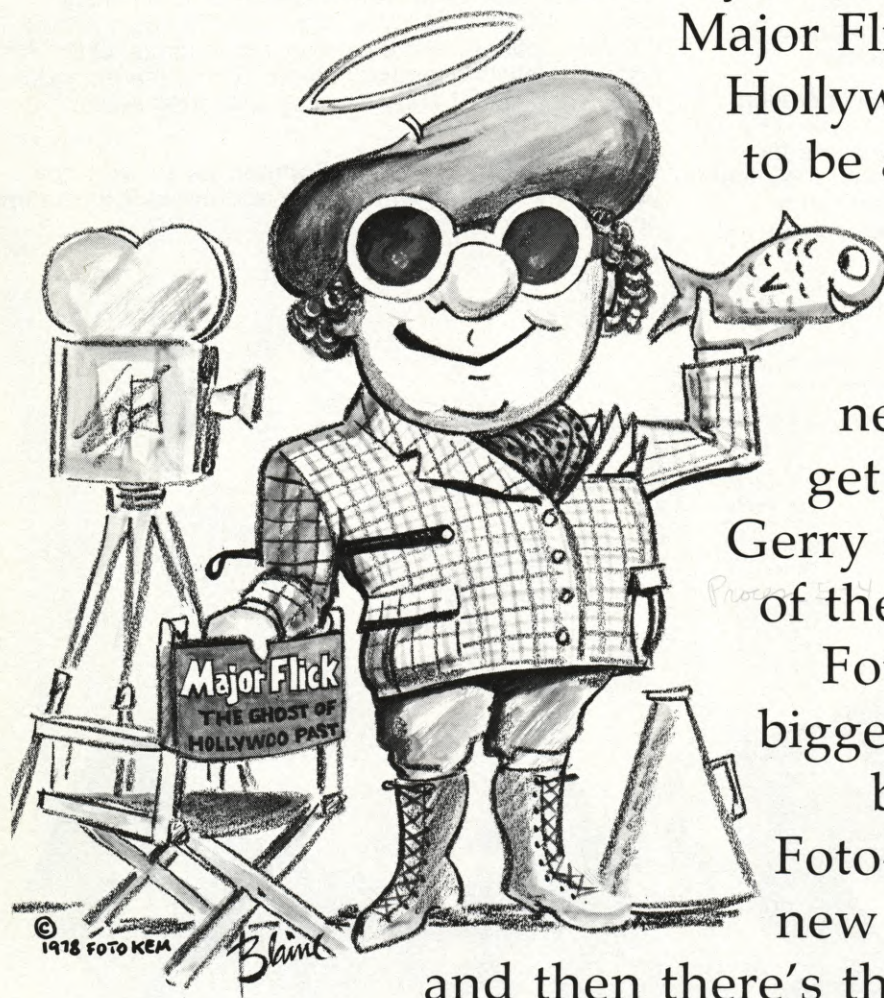


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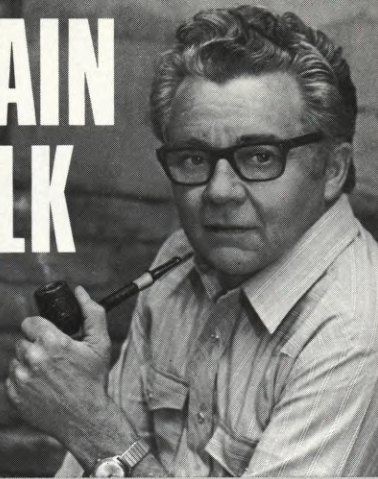
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PLAIN TALK



by *J. Carl Treise*

When money's tight, it's good sense to ask yourself "Do I buy a new processor or rebuild the old one?"

Before you shell out a lot of dough for a shiny new model, I suggest you take a fresh look at your old film processor.

You may discover that you've got more going for you than you realize.

In the first place, your present unit might have plenty of good machinery left in it. Many parts in a processor don't usually wear out. Besides, you've got a big bundle of money tied up in it, most of which you aren't going to get back if you sell or trade it in.

It may be possible to modify your old equipment and give you exactly what you're looking for.

Often all it takes are a few new accessories . . . or a new drive system . . . or a change in the tank set-up.

And the cost is peanuts, in comparison to the price of a new unit.

So, before you take the leap, talk it over with your production people and decide what you want. Then make a few calls around. You might find out that "Old Betsy" will do just fine and you'll keep a lot of money in your own pocket. Which is where it should be.

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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.)

This column is published in an effort to serve and inform our readers. When we receive questions about which we have limited experience, we forward these to our more expert colleagues in that field in an endeavor to give the best answers available.

Our aim is to inform and to help and in so doing we, on rare occasions, give answers which displease or distress others. Since this has happened recently, we are happy to give the affected party space for rebuttal. The following is excerpted from a letter sent to us from Mr. S. Rose of Micro Record Corporation, Beacon, New York:

A In the November 1978 issue, Page 1054, under Questions & Answers, it was stated:

"The Micro Record System is specifically manufactured for processing Black and White films and is totally unsuitable for color."

During the 32 years that the Micro Record processor has been on the market, we have received numerous unsolicited testimonials from users of the Micro Record tank stating their satisfaction with its performance in the processing of both B&W and color films.

The following procedure, suggested for the processing of Ektachrome films, was sent to us by a user of the Micro Record tank who was so enthused with the results he obtained in the processing of his color films that he wanted to share it with others. We have known of professional photographers who used the Micro Record tank to produce color slides which they sold through various outlets.

Suggested procedure for processing 100' Ektachrome EF 16mm and 50' Super 8 Ektachrome films in the Micro Record film processor. Use Eastman Kodak process E-4 chemicals.

Process E-4 chemicals are no longer available!

	TEMP.	SO-105 Film Time	
		100' EF 16mm	50' SUPER 8
1 PRE-HARDENER	86	6	4½
2 NEUTRALIZER	83-87	2½	1¾
3 FIRST DEVELOPER	86	25	18
4 FIRST STOP	83-87	5	3½
5 WASH	80-90	10	7
6 COLOR DEVELOPER	83-87	59	40
7 SECOND STOP	83-87	7½	4¾
8 WASH	80-90	7½	4¾
9 BLEACH	83-87	25	18
10 FIXER	83-87	15	10½
11 WASH	80-90	15	10½
12 STABILIZER	83-87	2½	1¾

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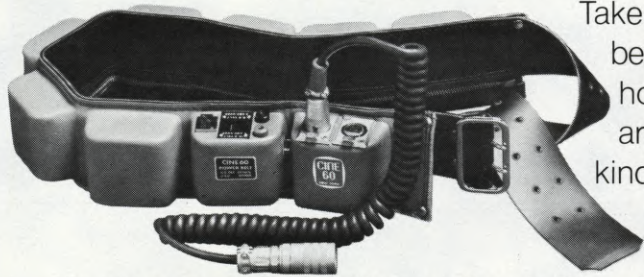
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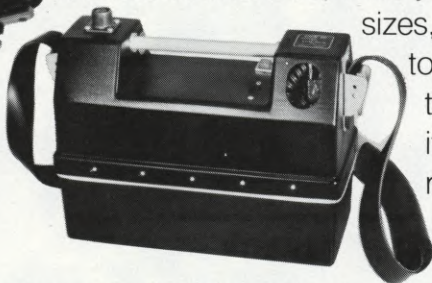


Cine 60 NiCad reliability in a Powerpak/Sun Gun combination. □ Our rechargeable Powerpaks are also available separately. In a variety of



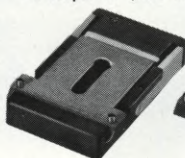
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pods and body braces that let you concentrate on what you're shooting... instead of your aching sacroiliac.

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than this sentence took to read. Plus suction mounts, compact quartz lighting...

and that's just the beginning. With all the things you're asked to do these days, it pays to have all the help you can get. Why not call or write for our catalog today?

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When you need microphones with "reach," reach for these!



CL42S Shotgun System

The CL42S reaches farther and rejects more ambient noise than any other shotgun of its size ever made. Our exclusive line bypass port makes it more directional at low frequencies so you won't have to sacrifice frequency response when you use it on a boom. Diffraction vanes maintain high-frequency directivity to preserve uniform frequency response if the "talent" gets a little off-mike.

Phantom or AB powered, the CL42S comes complete with windscreen, shock mount, carrying case and handle for hand-held applications. And it's rugged.

CH15S Hypercardioid System

The CH15S is actually more directional than a mini shotgun mike – in a package that's only 4 inches long that weighs less than 6 oz. Specially designed for boom and fishpole use in TV and motion picture studios, but equally at home wherever working space is small and you have need for a compact, highly directional microphone.

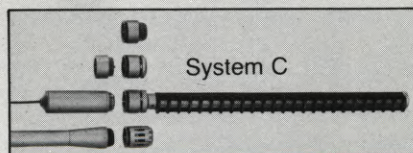
Compatible with phantom or AB power, the CH15S comes complete with windscreen, shock mount and carrying case. And, this microphone is rugged.

The Electro-Voice Warranty

Electro-Voice backs up these two microphones with the only unconditional warranty in the business: for two years we will replace or repair your CL42S or CH15S microphone, when returned to Electro-Voice for service,

at no charge – no matter what caused the damage!

We can do this because we build these microphones to meet our standards for performance, ruggedness and durability. We accept nothing less, and if you're a professional, buying a professional quality microphone, you shouldn't either.



EV **Electro-Voice**
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"Action! Cut!"

No 16mm camera responds faster to these commands than the Bolex H16 EL.



The reason is the H16 EL's highly advanced electronic motor drive. It gives you instantaneous camera speed the second you press the shutter release. And instantaneous shut-off when you let it go.

Now every frame of film in your magazine counts. And there's a world of difference in the precision of your shooting sessions, as well as the ease with which you can edit. Not to mention the simplicity with which you can build fascinating animated sequences.

Of course, the H16 EL is a contemporary camera in every sense of the word. It is suitable for synchronized sound with your choice of crystal or sync pulse generator. And it is equipped with a bayonet mount and optional C-mount adapter that let you attach just about any lens made to your camera. (Shown above with the exceptional new Kern Vario-Switar 12.5-100mm multicoated zoom lens, which cuts

flare and reflection down to a minimum.)

Its shockproof meter is also a marvel to work with. A unique silicon cell provides the sensitivity needed for flawless exposures. Without the drawbacks of response lag, memory, or blinding associated with other types of photo-sensitive cells. Two illuminated diodes in the viewfinder tell you when you've found the optimum aperture setting by simply turning the diaphragm ring. It's that easy and exacting.

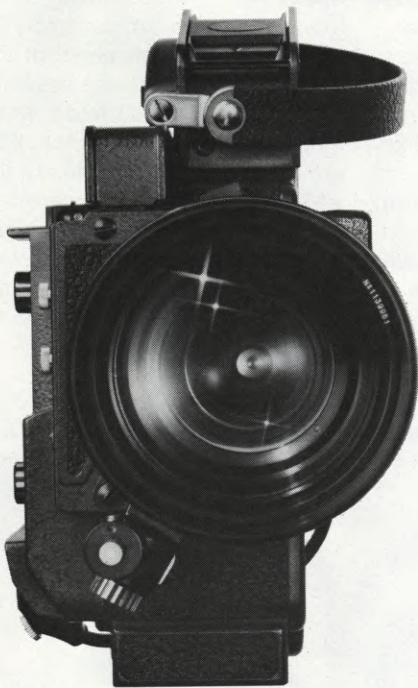
With the H16 EL, you needn't worry about running out of power in the middle of a take. Between its standard 0.45 Ah clip-on battery (which drives 400 feet of film) and its optional 1.2 Ah battery (which drives up to 2000 feet), the most extended shooting durations are amply covered.

A benefit for TV and commercial film crews has been recently added to the H16 EL: a special TV cut-off mask in the viewfinder.

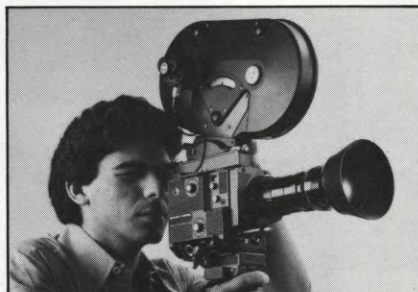
The final word, as with all Bolex cameras, must be quality. The H16 EL's seemingly invincible ruggedness presents a striking contrast to its highly refined, Swiss-crafted precision of detail. A contrast that strikes the ideal balance between reliability and excellence. Matched to a price that makes sense to the profit-conscious working professional.

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CINEMA WORKSHOP



By ANTON WILSON

THE VIDEO CAMERA-I

The power and impact of the projected motion picture image remains supreme. No miniscule picture in a box can even begin to challenge the spatially spectacular and emotionally awesome potential of the silver screen. Nor can any electro-*nouveau* process hope to duplicate the creative potential and sophisticated subtleties that can be achieved on film using techniques that have been perfected by cinematographers for over 75 years.

Unfortunately, only a small and decreasing percentage of production ever makes it to the silver screen. Whether it be an action series, TV feature, commercial, industrial, educational, training or documentary film, the odds currently predict that it will be viewed on a TV screen. Once this unfortunate but nonetheless realistic conclusion is accepted, an even more depressing fact must be confronted: electronic production offers many decided advantages over film, not the least of which is the "live" quality when displayed on the CRT television "screen".

Realizing these advantages, many producers of television-destined materials have already switched to the electronic medium. As a result, many cinematographers have also made this transition and many more are destined to follow. Although this change is often approached with reluctance, most cinematographers are pleasantly surprised to find that their cinematic artistry and creativity can be applied equally as well to the electronic format. While the two media are very similar from a cameraman's point of view, there is a significant reorientation that should be mastered if the cinematographer wishes to fully exploit the potential of video.

Optically the two formats are virtually identical. They both form an optical image at a specific "film" plane. However, here the similarity all but vanishes and the cameraman must learn an entirely new video language.

EFP Camera Head

Almost all broadcast quality cameras employ three image-forming tubes. These are usually Plumbicon tubes or a variation called a Saticon tube. The rea-

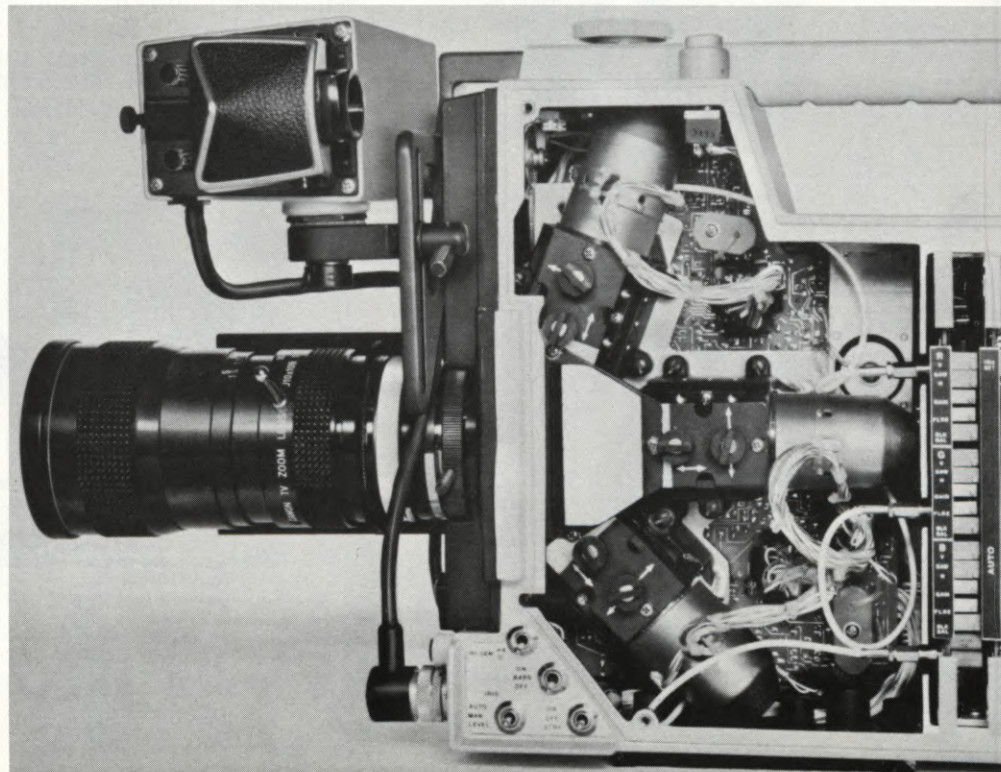
son for three tubes can best be explained by drawing an analogy to the 3-strip Technicolor process which was the mainstay of color motion picture production from 1933 until the early '50s. During that period, film could only record degrees of light and dark (B&W) and not color. It was known, however, that for human beings of this planet all colors could be represented reasonably well by combining varying proportions of three colors: red, green and blue. The Technicolor process employed a beam splitter and filtering system, such that the image coming through the single lens was split into red, green and blue components and recorded on three separate B&W film strips. Each of the three B&W images represented the red, green and blue elements of each frame respectively. In the process of making the release print, each of the B&W strips was used to dye transfer their respective color onto the release print in succession, much like a color printing press.

The modern video camera works on an almost identical principal. The Plumbicon tube is like a B&W film stock that is sensitive to only light and dark but otherwise color blind. Behind the single lens, is a beam splitter that trisects the image into

three paths, each with a corresponding color filter (red, green and blue) and terminating at the target screen of a Plumbicon tube. Thus, three separate signals are generated, one from each of the Plumbicon tubes, representing the red, green and blue elements of the image.

In motion pictures, the term "registration" pertains to image steadiness or the ability of each *successive* frame to register exactly in the same spot relative to the aperture. In video, the term pertains to the ability of all three color components to coincide into a single image. If registration is not correct, the image exhibits color fringing and appears soft. Registration must be precise for all three tubes, both horizontally, vertically and rotationally on axis. The mounting of the three tubes and the prism assembly is one of the most critical elements of the video camera. The prism/tube assembly must be ruggedly constructed and shock mounted to the outside case. If the camera is jolted or jarred severely, the registration can be upset. In severe cases, this may require mechanical realignment, but in most instances minor registration errors can be corrected electronically with adjustment pots located inside the camera. **Continued on Page 208**

The exposed mechanism of a typical ENG/EFP video camera. The three tubes (red, green and blue) are mounted in a single prism assembly. Note the mechanical alignment knobs on each tube.



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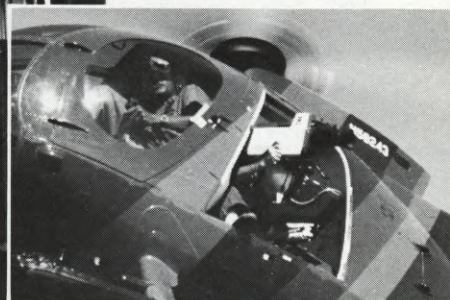
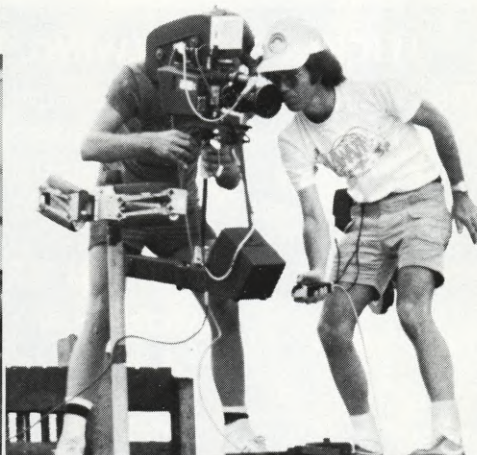
program to maintain a versatile mix of the highest quality 16mm film and electronic field production equipment available today.

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"The Steadicam camera stabilizing system lends itself to many innovative uses," says Dennis Burns. "For instance, by placing Steadicam on a special mount (built by Bud Weisbrod of Pacific Instrumentation — the CP dealer in Hawaii) and rigging it to a forklift, we were able to simulate boom/crane capabilities.

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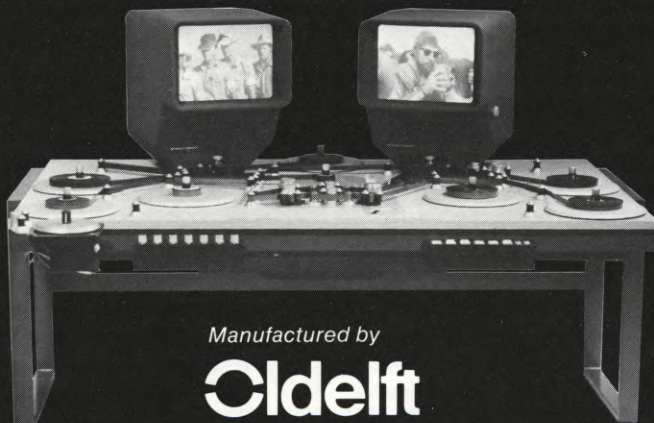
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THE BOOKSHELF

By GEORGE L. GEORGE

THE MEDIUM AND THE MESSAGE

A comprehensive guide by a seasoned professional, David W. Samuelson's MOTION PICTURE CAMERA TECHNIQUES surveys in sharply drawn detail the uses of filming equipment in its various practical applications. The field covered ranges from television commercials and documentaries to animation and feature films, offering effective advice on all work situations a cameraman may face. Film stock, correct exposure, adverse weather conditions, process photography, helicopter shoots are a few of the specific areas considered in this thorough and reliable manual (Hastings House \$8.95).

A tribute to filmmakers and ad agency producers, THE BEST THING IN TELEVISION: COMMERCIALS by Jonathan Price is a clever, knowledgeable look at the artistry cum salesmanship involved in the conception and creation of successful TV spots (Penguin \$8.95, Viking \$14.95).

Leonard Maltin's TV MOVIES 1979-80 is an invaluable guide to discriminating video viewing, listing 12,000 features currently broadcast, plus some 800 made-for-TV movies. Each entry is rated, carries data on director and cast, length and year of release, plus a concise plot outline (Signet \$2.95).

Exploring the roots of the women's liberation movement, Brandon French, in ON THE VERGE: WOMEN IN AMERICAN FILMS OF THE FIFTIES, finds in such movies as *Sunset Boulevard*, *The Country Girl* and *Some Like It Hot* the seeds of emancipation that sprouted from the break up of traditional family and societal ties (Ungar \$9.95/3.95).

In "I DON'T MIND THE SEX, IT'S THE VIOLENCE": FILM CENSORSHIP EXPLORED, Enid Wistrich, former chairperson of the Greater London Film Viewing Board, describes the way film censoring functioned in England. It is an enlightening and courageous book, in which the futile and counterproductive efforts of movie censors are duly recorded in factual and objective manner (Boyers \$9.95/4.95).

A critical study of films dealing with atomic weaponry, NUCLEAR WAR FILMS is a thoughtful collection of es-

says, selected by Jack G. Shaheen, that probes such films as *Hiroshima Mon Amour* and *On the Beach* in their intent and ability to reflect current public concerns (So. Illinois U. Press \$10/4.95).

In **FILM AND TELEVISION IN POLAND**, Jacek Fuksiewicz provides an informative survey of production and leading personalities in both media. An historic background traces developments since 1890, when "live photographs" were invented, until the emergence in 1945 of Poland's post-war industry (Imported Publications, 320 W. Ohio St., Chicago, IL 60610; \$3.50).

★ ★ ★

ASPECTS OF FILM ART

Bosley Crowther, the distinguished former critic whose New York Times' reviews were marked with uncommon perceptiveness and taste, presents in **RERUNS: 50 MEMORABLE MOVIES** his choice of 50 outstanding films of all time. Each selection is thoughtfully appraised in its historic, artistic and social context with brilliantly evocative visual recall (Putnam \$17.50/7.95).

In **AMERICAN ENTERTAINMENT**, Joseph and June Csida present a panoramic view of 300 years of popular show business. It is a fascinating and informative book, rich in factual insights into mass amusement media, from medicine shows to television (Watson-Guptill \$30).

A stimulating essay by Nancy D. Warfield, **GWTW-1939**, examines the film in the light of the historico-social climate of the period. Particularly illuminating are Warfield's comments on the film's racial aspects and Civil War attitudes in contrast to Griffith's *The Birth of A Nation* (Available at Gotham Book Mart, 41 W. 47 St., NYC 10036 and Cinemabilia, 10 W. 13 St., NYC 10011; \$5.50).

Western fiction, the source of so many films, is surveyed by C. L. Sonnichsen in **FROM HOPALONG TO HUD**, a well researched and revealing study by a learned and literate historian (Texas A&M U. Press \$9.95).

Leslie Halliwell has drawn liberally on his exceptional familiarity with film lore to assemble **HALLIWELL'S MOVIE QUIZ**, a collection of 3500 questions that will tease and delight cinemaddicts of all ages (Penguin \$2.95).

In **DOUBLE TAKES**, film critic Alexander Walker has collected reviews and comments published over a 20 year

period in leading British magazines. Walker's second thoughts are often stimulating and particularly apt in their appraisal of changing standards of screen permissiveness (David & Charles \$14.95).

Canadian TV executive and former film critic Elwy Yost evokes his favorite films in **MAGIC MOMENTS FROM THE MOVIES**, a delightful and entertaining book of thrilling memories (Doubleday \$8.95).

★ ★ ★

THE CELEBRITY CORNER

John Russell Taylor's engrossing biography. **HITCH: THE LIFE AND TIMES OF ALFRED HITCHCOCK**, for which he had the director's welcome cooperation, focuses on the man rather than his work. Hitchcock's family life, his early years in British films, his relations with performers and his work methods add up to the portrait of a shy person whose private emotions are expressed in his movies (Pantheon \$10).

The days of the silent film are recalled in three current biographies. In **THE TALMADGE GIRLS**, Anita Loos spins an entertaining web of anecdotes, gossip and notable facts around Norma, Constance and Natalie, as well as their career-minded mother (Viking \$12.50). In **FROM HOLLYWOOD WITH LOVE**, another star of the era, Bessie Love, offers a candid and eventful autobiography about her remarkably durable career (David & Charles \$14.50). In **QUEEN OF THE RITZ**, Samuel Marx reminisces in this biography of his aunt about the famous Parisian hotel, where Hollywood stars mixed with European nobility and wealthy playboys in the insouciant days of the 20s through World War II (Bobbs-Merrill \$10).

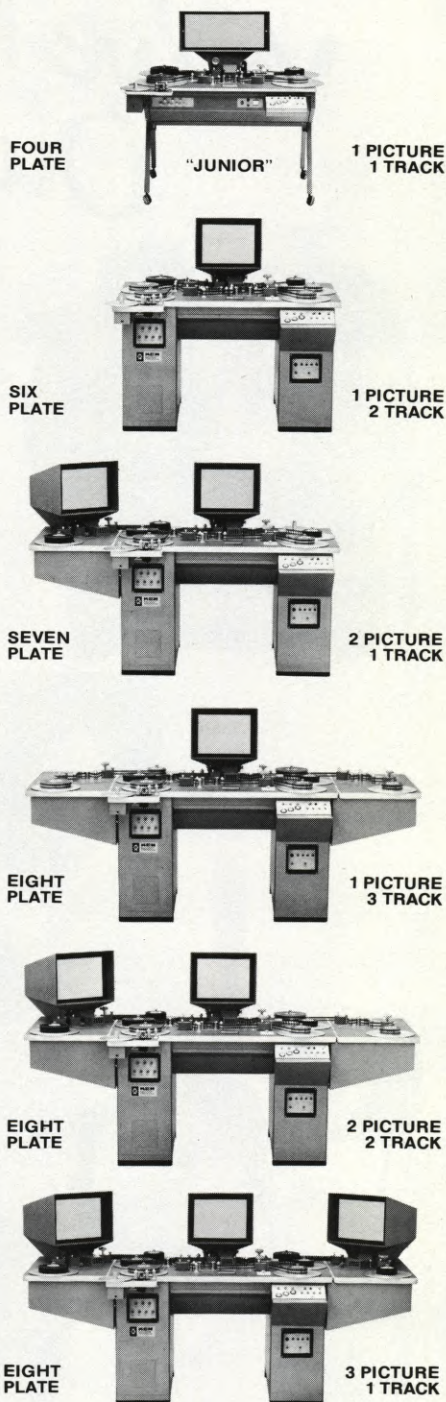
In **LOVE SCENE**, a combined biography of Laurence Olivier and Vivien Leigh, the fascinating lives of two dedicated and acclaimed performers is compellingly told by Jesse L. Lasky, Jr. with Pat Silver. The authors draw on their personal friendship with the couple for an intimate story of a passionate attachment that played out to an ultimately tragic end (Crowell \$10.95).

A novelized autobiography, **THE RED RAVEN**, is the way Lilli Palmer chose to reveal aspects of her early life and career in London not included in her previously published memoirs. Imaginatively interwoven fictional elements add an intriguing aura to Palmer's difficult debut (Macmillan \$8.95). ■

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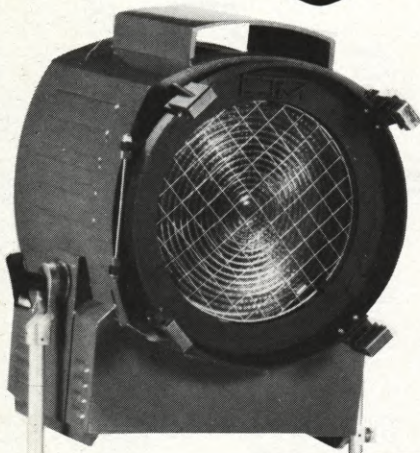
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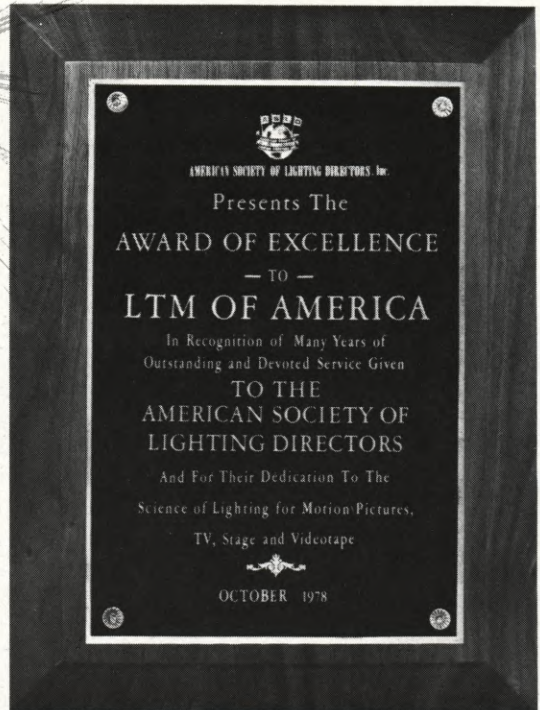
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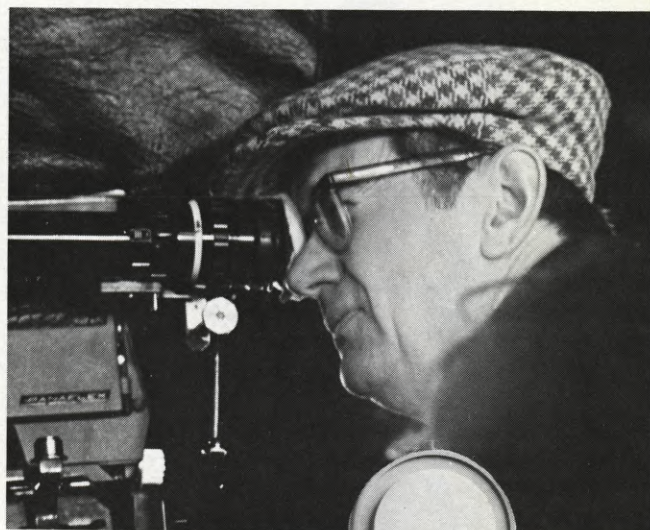


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Ossie Morris, B.S.C. (a wizard in his own right)—academy-award winning cinematographer whose credits include fifty-five feature-length films for an array of directors that reads like a "Who's Who" of Hollywood. And for his fifty-fifth film—Sidney Lumet's screen version of the colorful musical "The Wiz," starring Diana Ross and Lena Horne—Ossie Morris again relied on thousands of critical lighting measurements from 'The Whiz' of light control ... the Gossen Panlux Electronic footcandle meter.

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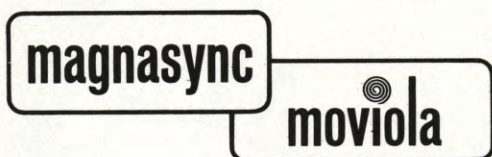
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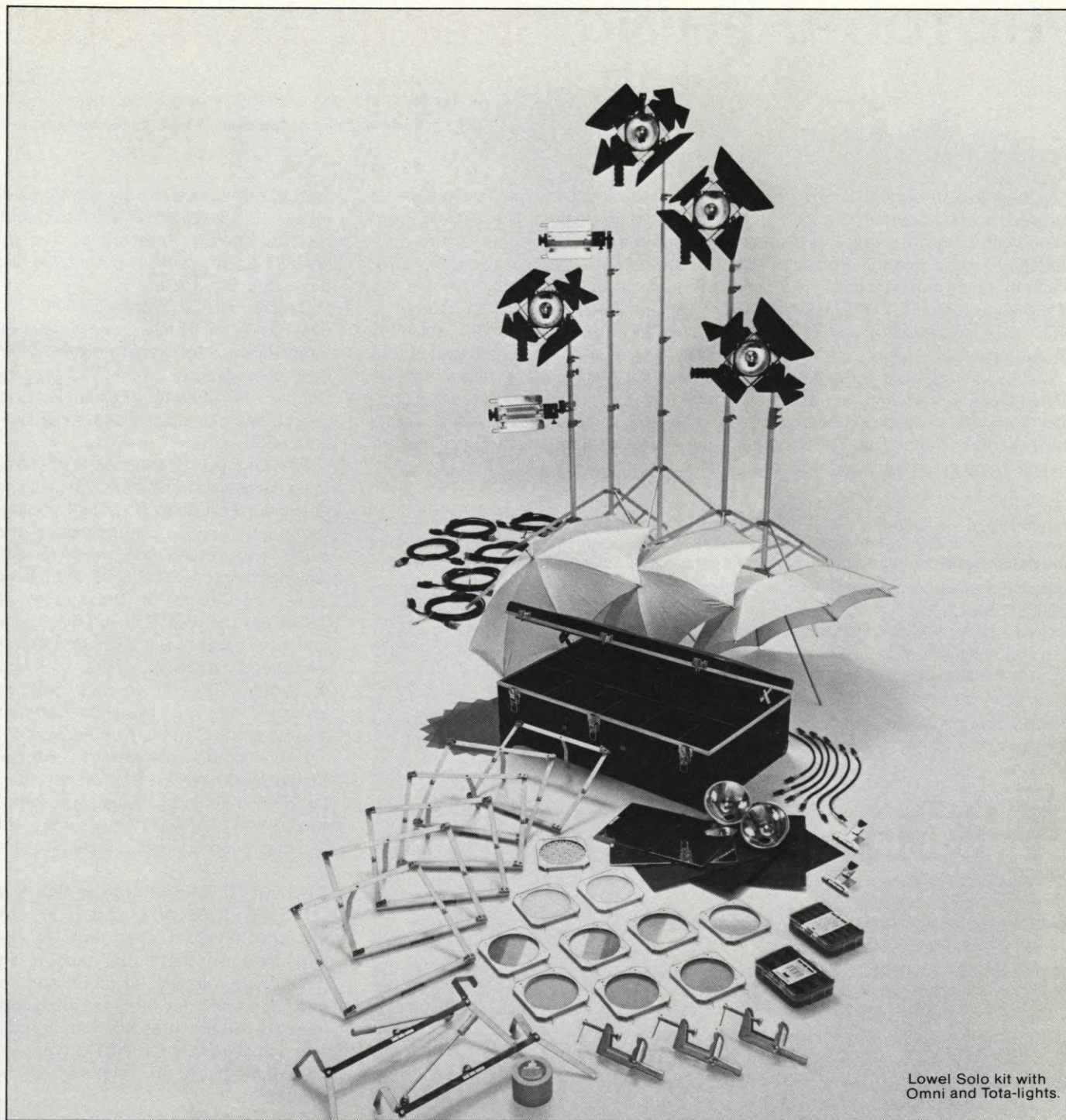


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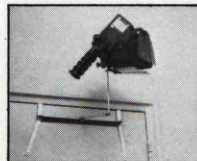
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In this latest of a rash of Dracula vehicles, your friendly neighborhood Vampire comes through as a comic-romantic roué

In the wave of current Dracula-fever that seems to be approaching epidemic proportions both on stage and screen, the feature which treats the bloodthirsty Count in a comic-romantic vein (no pun intended) is entitled LOVE AT FIRST BITE, a presentation of Melvin Simon Productions, Inc.

This is an updated version of the many-times-told vampire tale, in which, after nearly 700 years of one-bite stands, Transylvania's Count Dracula (George Hamilton) discovers that his ideal woman

is an All-American-type fashion model (Susan Saint James). With Arte Johnson as his manservant, Renfield, the debonair vampire heads for New York City—lock, stock and coffin—to win her.

Sun-sensitive as ever, the Count is confined to his coffin by day, but finds adventure and an occasional liquid snack in nighttime Manhattan, before he locates his unexpectedly earthy inamorata. Dracula applies his considerable and unique charms to winning her undivided attention—if not her heart—and,

to quote the film's slightly carried-away publicist: *“Transylvania's most illustrious citizen courts America's favorite glamour girl in a whirlwind romance that bakes the Big Apple.”*

Despite all that hyperbolic hype, the film has been directed with tongue-in-throat flair by Stan Dragoti and visualized in a most effective mood-filled style by Director of Photography Edward Rosson, son of noted cinematographer Hal Rosson, ASC.

The younger Rosson at first chose other careers as head of his own clothing designing firm, then as a still photographer, before he photographed the stunts and second unit action for Antonioni's ill-fated ZABRISKIE POINT. He served as Director of Photography on THE MAN and WHITE LIGHTNING, won an Emmy Award for his camerawork on television's NEON CEILING, and shot more than 100 commercials, winning several CLIOs and special achievement awards at the Cannes Film Festival.

In the following interview for *American Cinematographer*, Ed Rosson describes the photographic challenges presented by LOVE AT FIRST BITE and some of the techniques he applied in meeting them:

QUESTION: Aside from the fact that LOVE AT FIRST BITE adopts an out-and-out farcical approach to the Dracula myth, the visual aspects are played very heavily for mood and are certainly spookier than anything that appears in the classic film version starring Bela Lugosi. Would you care to comment on that element of the production?

ROSSON: In order to answer your question, I'd have to state first that, in my opinion, a very large percentage of the success achieved by a cinematographer depends upon art direction. I believe that if you have visually great sets to work with—sets that are designed with outstanding taste—almost any good cameraman can walk away looking even better. You can't make an ugly set look terrific just with lighting. Art direction is so very important that I can't stress it enough. We've had a great Art Director on this show, Serge Krizman, and with his help, I feel that the visuals in this feature are going to be magnificent.

QUESTION: Stan Dragoti, the Director

George Hamilton makes a fine looking Dracula in “LOVE AT FIRST BITE”, a presentation of Melvin Simon Productions, Inc. An updated spoof on the Dracula legend “with romantic overtones”, the film wanders far from the Bram Stoker original, but boasts many solid production values and outstanding cinematography by Edward Rosson.





The visuals in "LOVE AT FIRST BITE" are quite stunning—a combination of Rosson's mood-filled lighting and haunting art direction by Serge Krizman. Although the film is a sophisticated comedy, every means was used to preserve and enhance the *mysterioso* atmosphere associated with the character. The color blue was eliminated from all sets and costumes. Other bright colors were avoided in favor of earth tones, especially in the early sequences, which supposedly take place in Transylvania.

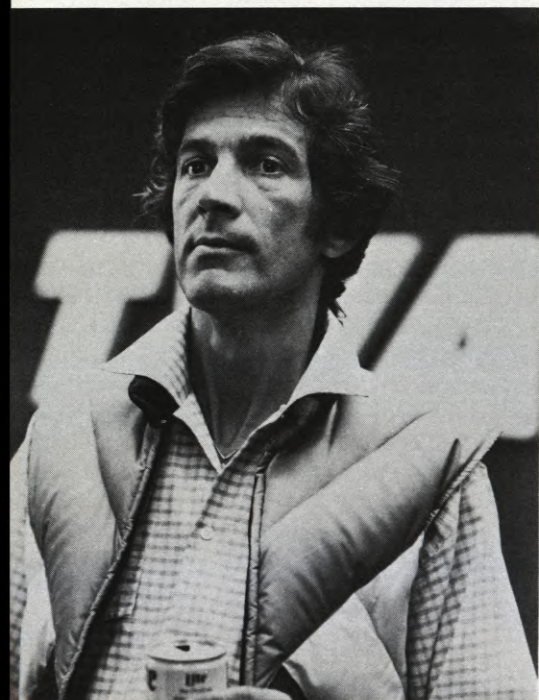




Transylvanian villagers turn out to bid a somewhat noisy farewell to their not-so-favorite son, who wants to try his fangs in New York. (BELOW) Complete with coffin and an ample supply of local soil, Dracula and his sidekick set off through the spooky Transylvanian night, re-created with chilling realism on a Hollywood sound stage.



Director Stan Dragoti, a former advertising executive and Art Director, has a fine eye for visuals and asked for no compromises in cinematography.



of *LOVE AT FIRST BITE*, has directed one two-hour television feature (McCOY) and one theatrical feature (*DIRTY LITTLE BILLY*) prior to this assignment, but he is known mostly as a highly successful advertising agency executive with a flair for creating prize-winning commercials. Can you tell me a bit about your working relationship with him?

ROSSON: Today there are many, many directors who, I feel, are so caught up in their choreography and staging that they forget the importance of the visuals. So often they demand that you light the set for 360-degree camera movement (which makes it impossible to really do justice to the lighting) and then, after you've shot the 360-degree move, they end up using only about 90 degrees of it in the final cut. You then see what a waste it was to have to compromise your

Filming against a background of Manhattan skyscrapers represented a complete switch from the rococo Transylvanian scene of the opening.



lighting. Stan Dragoti, the Director of this picture, has a background as an Art Director with an advertising agency, so he's very much into visuals and art direction. He didn't ask me to compromise anything—but then, he's a very special person in many ways. It's my belief that Stan Dragoti has to come out of this picture as one of the brand new directorial "stars" in Hollywood, because his taste and interpretation of scenes is unbelievable. I must believe that he will be one of the most sought-after directors in the business after this picture. The man is incredible. He's kind, he's tolerant, he's professional, he's everything good. (He may even be too nice a man for this business.) As a director he's multi-talented. He's able to change dialogue instantly or even rewrite an entire script. I think he's just barely scratched the surface of his talent.

QUESTION: In an earlier brief discussion that we had, you mentioned the fact that you were purposely underexposing this picture and then bringing it up in the printing. Could you go into that a bit more explicitly?

ROSSON: Yes, I've underexposed a stop-and-a-half on almost everything we've shot, with the exception of a few romantic scenes, in an attempt to purposely pollute skin tones—and I feel that we've achieved that in this picture.

QUESTION: In view of the fact that the faithful rendition of skin tones has always been considered the prime criterion of proper exposure, isn't that procedure a bit radical, to say the least?

ROSSON: In general, certainly—but I didn't feel that fidelity of skin tones was necessary in this particular film—with the exception of the romantic sequences which I've already mentioned.

QUESTION: Did this rather daring decision to ignore skin tones come to you as a sudden inspiration or did you have some precedent for it?

ROSSON: Frankly, I had long stood in awe of Vittorio Storaro's photography in *THE CONFORMIST* and, in studying it, had noticed that most of the picture was shot with people's faces in profile and the skin tones totally disregarded. So as often as I could, I tried in *LOVE AT FIRST BITE* to disregard skin tones. I tried to have the action staged in such a manner that I could edge-light the people and disregard the camera side of their faces as far as skin tones were concerned. I

Continued on Page 165



During a break between set-ups, Director Dragoti (with a rose in his teeth?) and Director of Photography Edward Rosson take over one of Central Park's horse-drawn carriages for a chat. Seeing eye-to-eye on the visualization of the story, they enjoyed a close rapport. (BELOW) In the opening sequences of the film, *Dracula*, shown here with his manservant (Arte Johnson) is illuminated with strong cross-lighting to emphasize his supernatural characteristics. The lighting gradually becomes softer, as Dracula makes it to New York and finds romance.



THE AIR FORCE FILMING OF "ASSAULT ON MOUNT MCKINLEY"

By CAPTAIN RONALD J. DIETEL
Edited by CAPTAIN DEBORAH DRAIN

When people hear someone talk about a military film, they oftentimes think in terms of their past experience and conjure up images of the stereotyped World War II or Korean War training film, which technically and aesthetically left a great deal to be desired. Anyone who has been in the military undoubtedly remembers some of this type of production. But the Air Force has changed the vast majority of these films into truly professional productions, which reflect the current technical state of the art and a dedicated effort by those who produce Air Force films. Such was the case on a recent production which featured the only Air Force high altitude rescue team during a climb up Mount McKinley. It could hardly be labeled the typical military training film.

The idea of making a documentary film about this special high altitude rescue team had started well in advance of my recent arrival in Alaska. My primary purpose was to do the coordinating and directing necessary for the successful filming of the 71st Aerospace Rescue

The camera team trained for the mission at Arctic Valley near Anchorage. Packs weighed upwards of 60 pounds and included complete mountain climbing and personal survival equipment.

and Recovery Squadron as its rescue team progressed up the highest peak in North America. While perhaps not as difficult as other mountains to climb, such as Everest or K2, Mount McKinley has certainly taken its toll of the lives of those who have attempted to climb its 20,320 feet. During research of the project, I found a vivid example of the dangers involved in climbing any mountain. One team that tried climbing McKinley in July one year lost all seven members of the expedition. Only three of the seven bodies were ever found.

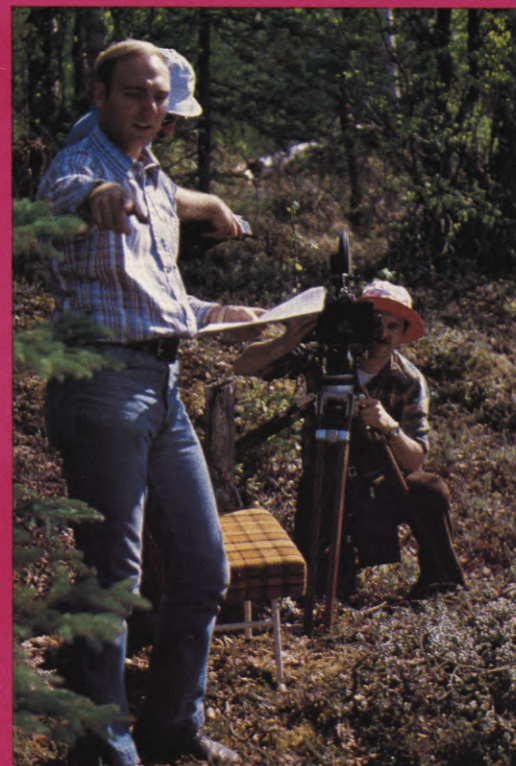
At that point I realized some of the obstacles which we would face in attempting to document the rescue squadron's climb up McKinley. We would need specialized gear and equipment, as well as a certain amount of luck if we were to get the shots we desired for an "Air Force Now" segment, which is a monthly film report of various Air Force activities distributed to Air Force units worldwide. We had to be able to capture the vast beauty and remoteness of McKinley, along with the members of the expedition who would be climbing. Approximately two months of preparation time suddenly didn't seem like enough time at all. Fortunately, we had the backing and help of a lot of people, and were able to obtain the equipment we needed. The rescue squadron itself provided us with all the aerial support necessary, including Air Force HC-130 airplanes and an HH-3 helicopter. Additionally, we were able to obtain a significant amount of equipment which we didn't have in Alaska, including Arriflex BL and M cameras for sync sound sequences, and a Tyler Mini-Mount and Dynalens for filming aerials of the team as they ascended the mountain. With the Dynalens and Mini-Mount, we hoped to obtain close-in shots from a safe distance away from the mountain.

Since we didn't have a motion picture cameraman trained in high altitude climbing, we trained two of the rescue team's climbers in motion picture techniques. They learned rapidly and after seeing some of their practice footage, we felt confident we would obtain a great deal of usable footage from them. They had several primary concerns about the filming. One was being able to load the cameras, a Bolex 16H and Bell and Howell 70DR, without having to take their gloves off. The conditions under which they would be climbing would see temperatures well

below zero and winds in excess of 50 knots. Exposure of hands would result in almost instant frostbite, which every climber strives to avoid. Another concern was film exposure, particularly with the 7252 ECO film stock we were using. They were a little wary of the high readings they might encounter. On bright sunny days their incident light meter readings would increase to f/16. Our senior cameraman, TSgt Jerry Hipley, had told them not to set their exposure much above f/9, due to the nature of ECO stock in similar arctic conditions. We learned later that they tried to contact us during the climb about the high exposure readings, but were unable to get through. When in doubt, they shot the scene twice at two exposures, which worked out well due to the supply of film they had taken with them.

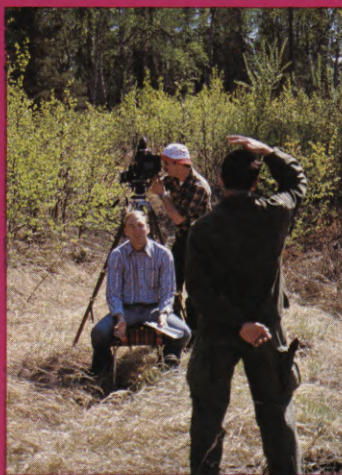
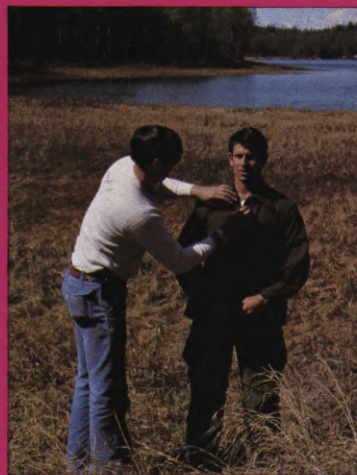
One of the unique ideas developed during the filming was an improvised tripod. This was entirely the idea of Technical Sergeant Mike French, one of the two cameramen we had trained. French wanted to be able to use a telephoto lens

The author, Capt. Ronald Dietel, directs a filmed interview in a remote Alaskan setting, the silence of which was interrupted by the sound of several small aircraft in the area.





(LEFT) Mt. McKinley, at 20,320 feet the highest peak in North America, was climbed by the only U.S. Air Force high-altitude rescue team and filmed by an Air Force crew. (CENTER) Technical Sergeant Jerry Hipley, during survival training in preparation for filming at Mt. McKinley's 7,000-foot level. Each individual was required to be familiar with rescue procedures in the event that someone should fall into one of McKinley's hundreds of crevasses. (RIGHT) Weight was a critical factor during the three-day expedition. Five people, plus 700 pounds of camera and personal equipment would test the limits of the Air Force HH-3 helicopters.



(LEFT) Master Sergeant Robert Campbell, from Norton Air Force Base, California, adjusts the Sony ECM 50 microphone prior to a sync-sound interview with Technical Sergeant Mike French. (CENTER) *Air Force Now* (the monthly film summary for which the documentary was made) utilizes a "talk into the camera" interview technique, as depicted here. Having subjects appear to speak directly to audience emphasizes fact that the Air Force is made up of people, not just machines. (RIGHT) Technical Sergeant Jerry Hipley, the Senior Cameraman in charge of cinematography, is a veteran of more than 12 years in Air Force motion picture production.

on the Bolex and needed a sturdy support. He had the sheet metal shop on Elmendorf Air Force Base drill a hole through the top of an ice axe, which was no small task considering the toughness of the metal. He then mounted a very

lightweight tripod head to which he could attach the camera. With weight such a critical factor, this was a very worthwhile effort and provided a stable support for the camera. Mike continually amazed us with his enthusiasm and ingenuity

throughout the project.

Another primary concern was to designate a method whereby the two cameras could be carried to the McKinley summit and still be accessible. I discovered in talking with one other expedition,

(LEFT) One of the rescue team climbers near the peak of McKinley. The mountains of Alaska offer outstanding opportunities for photography. The top of McKinley rises above the clouds and bad weather below. The view from the summit extends more than 200 miles. (RIGHT) Four members of the team reach the summit and place a radio call to Scott AFB, Illinois. Reception was good, considering the distance involved. Transmitting from 20,320 feet allowed line-of-sight communication with Anchorage, more than 200 miles distant. The call was relayed and recorded from Anchorage to Scott AFB.



that they had carried their camera equipment on their back packs. The problem there was immediate access to the cameras. We were afraid that it would be too cold and cumbersome for the climbers to reach the cameras while ascending the mountain and that a lot of live action footage would be missed. Fortunately, a senior NCO with a great deal of rescue experience, Senior Master Sergeant Udo Fischer, came to our aid. He found a ready-made pouch which could be carried near the climber's chest or side. It would hold the camera and a couple of extra rolls of film for immediate use. Also, it could be adjusted for placement just about anywhere. It proved to be indispensable during the climb.

Approximately one week before the ascent we started filming the climb preparations, such as packaging food and checking out the myriad of equipment each climber would take. The producer, Captain Bill Alderson, managed to acquire the use of sound equipment and personnel from our headquarters at Norton AFB, California. Our sound person, MSgt Robert Campbell arrived from Norton just as we were setting up to film an important part of the preparations—the mission briefing. We would have had a hard time without him; he knew his job well and we were working shorthanded the way it was—only three people. With Bob's assistance I learned how to operate a Nagra recorder which proved to be important later on in the filming.

The day before the climb began we were able to obtain some excellent footage which included three sync sound interviews in a beautiful Alaska setting. In the background of the shot was a perfectly still lake, with some small cabins. Behind that was a row of trees with Mount McKinley, standing in eloquent silence above our peaceful scene. But even in the most perfect solitude there is disharmony. In our case, it was a number of small local airplanes which occasionally intruded on our sound track. However, we were able to film between their noisy takeoffs and landings and preserve, at least for a moment, the Alaskan solitude.

We had planned to place a four-person crew; two cameramen (one doubling as director), one sound person, and one still photographer, on the 7,000-foot level of McKinley. They were to film the initial phases of the climb, particularly the moving of equipment from one camp to another. In fact, we spent a great deal of time preparing for this segment of filming. All of our film crew was outfitted with standard climbing equipment, harnesses, down sleeping bags, and a six-day supply of freeze-dried food. Everyone was trained how to travel on glaciers



Staff Sergeant James C. Fiting, shown during a phase of the filming, doubled as sound recording technician when his services in that specialty were required. *Air Force Now*, the monthly film report of current Air Force activities and events, for which the documentary was made, is shown Air Force-wide to keep personnel abreast of latest developments.

and what to do if someone fell into one of the mountain's crevasses. A helicopter was to fly our camera crew to the 7,000 foot level of McKinley. However, only one of three helicopter shuttles was able to make it to the glacier due to very bad weather. Our film crew returned to Elmendorf AFB, not in the best of spirits.

The next four days were spent in trying to place our film crew on McKinley. The weather was continually bad, and we knew that even if we were to get in, the climbing crew would be moving on immediately to the higher camps, which we could not reach because of National Park restrictions. Finally, we were forced to abandon the idea completely when the weather broke only long enough to allow the remainder of the climbers in. By the time the helicopter shuttled back to pick up our film crew the weather was bad again. We knew now that we would have to depend heavily on the film our novice cameramen would be able to get.

During the actual climb, we were continually concerned about the cameras on the mountain breaking down, or that the cameramen would not be able to carry them to the summit due to their weight. Each camera with lenses weighed approximately 7 to 8 pounds, and we figured that if things became critical, the cameras would have to go. Fortunately, one camera was taken to the summit, the other to 18,000 feet. The only serious

problem encountered was condensation on the lenses when the cameras were taken from a relatively warm tent to the extreme outdoor cold. However, this problem was corrected by leaving the cameras outside, already adjusted to the cold temperature.

It was important for us to obtain some footage of the climbers as they neared the McKinley summit. There are very few helicopters which have the capability of climbing to 20,000 feet. As far as I know, only a couple of helicopters have ever attempted it. Therefore, we had planned to film outside the rear door of an HC-130, a specialized Air Force rescue plane. It was equipped with large viewing windows from which we initially planned to film. However, we felt that it would be better to film out the rear door, which provided a wider viewing area and sufficient room in which to set the Tyler Mount and Dynalens. One problem we had not anticipated was the necessity of oxygen masks required at that elevation. With the helmet and mask on, the camera operator couldn't get his eye anywhere near the viewfinder. The helmet was exchanged for a device which only held the mask in place. That still wasn't adequate. It didn't make much difference though, because the extreme cold at over 20,000 feet completely drained the camera and Dynalens batteries in less than a minute.

It seemed like everything was working

against us again and the next two days did not look very encouraging. The weather was bad and it looked like the rescue team would reach the summit without our getting any aerial shots. We had also planned on recording a phone call from the summit of McKinley to Scott AFB, Illinois, headquarters of the rescue team which was making the climb. At least I felt we would get something. The rescue team was nearing the summit and an HC-130 had been flying most of the night in anticipation of the summit attempt. I received a phone call at the Rescue Coordination Center where we had set up the system for the call. Did I want to get on an HC-130 and film the summit attempt? I was ecstatic!

We arrived above the team in the HC-130 just as they were nearing the peak. The weather was absolutely beautiful and so was the view. It's difficult to describe the feeling. We abandoned the bulky Arriflex cameras, Tyler Mount and Dynalens for a simple Canon Scoopic 16. Shooting at 32 and 48 fps, I filmed from the pilot's window, which gave me an excellent view of the climbers as they neared the peak. I think everyone on the plane felt the exuberance of the five members of the rescue team who stood there on top. It was a beautiful sight and it was on film, which seemed more important at the time. When I got back to the base, I was informed that SSgt Jim Fiting, one of our crew members, had recorded the team leader's radio call from the summit of McKinley all the way to Scott AFB, Illinois, where he talked with Major General Ralph S. Saunders, who had given permission for the climb in the first place. A special General Electric high-power VHF radio telephone was used to make the call. It was relayed from McKinley to the Anchorage telephone system and Rescue Coordination Center, where he patched into an existing recorder, utilizing a Nagra. The reception was good and we had managed to get everything that day. It was a great feeling.

The helicopter squadron managed to get us to the 7,000-foot level for the team's return to capture the shots we missed earlier. With myself acting as sound recorder and interviewer, and TSgt Jerry Hipley as cameraman, we managed to film two interviews while on the glacier and filmed the surrounding area, which again was simply beautiful and awe-inspiring.

It made all of our efforts worthwhile and was a rewarding conclusion. The opportunity to be able to participate in filming of this type, with a true group of professionals is certainly gratifying. I feel confident the film is more than just a WW II training film. A lot more. ■



The Tyler Mini-Mount was set up in an Air Force HH-3 helicopter for aerial cinematography. A special advantage to Air Force motion picture crews is the available use of airplanes and helicopters for filming.

(LEFT) T/Sgt. Hipley and S/Sgt. Fiting preparing the Arriflex for use on the Tyler Mini-Mount. Having set up the mount many times before, they were able to do it in a matter of minutes for this film. (RIGHT) Fiting and Hipley prepare the Arriflex BL for a sync-sound interview during the filming of "ASSAULT ON MT. MCKINLEY". The BL was used to shoot the majority of sync-sound sequences, backed up, when necessary, with the Arriflex M.





Color still from "Norma Rae", filmed by John Alonzo, ASC entirely with HMI light.

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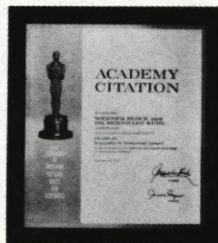
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INDUSTRY ACTIVITIES

FIRST ANNUAL UTAH/USFILM FESTIVAL ENJOYS IMPRESSIVE ATTENDANCE

Film blazed new paths during seven days in September as the first annual UTAH/USFILM FESTIVAL attracted critics, celebrities and film theorists from throughout the United States.

Approximately 11,000 persons attended the event, which included screening of more than 60 films. The Forum—or retrospective portion of the event—was themed "American Landscapes: Cycles of Hope and Despair in the City, the South and the West". The Festival was directed by Sterling Van Wagenen.

Commentators on each of the three geographical sections led off the event. They included critic Andrew Sarris of the *Village Voice*; former New York Mayor John Lindsay and Salt Lake Mayor Ted Wilson, all discussing film and the city. Robert Redford, writers M. Scott Moma-day and Diane Johnson (who just completed a script for Stanley Kubrick) were speakers at the Western commentary session.

Commentators on the South included actress Cicely Tyson; writer-teacher Henry Taylor and New York magazine critic (a native southerner) Molly Haskell. A summary session included many of the above, as well as Robert Sklar, critic for *American Film*.

But the essence of the event came from the Regional Cinema Competition in which young, often struggling, independent filmmakers were invited to submit films for judging.

Jurors included Charles Gary Allison, a film teacher and producer of *FRA-TERNITY ROW*, released by Columbia; Charles Sellier, President of Sunn Classic Pictures, producers of *GRIZZLY ADAMS* and other television and film programs; Verna Fields, Vice President of Universal Studios and a respected film editor; Mark Rydell, Director of *THE RIEVERS* and most recently of *THE ROSE* with Bette Midler; Linwood Dunn, long-time special effects man whose credits include *KING KONG*, *MAD ... MAD WORLD*, *AIRPORT*, *STAR TREK* and other productions; Katharine Ross, leading lady who starred in *THE GRADUATE* and in *BUTCH CASSIDY AND THE SUNDANCE KID*; and Anthea Sylbert, Vice President of Warner Brothers, art director and designer of costumes for *ROSEMARY'S BABY*, *CARNAL KNOWLEDGE*, *SHAMPOO*, *THE ILLUSTRATED MAN* and others.

The winning film selected by the Jury was *GIRL FRIENDS*, produced by

Claudia Weill, co-producer Jan Saunders. A special Jury award went to Eagle Pennell, a Texas filmmaker, for his film *THE WHOLE SHOOTING MATCH*. Saunders, Pennell and a host of other regional film competitors attended the Salt Lake-based festival, whose films were screened at Trolley Corners Theaters.

For the first time, all agreed, the independent filmmaker was provided with a showcase for his work and a chance to show it to Hollywood/New York names and representatives of "The System".

The regional filmmakers all make film in places and with resources that are outside the Hollywood/New York axis. The winning film received an award of \$5,000. Five other finalists each received \$1,000, and all finalists were represented. A summary session on the Future of Regional Cinema included a consensus that the festival has at last provided regional filmmakers with the forum they have been seeking.

"It was new. It was exciting. At last we found each other and can share problems," said producer Saunders. On the other hand, Hollywood was delighted with the product they screened. At least two of the finalist films are being considered by major studios, as a result of the festival, and *GIRL FRIENDS* has already been picked up by Warner Brothers.

Part of the event was the awarding of the first annual John Ford Medallion to John Wayne. Accepting for Wayne was Peter Bogdanovich, Director of the *LAST PICTURE SHOW*, *WHAT'S UP DOC*, and others. A gala dinner was hosted by Utah's Governor Scott M. Matheson and was attended by members of the John Ford family. Ford was among the first to use the Four Corners area as a location for his films.

Board of Directors of the event included Allison and Redford; Director and Brigham Young University Professor Tad Danielewski; Stephen M. Dart, a Columbia producer; Ms. Ross; and Terrell Dougan, a writer and community volunteer. John Earle of the State of Utah's Department of Development Services was a special advisor to the festival.

Funding came from the Four Corners Regional Commission, the Utah Department of Development Services (three different divisions); the Utah Endowment for the Humanities; Schick-Sunn Classic Productions; Osmond Entertainment and Mr. Sol Lesser.

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FASTER PROCESS FOR VIDEO NEWS FILMS CLOSES TIME GAP WITH ENG

Kodak's new RVNP (Rapid Video News Process), which develops Eastman Ektachrome video news films twice as fast as before, is causing some TV stations to reconsider plans for expanding electronically

A fast new process tested by four television stations since last spring has nearly halved dry-to-dry time for film while leading to some cost-savings in chemicals. As a result, management at one of the stations is reconsidering plans to expand ENG operations, and another station has decided to stay exclusively with film for news gathering. All the stations agree the faster process makes film more useful than ever in the news-gathering medium.

WGR-TV, Buffalo; WIXT-TV (formerly WNYS-TV), Syracuse; WTAR-TV, Norfolk, and WTEV-TV, New Bedford-Providence, have used process RVNP (Rapid Video News Process) with a variety of processing machines. The new process is a modification of process VNF-1 used with Eastman Ektachrome video news films. A faster acting formulation of persulfate bleach and bleach accelerator replaces ferricyanide bleach and a second-stop bath.

"The new packaged chemicals require very simple processor modifications, and these can be quickly made with the assistance of technical representatives of the motion picture and audiovisual markets division of Eastman Kodak Company," says Chip Wilkinson, project coordinator for the company. "Kodak plans to make the faster process available to all stations later this year."

The ability to run film almost twice as fast with the new process has made a significant impact at WTAR-TV where lab manager Phil Trahadias has seen a marked increase in the number of assignments covered with film.

"We are getting some film as late as 5:40 p.m., processing and editing it, and making the 6 o'clock news."

WTAR-TV processes as much as 3,000 feet of film a day, the bulk of it Eastman Ektachrome video news film 7250 (tungsten). Process RVNP has resulted in processing time being trimmed from 32 to 17 minutes.

"The station's Pako processor, running at 90 feet a minute for the new process, has the capacity for even greater speed," Trahadias says. However, there are times when a lone operator is hard pressed to keep up with the present speed of the machine. "In a pinch, we could go even faster."

WGR-TV color lab technician Norm Fisher has seen a slight saving in the cost of chemistry with process RVNP.



Lee T. Tanner, manager of operations and engineering, and director Linda Murphy review a program in the WTEV-TV control room. The New Bedford-Providence station is one of several that have been using the new Rapid Video News Process with a variety of processing machines. Kodak plans to make the faster process available to all stations in the very near future.

Reporter Donna Desjardins hands a roll of video news film to Assignments Editor Jack Delaney in WTEV-TV's newsroom. The station uses film cameras exclusively for news coverage, the main reason being that its stringers, using very portable film cameras, can cover stories without needing help from anyone.



"We were already cutting corners and had a rapid-access process of sorts to begin with when we started testing," he says. "As a result, the overnight time saving was not as dramatic as it might have been."

WGR-TV processes approximately 1,200 feet of Eastman Ektachrome video news film 7240 and 7250 (tungsten) each week in a Houston Fearless processor, operating at a speed of 30 feet a minute. Film is processed and dry and ready for editing in about 15 minutes.

The station employs eight staff photographers, but four stringers supply up to one-fourth of the hard news stories and 10 percent of all film footage. Some is delivered to the studio by the photographers. The rest is bused in.

Because of the handling convenience of film cameras and the reliability of film, Fisher expects that format to continue to share news coverage with ENG at the station.

"We rely heavily on our stringers," he says. "It would cost a lot more to supply them with the equipment and supplies for ENG, and then, would we have any better results?"

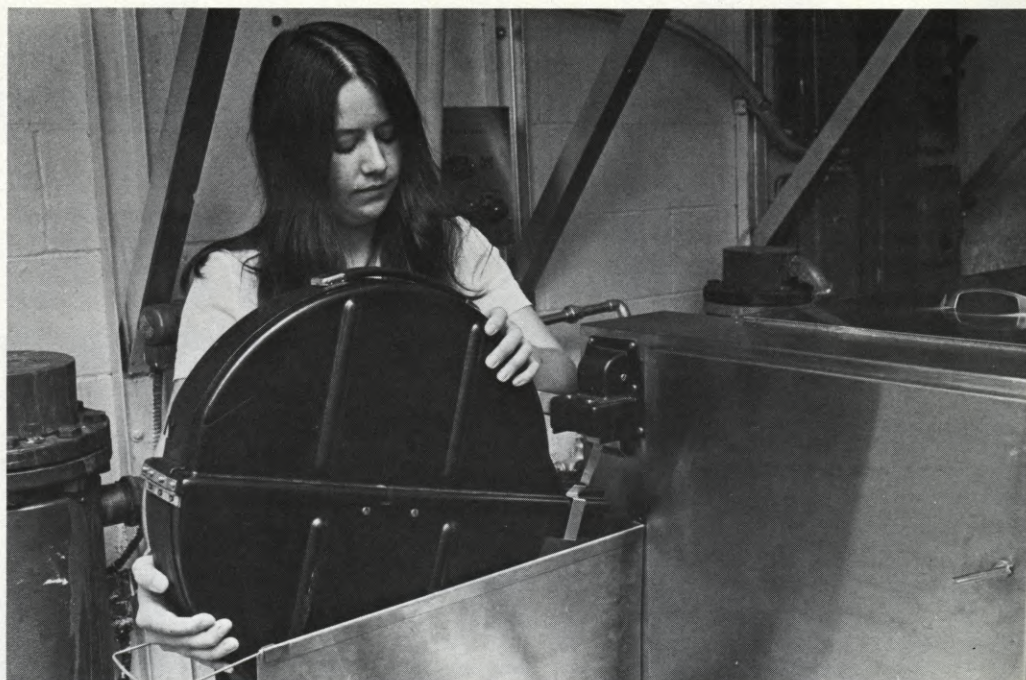
WTEV-TV Manager of Operations and Engineering, Lee Tanner, was negotiating for a new Allen processor when Kodak proposed the trade test. "We continue to believe film best serves our purposes right now, and our old processor simply was tired out," he explains.

Eight of the nine WTEV-TV photographers are stringers. They cover a wide area from Cape Cod to Boston to Providence. "They are all photojournalists who handle reporting and photography. They know what they are after, and they are the main reason we stay with film," Tanner says.

"It's the best way to handle news coverage, at least from our point of view," Tanner adds. "Unlike ENG, they don't need anyone to help cover a story. They can take a compact CP-16 camera, put it on a tripod and do stand-up interviews by themselves. With a bureau operation like ours, it's a real challenge to get late-breaking stories processed and edited in time for the 6 o'clock news.

"It's almost all A-B roll—a talking head, then a cutaway shot of what is happening. It all has to be coordinated properly, edited and timed so everything matches," he points out. "The faster processing allows us extra time for better editing. With the slower processing, everyone was trying to edit at once. Now everybody has the time to take a good look at the edited film before it is aired. It makes for a much more professional job and a big difference in our on-the-air look."

Now once a photographer walks in the



Penelope Hamblin loads a magazine of exposed video news film for processing at WTEV-TV. As much as 3,000 feet of film, most of it from stringer photographers, is processed daily at the New Bedford-Providence station.

door, it is a matter of 10 minutes before the film is ready to be shown, compared to more than half an hour previously.

The Allen processor is handling about 3,000 feet of film a day and is running at 82 feet a minute. Tanner says he wouldn't be surprised if the processor is at 150 feet

a minute eventually.

"The new processor and chemistry improves the quality of our news, which we believe eventually will attract new viewers," he adds. "It is just one little piece in a large puzzle but an important factor in
Continued on Page 208

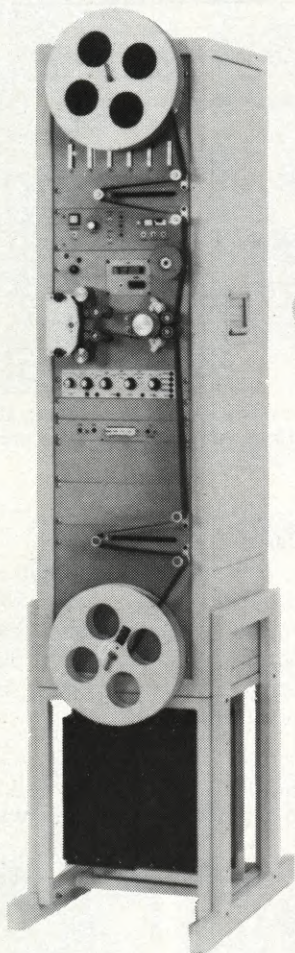
Film Editor Amelia Ortiz edits a roll of film at one of the five editing stations of WTEV-TV. The new Rapid Video News Process is a modification of process VNF-1, previously used with Eastman Ektachrome video news films.



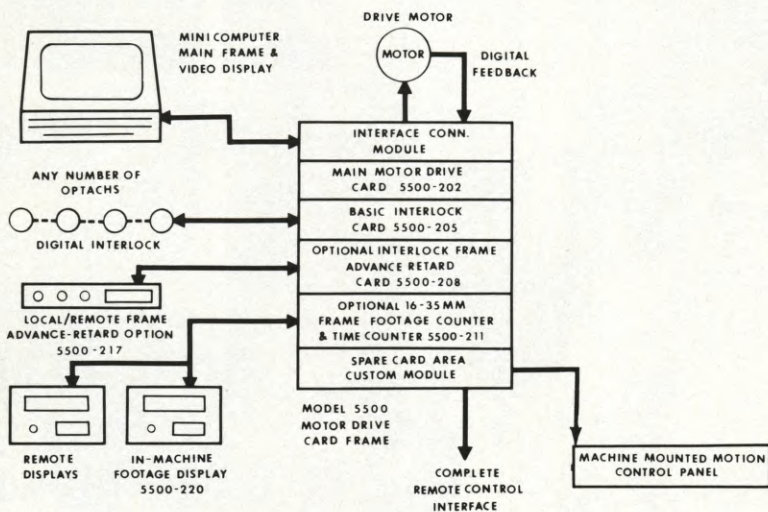
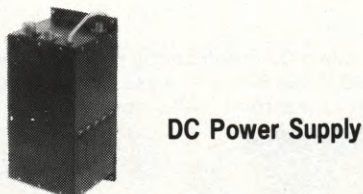
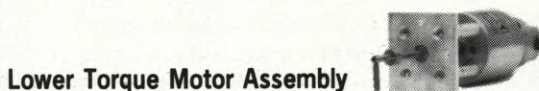
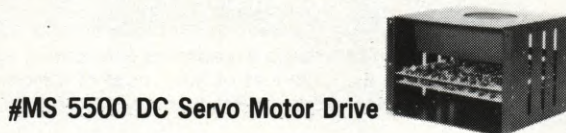
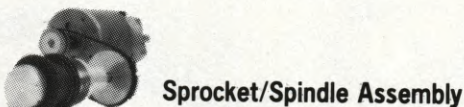
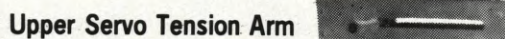
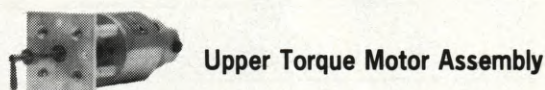
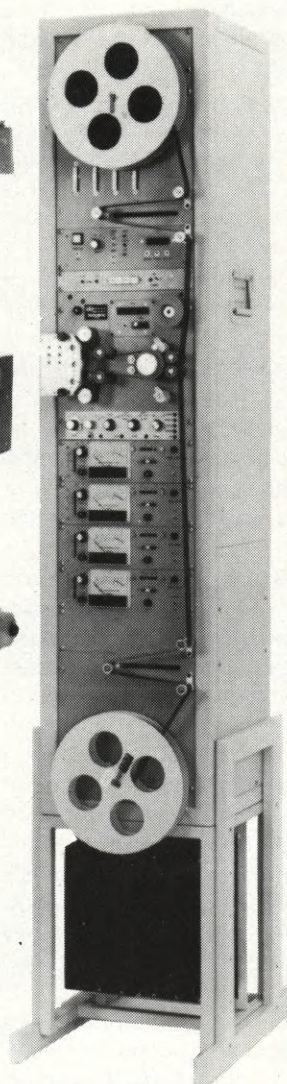
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NEW GROOVELESS VIDEO/AUDIO DISC SYSTEM INTRODUCED

An economical unit which, when connected to an ordinary color TV receiver, plays either video discs or super hi-fi audio discs

Victor Company of Japan, Ltd., known as JVC abroad, has unveiled the "VHD/AHD", grooveless, capacitive pick-up Video Disc System developed by the company.

The player, when connected to an ordinary domestic color TV receiver, plays a 12-inch, grooveless plastic disc which contains up to a total of two hours, both sides, of color programs with sound. The player is also capable of playing digitally recorded, super hi-fi audio (PCM) discs, also developed by JVC.

As a spokesman for the company stated at a press conference, "Because we had been deeply involved in the audio, video and record industries for many years, we recognized, from the beginning, the significance of the Video Disc System, and its potential impact on the industries involved. Thus, exhaustive surveys and engineering studies were carried out to develop a system which would be versatile, and have a performance high enough for both home and industrial use, and at the same time would be economical to manufacture. In other words, we wanted a system which our industrial and domestic consumers would welcome. Today, we are introducing our latest engineering achievement and inviting their comments."

JVC's original concept involved:

- (A) A player having a dual purpose capability of playing either Video Discs or super hi-fi audio (PCM) discs.
- (B) A single basic design suitable for both consumer entertainment and industrial applications.
- (C) A basic hardware which can be utilized in a wide range of applications, such as movies, broadcasting, education, advertising, music, information filing, and so on, because the importance of information storage and retrieval in our society should be growing rapidly from now on.
- (D) An economical and reliable system.
The goals actually achieved were:
 - 1) A system capable of providing random access and special effects, such as still, slow and quick motion.
 - 2) A player and a disc both economical to manufacture yet highly reliable. While no special components are required for the player construction, a high resolution pick-up system is used, allowing for further technical development.
 - 3) A disc with a one-hour playing time on

each side, or a total of two hours per disc. The discs can be manufactured using existing audio disc pressing equipment without additional processing.

Features of JVC "VHD/AHD" System

- 1) Picture and sound information, includ-
- 2) For recording, a single laser beam is

ing stereo, are recorded as pits on the disc surface without grooves to guide a pick-up stylus. The disc, which rotates at a constant speed of 900 rpm, is capable of playing a one-hour-long program per side (total two hours for both sides).



The new "VHD/AHD" grooveless, capacitive pick-up Video Disc System, developed by the Victor Company of Japan, Ltd., plays a 12-inch grooveless plastic disc which contains up to a total of two hours (both sides) of color programs with sound. The player is also capable of playing digitally recorded super hi-fi audio (PCM) discs, also developed by JVC. The player connects to an ordinary domestic color TV receiver.



- split in two, one-half for recording information to be retrieved, the other for recording the tracking signal.
- Information and tracking signals are simultaneously picked up electronically as capacitance variations between the disc surface and an electrode on the tracking stylus.
 - The cantilever arm that holds the stylus is servo-controlled to track the imaginary grooves on the disc, and to correct for the time base error of the rotating disc by an Electro-Tracking System.
 - There are no actual mechanical grooves on the disc's surface to guide the stylus; instead, the stylus merely slides along the surface and is guided electronically to pick up the recorded signals. This feature enables the pick-up arm to move freely over the entire surface of the disc, and permits special effects, such as random access, still, slow and quick motion, to be achieved. The sliding stylus, therefore, has ten times the contact area that a similar "stylus-in-a-groove" system has. This prolongs the life of both the stylus and the disc.

6) Electro-conductive PVC plastic disc material requires no additional processing after being pressed.

"With all these unique features, we are convinced that our system will be very attractive to the consumers, as well as to our industry, and we are expecting to gain their support toward the standardization of our system," the spokesman concluded.

DISC

The disc is designed to record multiple pits on its smooth, flat surface. Although the information pits are recorded spirally, the tracking pits between them permit a linear playback signal. The information pits produce either video and audio signals, and the tracking pits precisely control the stylus tracing along the information pits.

Stylus Control (Electro-tracking System)

The most important feature of the VHD/AHD is the control of the stylus along the disc surface. To cause the stylus to trace a single track and to perform variable or random access playback, it must slide along a smooth, flat disc surface.

FIGURE 2 shows the method of controlling the stylus. The stylus is mounted on the end of a cantilever pick-up arm opposite to that on which a magnet is attached. Fixed coils are mounted near the magnet; a single coil is wound

Continued on Page 172

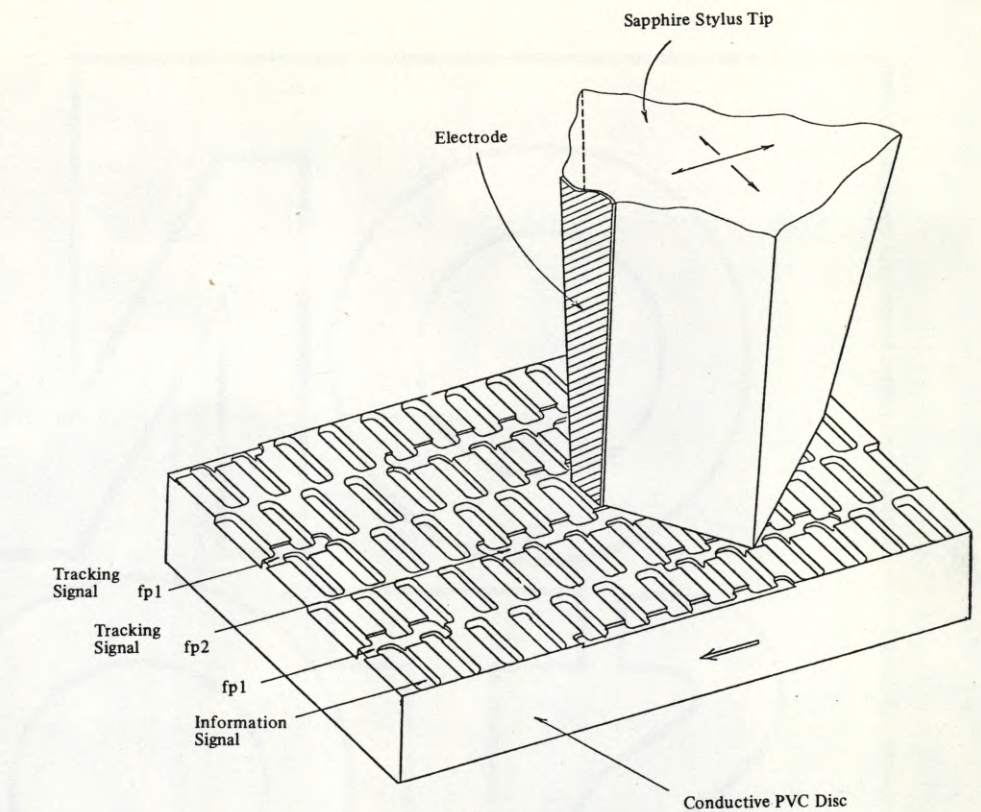


FIGURE 1

FIGURE 2

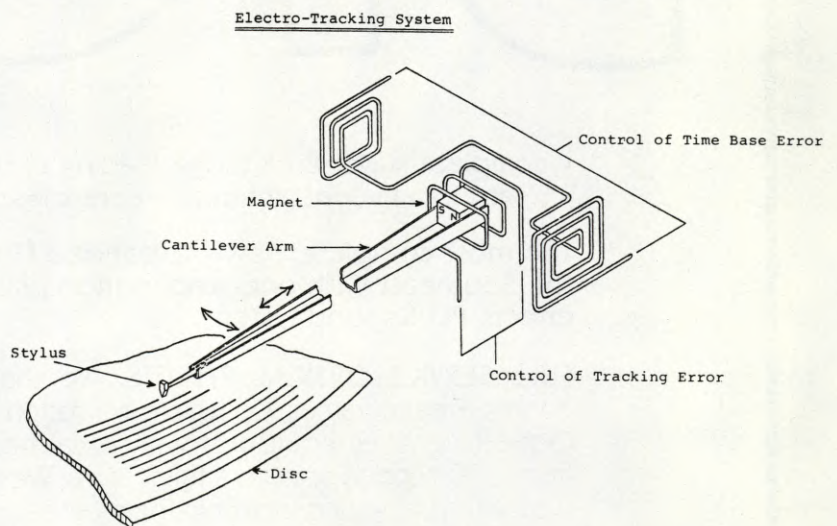
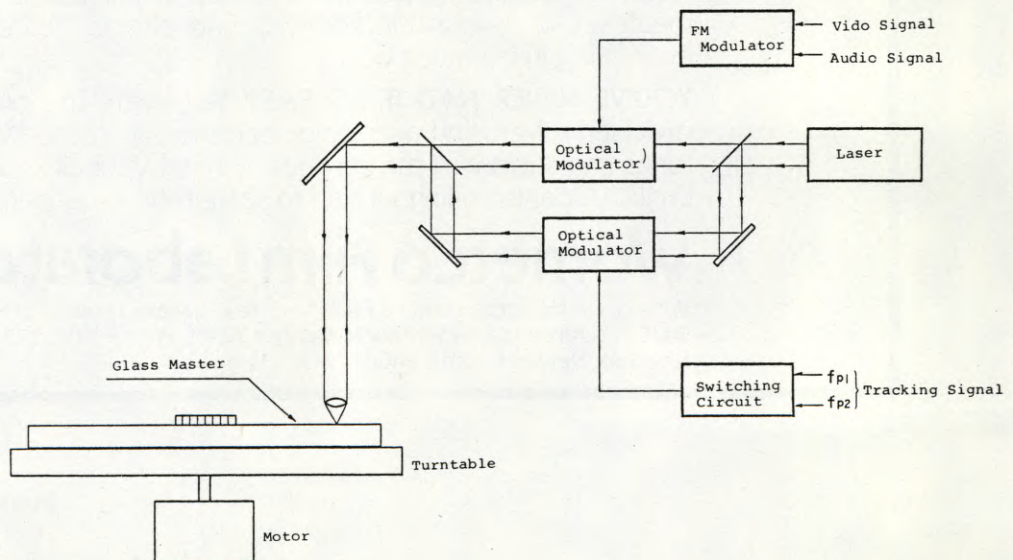


FIGURE 3



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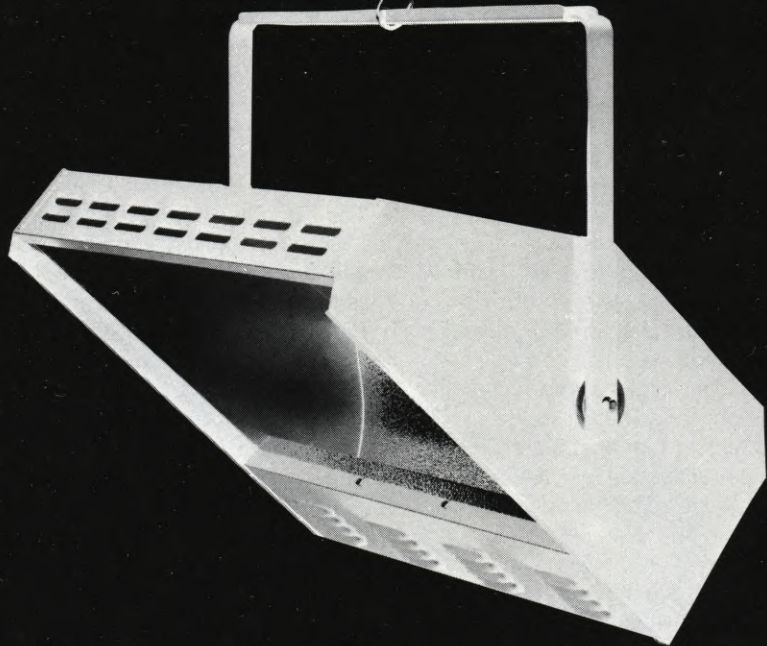
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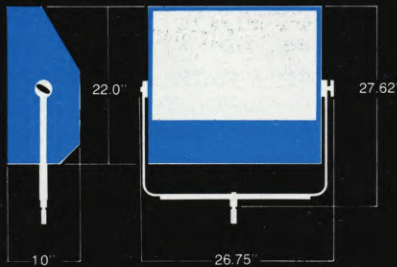
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FILMING "ZULU DAWN" ON LOCATION IN SOUTH AFRICA

Very intense sunlight, extremely rough terrain and a cast of thousands make this feature a very special kind of challenge

In the dusty, arid heart of South Africa, thousands of Zulus with *assega's* (spears) poise to charge across the plain at Isandhlwana in Zululand, hell-bent on slaughtering a column of British troops.

No, it's not Zulu Chief Gatsha Buthelezi's Inkatha political movement gone wild. It's the re-creation of an epic battle that took place 100 years ago, when 25,000 Zulu warriors attacked and massacred a British column at Isandhlwana, inflicting on the British the worst defeat a modern army has ever suffered at the hands of men without guns.

The drama is being re-created for ZULU DAWN under the banner of Samarkand Productions, an international independent production company formed by James Faulkner, Barrie Saint Clair, Nate Kohn and Dieter Nobbe.

The \$8.5 million film epic stars Peter O'Toole, Burt Lancaster, John Mills and Simon Ward and is being filmed throughout Zululand in the Natal Province of South Africa.

ZULU DAWN is the story of the Battle of Isandhlwana, which took place in Zululand, in South Africa, on January 22,

Director of Photography Ousama Rawi (standing) and Director Douglas Hickox (foreground) on location in South Africa during the filming of "ZULU DAWN", a feature re-creating the historic defeat of British military units by native forces. Having worked together before on "BRANNIGAN" and "SKY RIDERS", the two men had arrived at a very close working rapport.

1879. A British force of 5,000 Europeans and 8,200 natives, led by General Lord Chelmsford invaded Zululand. Cetshwayo, the Zulu king, had a force of 40,000 men. One of Chelmsford's columns, encamped near Isandhlwana en route to the royal kraal at Ulundi, was attacked by a force of 25,000 Zulus around 11:30 a.m., and by 1:30 p.m. the battle was over. The British lost 806 Europeans and 471 natives; the number of Zulus who died is not known.

The Director of ZULU DAWN is Douglas Hickox (making his first film in South Africa) and the Director of Photography is Ousama Rawi. Both are from England.

Hickox and Rawi were interviewed on location in Pietermaritzburg by *American Cinematographer* contributor Tiiu Lukk (who is based in South Africa as a correspondent for the *Washington Star* and ABC News). The sequence being filmed represented an English garden party, during the course of which the British High Commissioner signs a declaration of war against the Zulus.

Between set-ups, Director Hickox took time off from orchestrating the move-

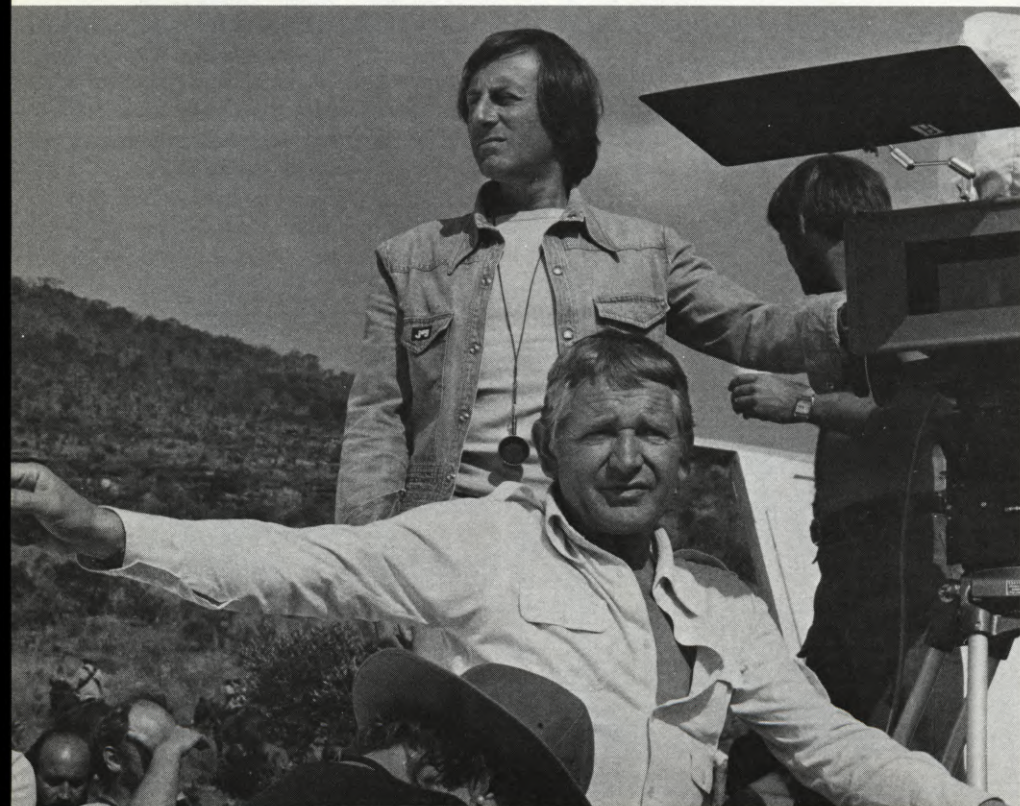
ments of his period-costumed actors to engage in the following dialogue:

TIIU LUKK: How does a director tackle such a massive project—with a cast, literally, of thousands?

DOUGLAS HICKOX: I feel about it rather like Chelmsford felt about attacking the Zulus—it is a logistical problem. Therefore, you have to plan it in extremely fine detail, but it's silly to try to absorb all of it too quickly. So I rationalize it as much as I can. I start with a broad outline and then let the areas become more refined as I get to know more about the overall subject, until I eventually know the interior attitudes of the people. I also have maps and plan every aspect of the battle so that it's not just another boring battle. The battle breaks down into four parts: one, the threat; two, attack; three, the camp overwhelmed; and four, a running, fleeing fugitive sequence. So every time we come back to the battle there will be another style of fighting going on, in order that we don't just use similar material. To do that, we've made a hundred maps for this film. When you are dealing with a thousand people every day, minimum, it is imperative that everybody know where every wagon, ox, horse and cavalry line is—where the field kitchens are, and what state the uniforms are in. I can show you a call sheet for the first day of shooting that specified 1,250 people. There's nothing like easing into a big movie.

QUESTION: Since the events you are re-creating took place a hundred years ago, how can you be sure that the technical aspects of the battle are historically accurate?

HICKOX: I have a military advisor, Michael John Marlowe, the man who worked on CHARGE OF THE LIGHT BRIGADE and BARRY LYNDON. On a "normal" picture, I find it very easy to stage action simply by sketching it on a piece of paper. But on this film, it's not me that's the problem; it's one of communicating to my assistant directors and various camera crews where to place things to begin with. So we have maps of everything, and the battle maps are really quite complex. The whole battle is planned out in advance. Then I feel free, like an actor feels free, to create something within the scene. I also read



all these [Zulu history] books and mark up all the areas that I find dramatically interesting. I may read something which gives me an idea for a sound effect. I steal little pieces of true action. Because the film is a military history, it must have verisimilitude. It must have so much truth in its detail that it becomes a whole truth.

QUESTION: Have your camera movements been as complicated as your troop movements?

HICKOX: Sometimes. We did a beautiful zoom shot starting on the 500mm and we tilted and panned down the column and went on and on and on. We then cued three actors on horseback and panned those actors cantering alongside the column and the wagons. We next zoomed out to include the cliffs behind, and then cued in fifty cavalry to meet them exactly at the right point—and it worked.

QUESTION: Visually, how do you want to portray the Zulus?

HICKOX: I see the Zulu sequences in a very definite way. There's some photography in a book by Leni Riefenstahl, called *People of Kau*, that I thought was the most spectacularly exotic, beautiful, black people photography I've ever seen. I asked the second unit, who are doing a lot of the work, to capture that feeling for me, and they are. They get up at three in the morning, and they get those black bodies translit at very first dawn light. I see a very strong resemblance, for example, between the Zulu



Setting up to shoot a scene with an HMI light used to augment the ambient light filtering into the tent. Because the color of the tent material on a sunny day affects the color of the actors' faces, it was necessary to compensate the fill light from the HMI units by using a combination of filters over the lights. Otherwise there would be two kinds of colored light on the faces.

and the Samurai, the Kurosawa-style warrior. Their language is very aggressive and they act rather like Samurai; they're warriors. The English were a warrior race in those days, as well, and that's what makes the contrast so interesting. In the film, I'm trying to counterpoint the two societies, their mores and behavior patterns.

Historically, it's fascinating, because the English did to the Zulus what Hitler did to Poland—provoked a war with a perfectly reasonable race. They certainly were a race of warriors, but, in fact, Cetshwayo, who was a very tolerant and intelligent King, liked the English. Now Chelmsford and Sir Bartle Frere, against the advice of the British government,

(LEFT) Rawi takes a light reading under the tent shelter. Because Director Hickox likes to have a lot of background action in such scenes, it was not possible simply to let the background burn out. Using HMI lights (which provide a daylight balance), it was necessary to build the interior light level up as high as f/11 or f/16 in order to show what was going on outside, as well as inside. (RIGHT) Preparing to shoot a low reverse angle past Peter O'Toole.





Most of the action in "ZULU DAWN" takes place in rugged South African wilderness, very close to the locations where the actual historical events occurred. This was the main reason that HMI light units were used. They are far lighter in weight than Brutes, can be managed by one man (instead of three) and put out an enormous amount of light using relatively little current, although they do not have the spread of Brutes.

provoked a war with the Zulus, thinking they were going to go in and teach "the savages" a lesson. The fact that there was this giant massacre nearly caused the downfall of Disraeli's government. The English, who had never lost a colonial battle before, sent out reinforcements and they thrashed the Zulus so thoroughly at the battle of Ulundi, that they broke the spirit of the Zulu nation.

QUESTION: Are you using multiple cameras to shoot the mass battle action?

HICKOX: Yes, it's the only intelligent thing to do when you're dealing with thousands of people in motion. I'll have only a few days with them, so I'll put up five or six cameras and get as much of what I call "cutting fodder" out of those days as possible. Of course, it's very difficult to get more than a thousand people in a single shot, and I have no wish for it to look like Waterloo. I want my treatment of battle action to be much more subjective. I don't want any helicopter shots in the film, because I believe what appears on the screen should have a true sense of the period. Also, I see it as a long-focal-length film. I see it shot with 1000mm, 800mm and 500mm lenses—particularly the fighting. I see the Zulus as a sea of black, as African ants, because when you look at the map and go to Isandhlawana, you look at this sand table opposite the actual battle sites, and you think, "Where are the Zulus?", because you can't see them. Then you realize that the entire half of the map that you think is just black surface is 24,000 Zulus. And then you have some idea, some sense of the sheer courage of the soldiers that were facing them.

QUESTION: Film critic Pauline Kael of the New Yorker referred to BARRY LYNDON as a "coffee table movie". Do you worry about this becoming a coffee table movie?

HICKOX: You mean this big, glossy beautiful page to turn over? Oh, God no; that's the opposite of what I want. I found the thing about the original ZULU (the movie done several years ago) that interested me the most was that it actually involved me in the death of the individual. I think our script, which was written by the same man who directed the first one, is also very concerned with the individual. There's absolutely no point in hacking a thousand faceless people to death. We go to great lengths to establish the character of each person, and we have an extraordinarily good English cast, all superlative actors.



QUESTION: In working with the Director of Photography, how did you chart out the transition from one landscape to another?

HICKOX: It has to be logical. I want the green, pretty side to be Queen Victoria's side of the river. I want the harder, contrasty side to be the battle side—the Zulu land. I've gone miles away from civilization to get that look. But I don't want to do it to extremes, because I want this to be considered an artless film. John Ford, who had some of the most beautiful, poetic use of cinema ever, managed to do it without too many filters.

QUESTION: Who else has inspired you?

HICKOX: In any film with vast landscape, one immediately thinks of that sort of monumental direction that David Lean does. I think I feed off of everybody, particularly off of the American cinema—I think they're still the best filmmakers in the world.

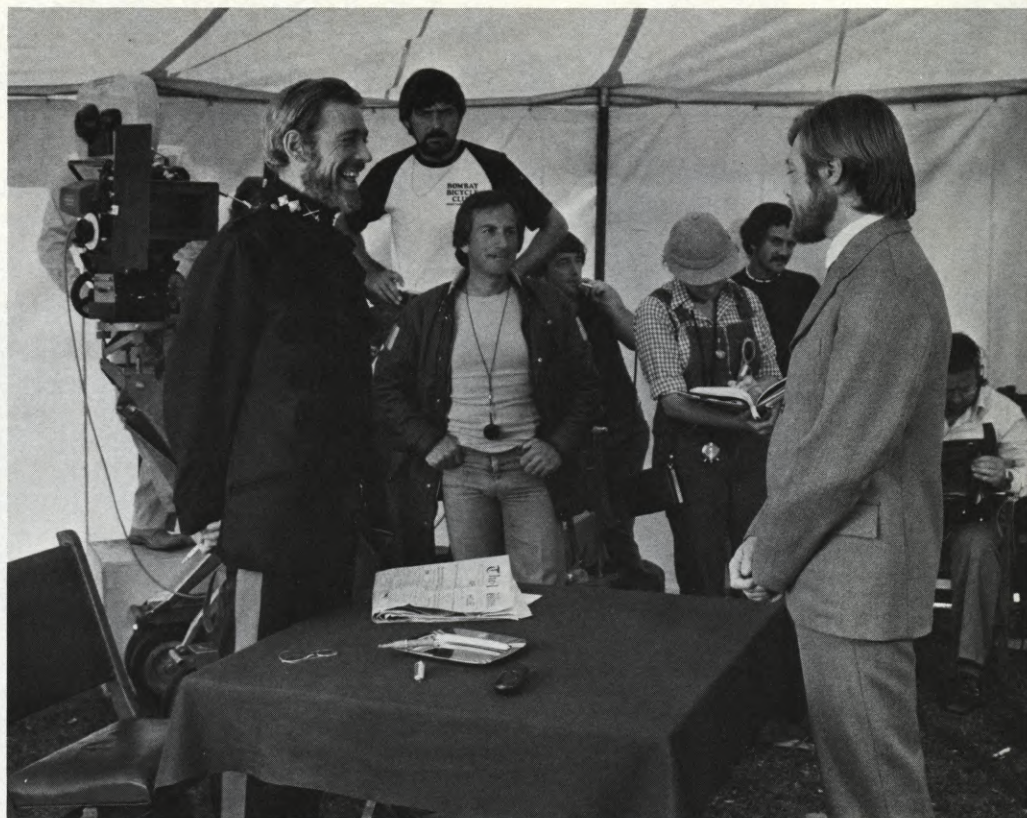
QUESTION: Do you have any South African technicians working on this film?

HICKOX: Yes, but at a very low level. It's very hard to expect them to handle Panavision equipment, which many of them have never seen before. But what they lack in experience, they make up for in enthusiasm. They're immensely keen, very hardworking, very loyal.

QUESTION: What problems do you anticipate in working with this large cast?

HICKOX: Mostly logistical problems, but I'm more interested in the creative problems, because the logistics always work themselves out, provided that they're well-planned. You've got to feed all these people, house them, keep them warm and stop them rioting. As for creative problems, this is a narrative film, and with this very good cast, including Burt Lancaster and Peter O'Toole, I only have to tell them it's a narrative film, in the best, old-fashioned sense of the word. But it's not being shot in an old-fashioned way. I'm a modern director, and I like modern, what I call "dynamic" camera technique. I'm finding it strange to have actors on horses, because I can't be quite as particular as I normally am about set-ups. I try, but the horses don't listen sometimes.

QUESTION: When you have an actor like Peter O'Toole, how do you work
Continued on Page 178



(ABOVE) Rawi watches a rehearsal involving Peter O'Toole and another actor. (BELOW) Very long focal length lenses (including 1000mm, 800mm and 500mm) were used during the battle sequences in order to compress the hordes of Zulus charging toward the camera. "Piling them up" in this way made them look like a swarm of ants and created an eerie effect. By way of contrast, in the opening sequences of the film, wide-angle lenses are used extensively.



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12.5mm (T1.25)

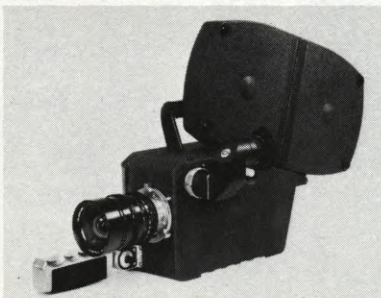
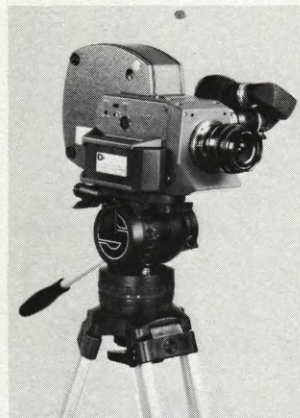


16mm (T1.25)



25mm (T1.25)

Especially designed to meet our own rigorous specifications for 16mm cinematography, and exclusively manufactured for Cinema Products, *Ultra T* high-speed lenses are the finest 16mm prime lenses available today. Regardless of cost!



Ultra T 9mm (T1.35) prime lens shown with "new generation" CP-16R/A 16mm single/double system sound camera.

Ultra T 25mm (T1.25) prime lens shown with "state-of-the-art" GSMO 16mm camera (with 400' quick-change cassette-type coaxial magazine), CP orientable viewfinder and Sachtler 1+1 SB fluid head tripod.

Cinema Products' ultra-fast *Ultra T* lens series consists of four prime lenses: 9mm (T1.35); 12.5mm (T1.25); 16mm (T1.25); and 25mm (T1.25). *Ultra T* lenses are remarkably suited for filming night-for-night with available light, providing extremely sharp definition and high resolution, with excellent contrast, good depth penetration and well balanced color saturation... which makes them ideal for all professional 16mm production applications.

Outstanding design features include:

- Helical focusing mount utilizes an intermediate, fine-pitch, close-tolerance brass ring for *aluminum-brass-aluminum* thread contact for minimum wear characteristics and *zero focus shift!*
- Focus and iris rings with integral gears for motor drive operation.
- Iris ring marked in "T" stops only. Optional free or click-stop operation.
- Precisely calibrated focus scale is removable to permit change from footage scale to optional metric scale.
- Precision spacer shims under all mounts permit "fine tuning" by user, if desired.
- Easy interchangeability between CP mount and other lens mounts.

Ultra T prime lenses are presently available in CP, Arri B and Eclair CA-1 mounts. *Ultra T* lenses may be purchased singly or as a set of four.

For further information, please write to:

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Technology In The Service Of Creativity

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Telephone: (213) 478-0711 • (213) 477-1971 • Telex: 69-1339

**“TVC’s attention to
my dailies
made me feel secure and confident,
despite the fact that
they were over 2,500 miles away.”**

RIC WAITE



“My introduction to TVC was during the making of “Huey Long, the Life and Assassination of the Kingfish,” for which I received an Emmy nomination this year. I was so impressed with their work and their Chem-Tone process, it was a natural choice to select them for Ralph Waite’s “On The Nickel.”

I was frequently forced to shoot by available light that could only have been handled by Chem-Tone. Usually when forcing 5247 a full stop, to an ASA of 250 or more, there is a loss of shadow detail and an increase in contrast. With Chem-Tone the shadow details are preserved and the contrast held to a minimum with no increase in grain.

“I particularly like using Chem-Tone for contrasty day exteriors where the chemical technique compresses the contrast range without the necessity of using filters.

“TVC’s attention to my dailies made me feel secure and confident, despite the fact that they were over 2,500 miles away. I believe this was a first where a film shot entirely in Los Angeles, where there is a plethora of good labs, sent its film to New York for processing. In itself a great statement for TVC and its people.”

Ric Waite

*Director of Photography, “On the Nickel”
Hollywood, California*

Only TVC has Chem-Tone

tvc laboratories, inc. 311 west 43rd street, new york 10036 (212) 397-8600

FILMING 14 TV MONITORS SIMULTANEOUSLY WITHOUT SHUTTER BAR, ROLL BAR OR VISIBLE SPLICE LINES

By **JAMES A. MENDRALA**

*President/Technical Supervisor
Sonex International Corp., Burbank, Ca.*

A highly technical, but effective, way of eliminating a problem that has plagued cinematographers since the advent of television

In shooting the movie *CITY ON FIRE*, a Sandy Howard Productions/Astral Bellevue production, the script called for photographing many television monitors (as most of the action takes place in a television control room) and various television sets. The feeds were to be pre-recorded and/or live. Their preliminary tests failed to eliminate the problem of shutter bars occurring on the monitors and television screens, a problem which has long plagued cinematographers.

Sandy Howard called on Sonex to solve this age-old problem of photographing a monitor or television set with a motion picture camera, while still retaining clear, stable television images with good color quality, and with no shutter bar, roll bar, or visible splice line.

In the past, the problem was solved generally by an optical technique called a burn-in. This, however, has several drawbacks. The most restrictive drawback is that the motion picture camera must be locked down and, in order to keep costs down, talent must not cross in front of the TV screen. Also, the audience usually senses that the picture is not real.

In *CITY ON FIRE*, since 14 different TV pictures had to be photographed simultaneously in the scene, the optical burn-in was considered impractical.

Upon arriving in Montreal, I found that some of the material to be used was on 3/4" U-matic cassette, some of the mate-

rial had been photographed on 5247 and the print transferred to 2" video tape, and some of the material was to be live and off of television chains. Upon examining the 3/4" material, I discovered that some of the recordings had been shot outdoors without an 85 filter, but with a portable color television camera that had been

balanced for 3200°K.

Canada, as well as the United States, is on the NTSC color television standard. This means that the television picture derives its timing from a sync generator. This sync generator has a master crystal oscillator operating at 14.318180 MHz. The crystal is kept at constant tempera-



(ABOVE RIGHT) The actual control room of CFTM-TV, Channel 10, in Montreal, Canada, where sequences were filmed for the Sandy Howard production of "CITY ON FIRE" **(BELOW LEFT)** James Mendrala checks synchronization of 3/4" cassette machine with master sync generator. **(RIGHT)** Mendrala monitors shutter of BNCR camera with video picture. To shoot the control room and studio scenes showing the TV sets, he had to modify the BNCR to run at 23.976 frames per second.



ture in a crystal oven and its frequency has an accuracy better than .0001%. Some stations, like the networks, have a more accurate Rubidian standard and some even have atomic clocks with accuracy directly traceable to the National Bureau of Standards and are occasionally used as timing references by the military, NASA, JPL, etc.

This 14.3 MHz crystal is divided by 4, producing a 3.579545 MHz subcarrier. This subcarrier will, upon encoding, contain the color difference signals. The frequency 3.579545 was chosen to be an odd multiple of half the TV line frequency so that it would interlace with the TV sound carrier and prevent an annoying *moiré*. The 14.3 MHz crystal oscillator is also divided by 455 to produce a frequency of 31.468 KHz. This is used to produce equalizing pulses during the vertical interval to interlace field 1 information with field 2. This 31.4 KHz is further divided by 2 to produce a 15.734 KHz scanning frequency. The 31.4 KHz equalizing pulse frequency is divided by 525 producing a field frequency of 59.94 Hz. The field frequency is twice the television frame rate of 29.97 frames per second.

This 29.97 frames per second is typically referred to as 30 frames, but in actuality is only 29.97.

The motion picture camera in this country runs at 24 frames per second. In other countries it might run at 25 frames per second. Principal photography on CITY ON FIRE was photographed at 24 frames per second, using Panavision equipment.

To shoot the control room and studio scenes and the TV sets, I modified a BNCR camera to run at 23.976 frames per second or 4/5 of the television's 29.97 frames. This was done electronically by taking the 59.94 Hz field frequency and generating from these pulses a sine wave of 59.94 Hz that could be phased ± 200 electrical degrees with respect to these pulses and amplifying the sine wave up to sufficient power to drive the BNCR with a full load of film.

If only a 3/4" cassette machine and one television set needed to be photographed, it would have been possible to speed up the 3/4" television tape playback so that its field rate would have been 60 Hz and the motion picture camera could have then run at 24 frames per second. However, since some of the video feeds were from live television camera chains and 2" quadraplex video tape all referenced back to the sync generator, all 3/4" cassette machines had to be referenced back to the same sync generator.

Continued on Page 198

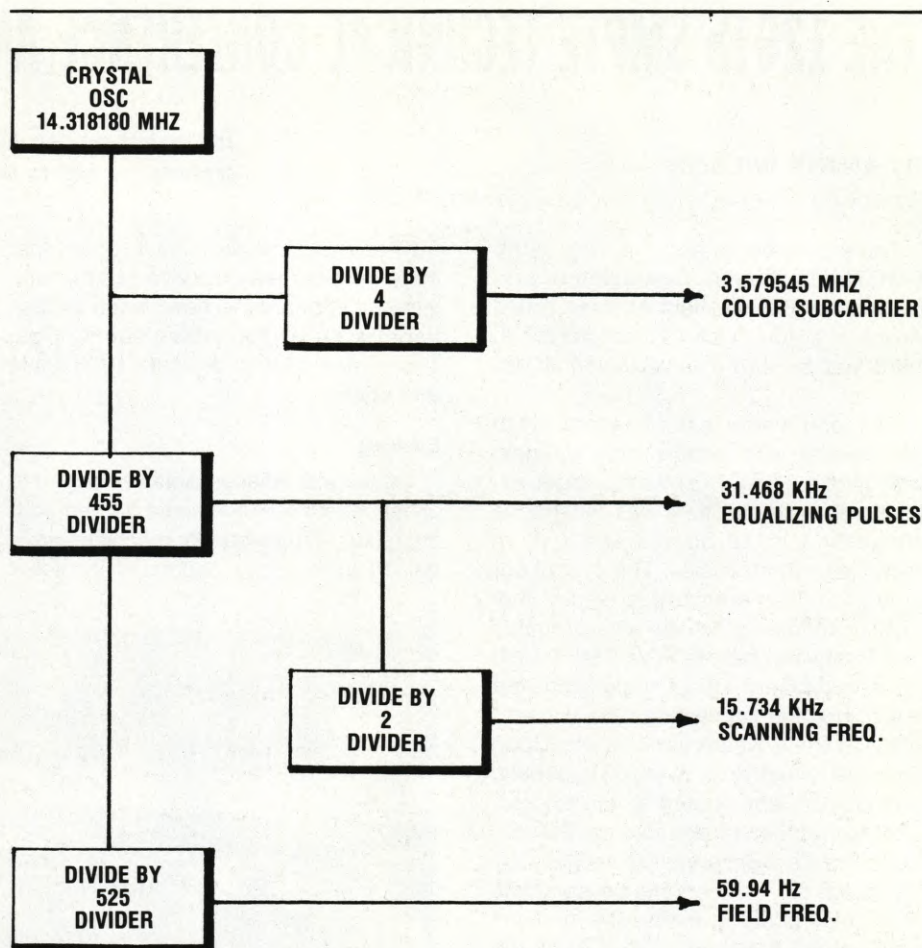
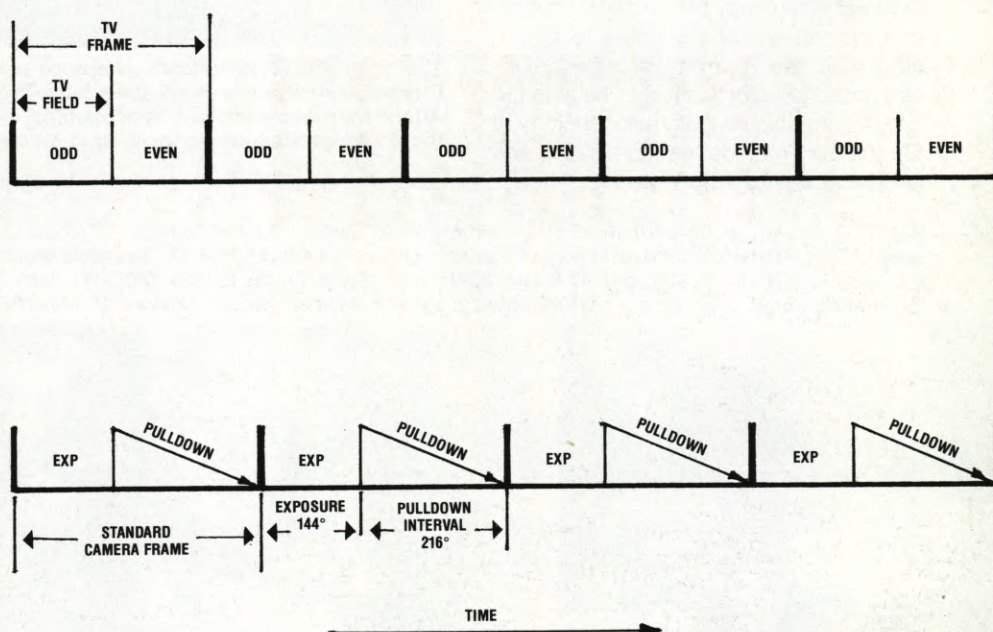


FIGURE 1—SYNC GENERATOR BLOCK DIAGRAM

FIGURE 2—TV AND FILM TIMING CHART



THE 120th SMPTE TECHNICAL CONFERENCE AND EQUIPMENT EXHIBIT

By **ANTON WILSON**

American Cinematographer Contributing Editor

There's no doubt about it—the 120th SMPTE Technical Conference and Equipment Exhibit, held at New York's Americana Hotel, Oct. 29 through Nov. 2, 1978, was by far the busiest event of this kind yet.

The equipment exhibit areas were jam-packed with people from opening until after closing. Despite the larger exhibit area, it seems there was continuous congestion in all booths and human traffic jams in the aisles. The overall energy of the conference was electrifying. This phenomenal activity was probably due to several factors. The SMPTE did an extraordinary job of organizing and publicizing the convention. The success of the PMPEA/Kodak seminar with Doug Trumbull, which drew over 2,000 people, undoubtedly contributed to the unprecedented turnout. In addition, the PMPEA launched its own grand scale publicity campaign for the conference complete with color posters, flyers and a direct mailing into the thousands. Lastly, the motion picture and video industries are booming on every level.

As in the last few years there were no "major" earthshaking new products. However, unlike previous years, there seemed to be an unprecedented number of engineering improvements, updated models, new items and clever "gadgets" to improve the overall level of current technology.

I spent more time covering the exhibits this year than at any previous conference and the volume of my notes lend testimony to the quantity of new developments. Taken collectively, one gets the definite impression that the technology of our industry has lost no momentum and is moving ahead at full speed.

(LEFT) A new zoom lens for the Bolex—a Kern Vario-Switar 12.5mm-100mm, f/2 zoom with the amazing 6.5mm Aspheron wide-angle adaptor. (CENTER) Ed Clare, of Cinema Products, shows the new ULTRA "T" series of fast lenses for CP-16R, GSMO and Arriflex cameras. Included is a 9mm, T/1.35, and 12.5mm, 16mm and 25mm T/1.25 lenses. (RIGHT) Alan Gordon Enterprises exhibited many new and interesting items, including a rear-mounted magazine system for the Arriflex IIC camera.

The busiest yet, this biennial event drew record crowds to its papers sessions, as well as to the massive exhibit of equipment on display

After visiting all the exhibits, I felt that there were certain product areas that collectively appeared to have taken exceptionally large technological strides. These are editing devices, HMI lights and optics.

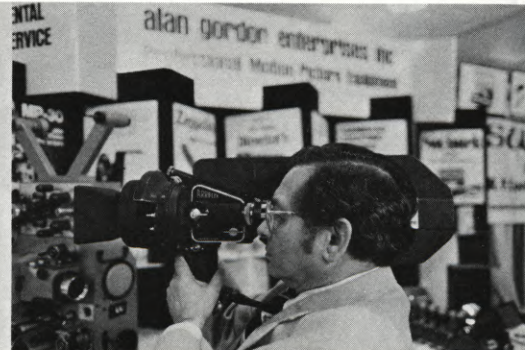
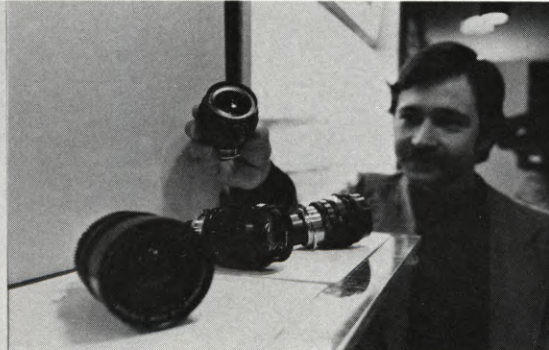
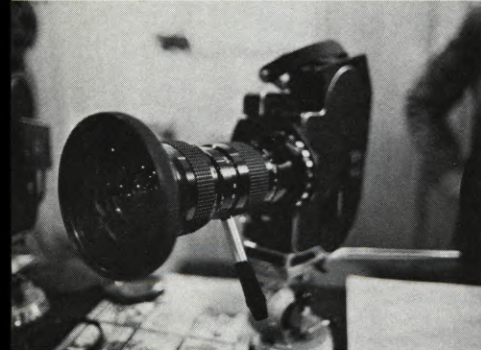
Editing

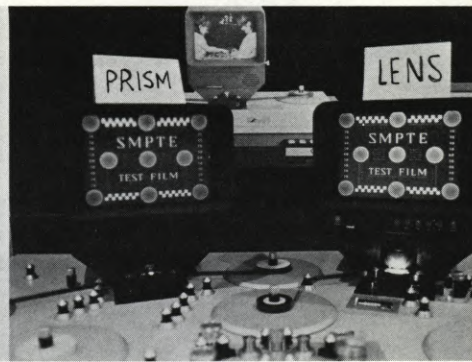
The largest editing display belonged to Oldelft and their Cinemonta flatbed editing tables. These quality machines have gained tremendous popularity in recent

years due to their innovative design features. This year Oldelft introduced a revolutionary new *Optical Crown Imaging System*. Instead of the usual rotating prism, this new development employs 24 tiny high-speed objectives on a rotating ring. The results of this new system are most impressive. Optical resolution is increased from the usual 30-or-so lines per millimeter to more than 60 lines per millimeter. Comparison with a conventional prism system reveals an unbelievable in-



The 120th SMPTE Technical Conference and Equipment Exhibit, held recently in New York City at the Americana Hotel, drew large crowds to its extended equipment exhibit areas. Attendance was excellent from opening until after closing each day, but at peak hours, there was continuous congestion in all booths and human traffic jams in the aisles.

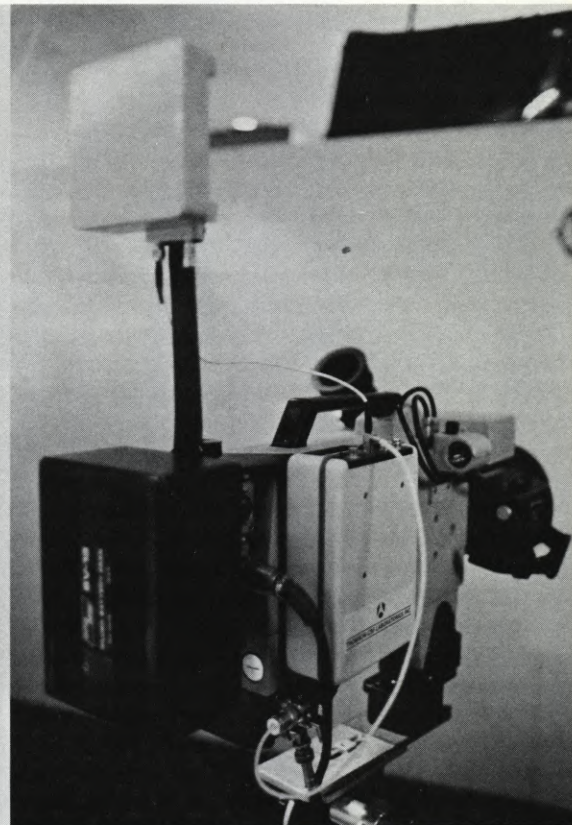




(LEFT) Inventor Robert Olodort at the console of his Cinema Products-built U/F-16 upright-flatbed editing machine. (CENTER) The new Steenbeck series of flatbeds utilize multiple electronic drive motors. (RIGHT) The new Cinemonta editing tables use the unique Optical Crown Imaging System, which employs 24 high-speed lenses instead of a prism. This results in almost twice the normal resolution. A side-by-side comparison of the two systems is impressive.

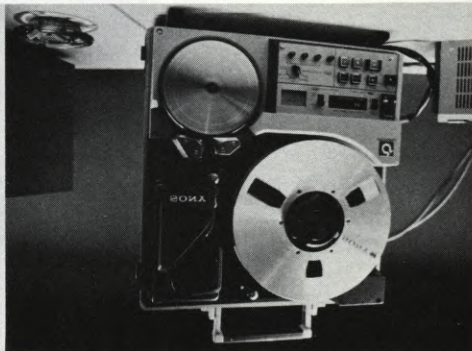
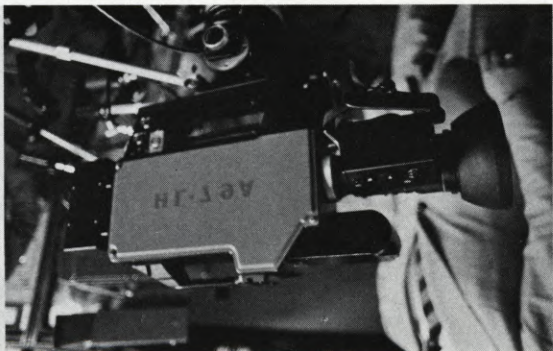
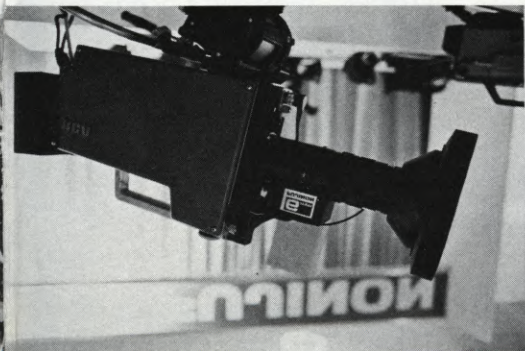
crease in sharpness. Moreover, the image is flickerless and does not produce the usual *ghosting* as one frame dissolves into the next. All in all, these latest-generation Cinemontas certainly exhibit one of the sharpest, brightest and most stable images I have seen on an editor. The Cinemonta line is distributed in the USA by KLM Associates.

A new and exciting editor was shown by Cinema Products. Dubbed the "Upright/Flatbed" Editing Console (Model U/F-16), this new device is one of the most compact and practical 16mm editing machines I have seen. The sprocket drive assemblies for the two sound and one picture tracks are located above one another on a single axis, resembling a standard 3-gang synchronizer, positioned vertically instead of in the normal horizontal attitude. Likewise, the six plates are located in a tri-level terraced configuration. What this boils down to is a machine that is extremely simple to thread and operate. Inventor Bob Olodort has done an excellent design job, as all controls are at one's fingertips and there is abundant work area, due to the clever multilevel arrangement. Although extremely simple in concept, this editor really represents a major new editing configuration. Addi-

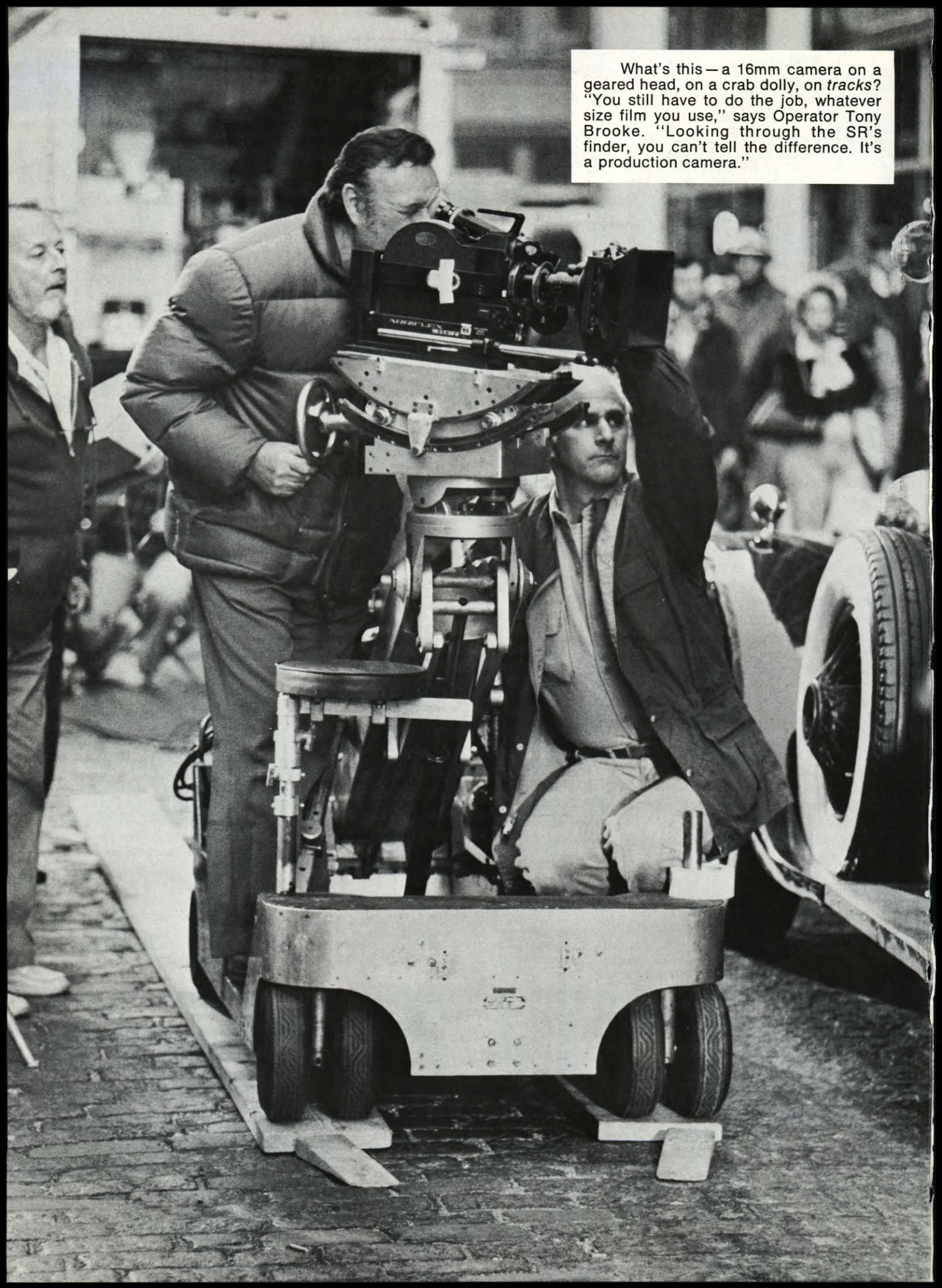


(LEFT) Matthews' new "Crank-O-Vator" light stand elevates to 13 feet. (RIGHT) The amazing all-in-one Thomson Microcam package. Starting with the super-compact Microcam, add a rear-mounted, quick-change silver battery, and plug into an outboard microwave transmitter and you have the ultimate portable camera—no cables.

(LEFT) The Fujinon organization displayed its new f/1.4, 6mm fixed focal length lens for 2/3" ENG/EFP. (CENTER) The Ikegami HL 79A camera, shown for the first time at the SMPTE Exhibit, weighs under 10 lbs., less lens, viewfinder and battery. It was shown with special quick-change Anton-Bauer silver battery, which snaps onto the back of the camera. (RIGHT) The new Sony 1" Type "C" BVH-500 portable VTR. The question is—when will it be delivered?



What's this — a 16mm camera on a geared head, on a crab dolly, on tracks? "You still have to do the job, whatever size film you use," says Operator Tony Brooke. "Looking through the SR's finder, you can't tell the difference. It's a production camera."



Shooting a two-hour CBS Special in 16mm:

"We shot the whole picture as though it were 35mm," says Jack Priestley.

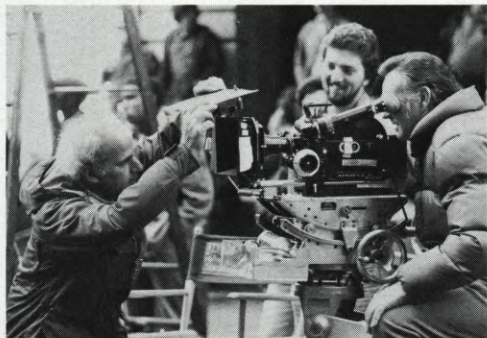


Director Ralph Nelson with Jack Priestley. "When you see this picture on the TV screen," says Mr. Priestley, "I defy you to tell whether it's 35mm or 16mm."

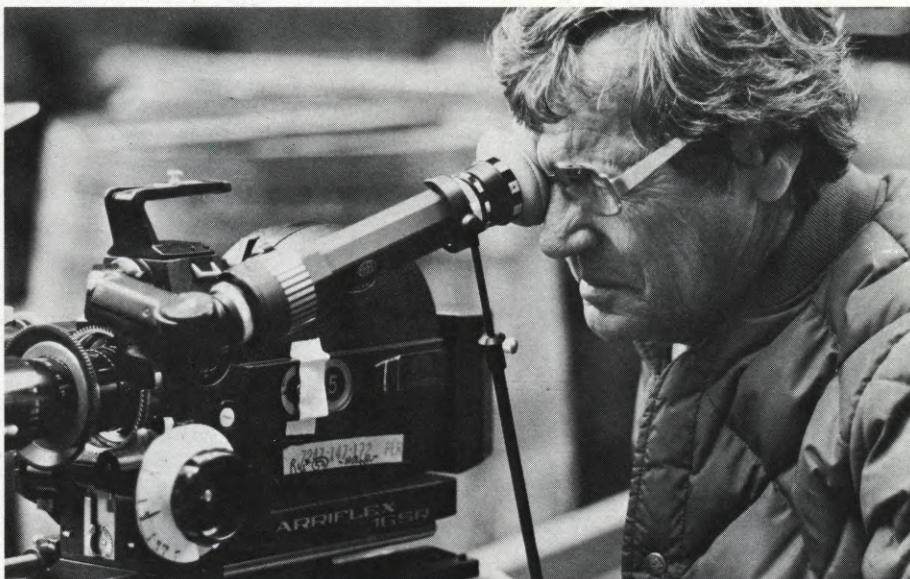
"After a while, you forgot whether you were shooting thirty-five or sixteen, or whatever. It was just *the camera sitting there*."

That's Director of Photography Jack Priestley, A.S.C., talking about making *You Can't Go Home Again* for CBS.

"There wasn't a hand-held scene in the whole picture," says Mr. Priestley. "And we weren't pressured for time—it was like working on a feature."



First Assistant Richard Reis positions a flag. "That camera really paid off on this job," he says. "It's a pleasure to work with."



Jack Priestley lines up a shot. Note white follow-focus marking disc and finder rod. (Rod holds finder stationary when you tilt.)

"I ran tests before we started...was glad to have the Zeiss fast lenses. All our night exteriors we shot at T1.3. And we shot most of the interiors at T2, to get maximum effect from our low-contrast filters."

Shooting from a window, Tony Brooke uses the 16SR finder on the *right* side of the camera.



"16mm isn't fully accepted yet. Partly, that's because there hasn't been a 16mm camera adequate to *handle* a feature," says Mr. Priestley.

"But this Arri SR is studio quality. For example: we shot some closeups three feet away — and, I'm telling you, you couldn't hear that camera run."

The 16SR

ARRI

ARRIFLEX CORPORATION

1 Westchester Plaza, Elmsford, New York 10523. (914) 592-8510.

In Canada: ARRI/NAGRA Inc., 6467 Northam, Mississauga, Ont. L4V 1J2. (416) 677-4033.

SMPTÉ EQUIPMENT EXHIBIT
Continued from Page 157

tional features include a unique hollow polygon prism providing bright flickerless images, a digital display system and a crystal motor control for 24 fps as well as 0 to 240 fps variable. Most appealing is its portability. The entire unit can be broken down to fit inside the rear seat of a passenger car. The price of \$7,200 should make it a winner.

Steenbeck has updated its fine line of

editing tables with a new electronic drive system employing multiple drive motors. Steenbeck has also revised their North American distribution system in order to provide better service and parts availability. General Enterprises, Inc. is responsible for the entire eastern United States, except for New York State which will be serviced by Camera Mart in New York City. West of the Mississippi will be handled by M.B.I. in California and Kingsway Film Equipment LTD is responsible for Canada.

Alan Gordon Enterprises presented the British Acmade line of editors. These devices called "Compeditors" are deluxe motorized units resembling conventional synchronizers. They are available in both 16mm and 35mm with five gangs, including picture, and four sound. The motor drive provides stable sound speed and can stop on a single frame at the push of a button. The motor can be disengaged for fast-wind and rewind by hand.

The Twenty-Fourth Frame exhibited their unique style of tables and MM Editing Systems Inc. showed the KEM modular flatbed editing tables. The new KEM tables employ a revised rheostat and control circuit that reduces wow and flutter, creating better sound for scratch mixes or reference transfers.

Lighting

HMI lights continue to dominate the "what's new" list and this year it seems to be HMI FRESNELS. Lights of this type use a Fresnel lens to concentrate the light beam. The net effect is greatly increased efficiency. A Fresnel light can provide up to three times the intensity for a given beam width and wattage when compared to an open or lensless light fixture. Beam width is usually defined as the diameter of the circle where light intensity is one f-stop down from the center intensity. The Fresnel achieves this greater efficiency by focusing into the beam what would normally have been wasted spill light. LTM has expanded its

already prolific line of HMI lights with the Luxarc line of Fresnel HMIs. Sizes include 200, 575, 1200, 2500 and 4000 watts.

Mole Richardson has also introduced a complete line of HMI Fresnel's with units of 575, 1200, 2500 and 4000 watts. Both LEE and ARRIFLEX introduced portable 200-watt HMI lights. Colortran introduced a new 2K focusing scoop and Strand Century showed its new line of Quartz Fresnel's (2K, 5K, 10K) which are extremely compact for their light output.

Lowel Light presented new kit arrangements for their hot-selling OMNI and TOTA lights.

Optics

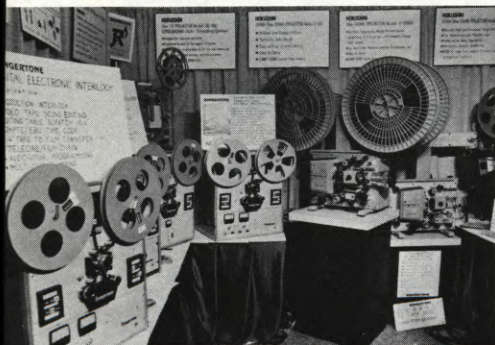
With the popularity of ENG and EFP television cameras, the various optics manufacturers have come forth with a proliferation of new lenses. Fujinon showed two very interesting additions to their already diverse line. The AF6 is a fixed-focal-length lens of 6mm designed for 2/3" ENG/EFP cameras. This ultra-wide-angle lens, which has an f/1.4 maximum aperture, spans a horizontal angle of over 70°. A new zoom lens from Fujinon also designed for 2/3" ENG/EFP applications, boasts a zoom range of 14:1 (10-140) with a built-in 2x extender, giving it an optical range of 28:1. Horizontal angles for the f/1.9 lens are 47° to 3°6', and with extender, 24° to 1° 49'.

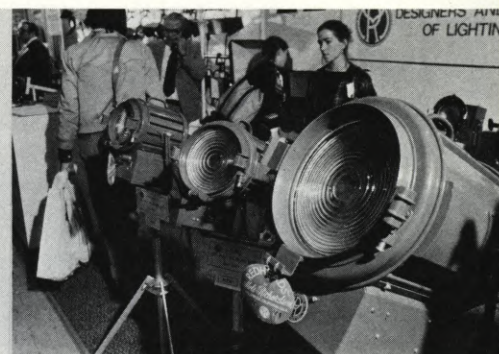
Angenieux introduced a new 25-to-1 zoom lens, also for ENG/EFP cameras. This lens is really the heart of an optical system. The basic lens is 10-250mm with a maximum aperture of f/1.4 from 50 to 60mm and then diminishing to f/2.8 at 250mm. Accessories include a two-position range extender. When in position, the zoom range is multiplied by 1.4 and the aperture is decreased by one f-stop. A front-mounted retrozoom attachment converts the lens to 7.5-188mm, while a tele attachment yields a 16-400mm zoom range, both without loss of aperture. Taken together, these



New Magnasync/Moviola Series 4000 Recorder/reproducers, with optional console, feature exclusive square-wave crystal-derived bias and erase signals, plus time-delay corrected electronics.

(LEFT) Rangertone introduced its new line of "D2" sprocketed recorders, featuring digital drive. In the rear, the Mignon portable 35mm projector. (CENTER) Lee Enterprises Ltd. introduced its portable 200-watt HMI light, which provides almost four times the light output of a daylight-corrected 250-watt quartz lamp. (RIGHT) Vicki Baker demonstrating the new miniature Ronford-Baker fluid head.





(LEFT) Strand Century introduced the new series of QuartzColor Ianiro compact quartz fresnel lights. (CENTER) LTM, with one of the most extensive HMI lines, introduced the Luxarc series of HMI fresnels. (RIGHT) Mole-Richardson also introduced a new line of HMI fresnel lights. This type of light is dominating the scene this year, since the fresnel lens concentrates the light beam and greatly increases the efficiency of the luminaire.

accessories provide six zoom range combinations from 7.5mm to 560mm each with a 25:1 ratio, representing a total optical range of 75:1. That's flexibility *plus*.

Angenieux also has a new lens for 16mm cine applications. This new 16-44mm zoom is an f/1.1, T/1.3, an unprecedented speed for a zoom lens. Furthermore, this lens is part of a system which includes a retrozoom (12-34mm, T/1.4) and Tele-Attachment (52-72mm, T/1.4).

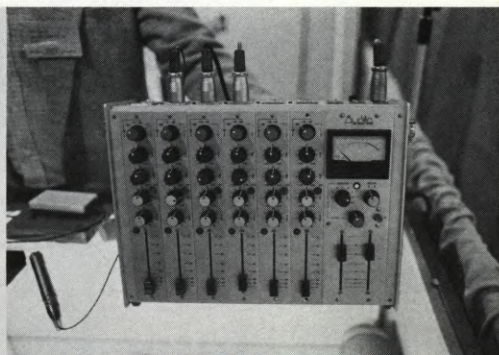
The manufacturers of ENG/EFP zoom lenses have become fiercely competitive, which has given rise to a very sophisticated generation of lens systems. In addition to those already mentioned, Canon has introduced a 13:1, f/1.6 zoom (9-118) with an accompanying set of auxiliary devices including a 2x extender, a 1.5 Tele-Attachment and a wide angle adaptor. The lens also incorporates standard Canon features, such as flourite elements and macro focusing. Getting back to 16mm cine lenses, Cinema Products displayed their ULTRA T¹ fast lenses for the CP 16-R and GSMO cameras. The set consists of four lenses, a 9mm (T/1.35) and a 12.5mm, 16mm and 25mm—all at T/1.25. These lenses are also available on ARRI B mounts.

Continued on Page 164



Linwood G. Dunn, President of the American Society of Cinematographers, receives from SMPTE President Bill Hedden the Special Commendation Award "for his innovation in the creation of special optical effects in motion picture and television production. He has made outstanding contributions to the industry as a cinematographer, inventor of printing equipment, developer of new techniques and executive."

(LEFT) New Anton-Bauer Digital Control Silver Battery Charger. The battery snaps onto the side of the charger without cables. All charge parameters are precisely controlled by a digital computer circuit. The high-energy silver battery has three times the power density of Ni-Cad. (CENTER) Comprehensive Video displayed the new Sinclair Mini-Monitor TV unit. (RIGHT) Coherent Communications exhibited, among many accessories for the soundman, this PICOMixer, a quality 6-input mixer.





SOUND MAN

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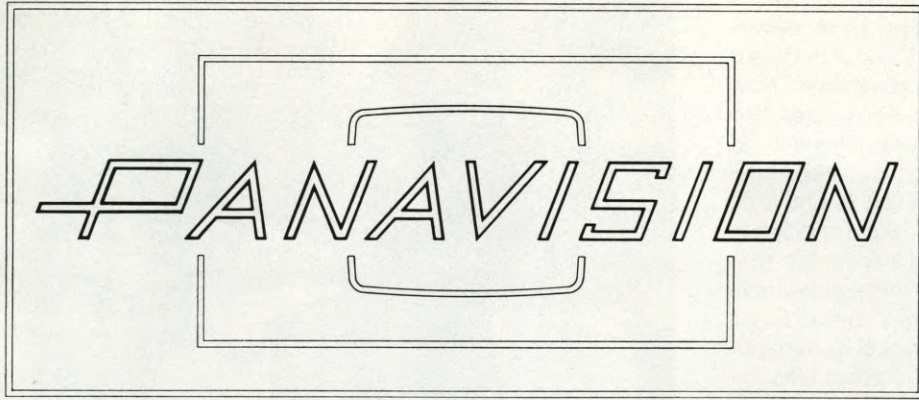
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For further information write to:

The Administrator, The London International Film School,
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SMPTE EQUIPMENT EXHIBIT
Continued from Page 161

Bolex has some interesting new optics also. The SWITAR lenses have always enjoyed a reputation as some of the finest optics available for 16mm cameras. Now the Macro-Switar Pre-Set lenses are available with multi-coated elements to further enhance sharpness and transmission. The multi-coating is available as an option on the 10mm, 26mm and 75mm Switars. Having caused a sensation with their 5.5mm Aspheron ultra-wide-angle attachment for their 10mm Switar, Bolex has done it again with a new Kern Vario-Switar 12.5-100mm f/2.0 zoom lens, incorporating a 6.5mm Aspheron wide angle attachment.

The performance of any of these lenses can be checked on the new Century Precision Optics lens Testing Projector. Employing a precision target reticle on the film plane, the lens being tested projects the image of the reticle onto a screen where it will reveal any and all optical anomalies.

Sound & Camera

Rangertone Research, Inc., displayed examples of their new "D2" series 16mm sprocketed recorders/reproducers. The D2 units are characterized by a new digital motor control system, a new improved transport and the 500 series amplifiers. The push-button digital control system not only provides simple and flexible operation, but facilitates easy synchronization between several machines or a projector. Speaking of projectors, Rangertone distributes the Hokushin line of 16mm projectors, including the XENON models. Rangertone also distributes the Microcine Mignon 35 line of portable 35mm projectors, including optical/magnetic, as well as Xenon and double band models.

Magnasync/Moviola displayed their new Series 4000 Recorder/Reproducers. These units feature exclusive square wave crystal derived bias and erase signals as well as time-delay corrected electronics. The units will slave to any Magnasync/Moviola flatbed editor. A new console is an option.

Coherent Communications of Sylmar California displayed myriad devices for



David W. Samuelson receives from SMPTE President Bill Hedden the Society's Special Commendation Award "in recognition of his life-long achievements as cameraman and producer, filming in over 40 countries newsreels and documentaries covering aviation and sports and every type of news event, including the Coronation of Queen Elizabeth II."

the soundman. Included was the new ARTECH wireless microphone systems, the mini-mic lavalier electret condenser, a whole line of windscreens and the MICROMixer 8-channel microphone mixer for use with any professional recorder. A smaller PICOMixer, 6-channel unit is also available.

Sennheiser exhibited their Electret family of microphones. The system now includes an ultra-lightweight shotgun with integral windscreen.

Cinema Products showed the new GSMO camera system which is now being delivered with 400' magazines. Two-hundred and one-hundred-foot magazines will be available shortly. ARRIFLEX showed the new ARRI 35 III which supersedes the 35 IIC. The camera, which uses a pin registration movement, has a single bayonet lens cavity.

Video

The majority of exhibits were still motion picture oriented. However, each year the proportions lean more in the favor of video. This trend is obviously continuing as the number of video manufacturers increased, as well as the magnitude of their efforts. Ikegami had most of the action by unveiling their much-awaited new HL 79A camera. Ikegami has enjoyed a

reputation as the leader in ENG/EFP cameras and this new addition should ensure that they retain that distinction. The HL 79A, shown here for the first time, weighs under 10 lbs., less lens, viewfinder and battery. The camera is unbelievably compact, measuring only 3½" wide, 7" high and 13½" long. Performance is broadcast quality and actually exceeds that of current generation cameras. Signal-to-noise is rated at 54dB and sensitivity is excellent. In cinematic terms, the HL 79A would have an ASA of 160 and require only 16 foot-candles at f/1.4 with normal gain. With 18dB of additional gain, the HL 79A needs only *two footcandles* at f/1.4. The HL 79A was shown with special quick-change Anton/Bauer Silver battery which snaps onto the back of the camera, making direct electrical connection without the necessity of cables or connectors. This rear-mounted battery perfectly balances the camera and provides over *six hours* of continuous operation. A similar NiCad battery is also available and provides over two hours of operation. The HL 79A most assuredly defines the current state-of-the-art. It will be available early in 1979.

Philips showed their new LDK 14 cam-
Continued on Page 176

(LEFT) The Egripment Dry Writing Slate. Write it on, let it dry to a powder, wipe it off. (CENTER) The Egripment Zoom Lever attaches to the zoom or focus ring of any lens for added control. (RIGHT) The Egripment Camera Clamp turns any object, wall or fence into a sturdy camera support. Available in both 16mm and 35mm versions, with a variety of ball bases.



**THE PHOTOGRAPHY OF
"LOVE AT FIRST BITE"
Continued from Page 133**

couldn't do that always, of course, and I didn't do it with Susan Saint James, because that sort of lighting is not always flattering to women.

QUESTION: But the considerable degree of underexposure involved was linked to your desire to downplay the skin tones?

ROSSON: Yes, it's something of a technical turnabout. In the past we've overexposed and brought it down; now we're underexposing and bringing it up. The setting of our key lights and the placing of our edge lights and eye lights on the dark side of the face have helped to create a mood that was necessary to the vehicle. This picture is a wild comedy, but, at the same time, a very sophisticated comedy. It's also eclectic, because we have a very heavy romantic theme that runs through the picture. It's a contemporary Dracula. Because it has many, many dimensions, it has really been a cameraman's vehicle. The fact that Dracula never loses his male chauvinist image until the very end, when he becomes vulnerable, has helped us because we were able to light differently throughout the feature to indicate slight changes in his moods. That's been a challenge, but it's been fun.

QUESTION: Going back to what you said about underexposing a stop-and-a-half and then printing up—how much did you print up?

ROSSON: Three-quarters of a stop.

QUESTION: That would still leave you three-quarters of a stop underexposed. Isn't that so?

ROSSON: Yes, most of the scenes are three-quarters under, and we purposely put some of those scenes out of balance so that when we do come back to our desired exposure—which is under—those particular scenes are at key. We don't have any heavy burnouts. We didn't use any fog filters in the camera, because we were not going for any big halation, but the underexposure added something special.

QUESTION: You've said that you didn't use fog filters, but for a "mysterioso" film such as this you must have used something in front of the lens. What did you use?

Continued on Page 200



Having found and won his inamorata in New York, Dracula begins to change into a romantic and the lighting gradually becomes softer. In real life the actual personality on which the Dracula character was based was neither comic nor romantic. A no-nonsense Transylvanian nobleman named Vlad Tepes, he was also known as "The Impaler" because of his nasty habit of shishkabobbing his enemies on large wooden stakes. His final box score: 10,000 human brochettes. (BELOW) Filming along New York's Fifth Avenue.



Oak Creek Films chose the FRENCH ECLAIR ACL to fly with The Eagle...

For their CBS Sports Special, Oak Creek Films was to shoot the "Eagle" balloon flight across the Atlantic. This presented a unique set of problems. The camera they chose was the French Eclair ACL... and for very special reasons:

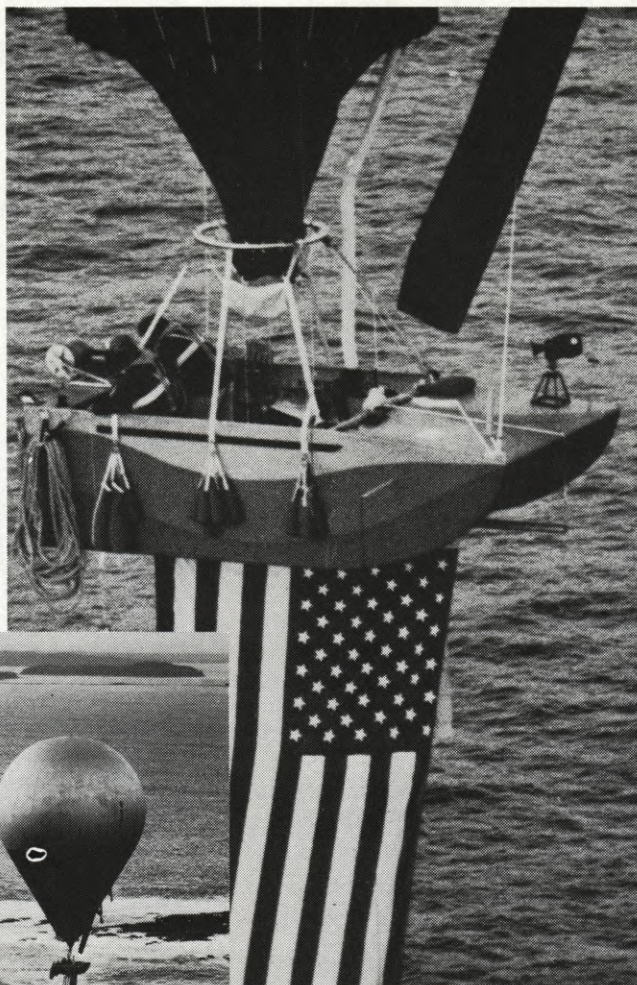
"Shooting in sync sound during the flight of a helium balloon is extremely critical. Since the balloon moves silently with the wind, there is no wind sound to mask camera noise. That's why it was so important to use the STUDIO QUIET French Eclair ACL."

"The instant snap-on magazine was another big asset. And the ACL LED-7 system made it easy to determine exposure quickly and accurately."

"Every aspect of the French Eclair ACL worked to our advantage, even through the storm and the forced landing in the Atlantic. The French Eclair ACL's rugged performance met the test far beyond our expectations."

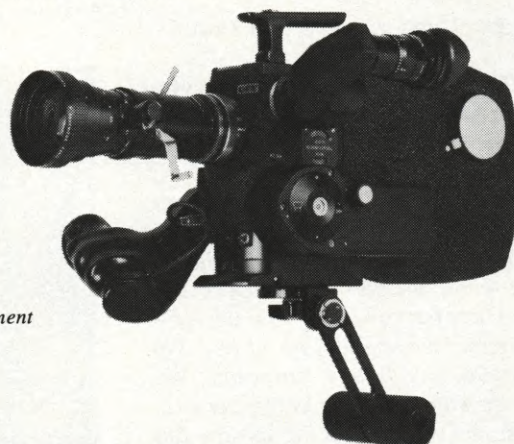


Len Aitken and Bill Snider of Oak Creek Films check equipment prior to take-off



The Eagle starts its journey across the Atlantic

The ACL in position on the gondola



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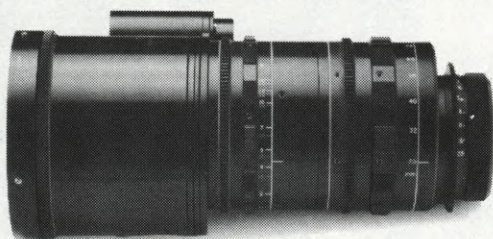
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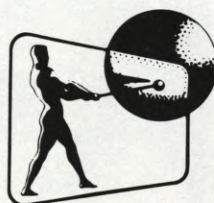
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THE PMPEA/KODAK SEMINAR WITH DOUG TRUMBULL

A dazzling success was this person-to-person encounter with the special effects wizard of "2001" and "CLOSE ENCOUNTERS"

By ANTON WILSON

It is said that the great magicians of the world never reveal the secrets of their tricks. This rule was broken Monday night, October 30, 1978, when famed special effects wizard Doug Trumbull held a crowd of over 2,000 spellbound with behind-the-scenes demonstrations and explanations of his dazzling creations for "CLOSE ENCOUNTERS OF THE THIRD KIND". The occasion was the annual Professional Motion Picture Equipment Association (PMPEA) seminar held in conjunction with the national SMPTE Conference.

This year the entire PMPEA seminar was devoted to Doug Trumbull and his special effects. To make this truly a special event and to do justice to his spectacular visuals, the PMPEA rented New York's Ziegfeld Theatre for the entire evening. The Ziegfeld holds a reputation as one of the finest 70mm projection facilities on the East Coast and coincidentally was the theatre originally selected to premiere "CLOSE ENCOUNTERS OF THE THIRD KIND" in New York.

Preparation for this unique event began almost a year ago when the PMPEA chose Anton Wilson as program chairman for this year's event. Anton, through a mutual friend, Herb Lightman, editor of *American Cinematographer*, proposed the idea of the seminar to Doug Trumbull who graciously accepted the invitation. Doug and Anton began to work out the preliminary details when it became clear that the scope of the planned event called for 70mm projection. A decision was made to get the best and Donna Lerner of the Walter Reade organization, owners of the Ziegfeld, was contacted and arrangements were made to lease that theatre for one show at 6:15 p.m. on October 30. Donna Lerner was extremely helpful and assisted the PMPEA staff throughout this project.

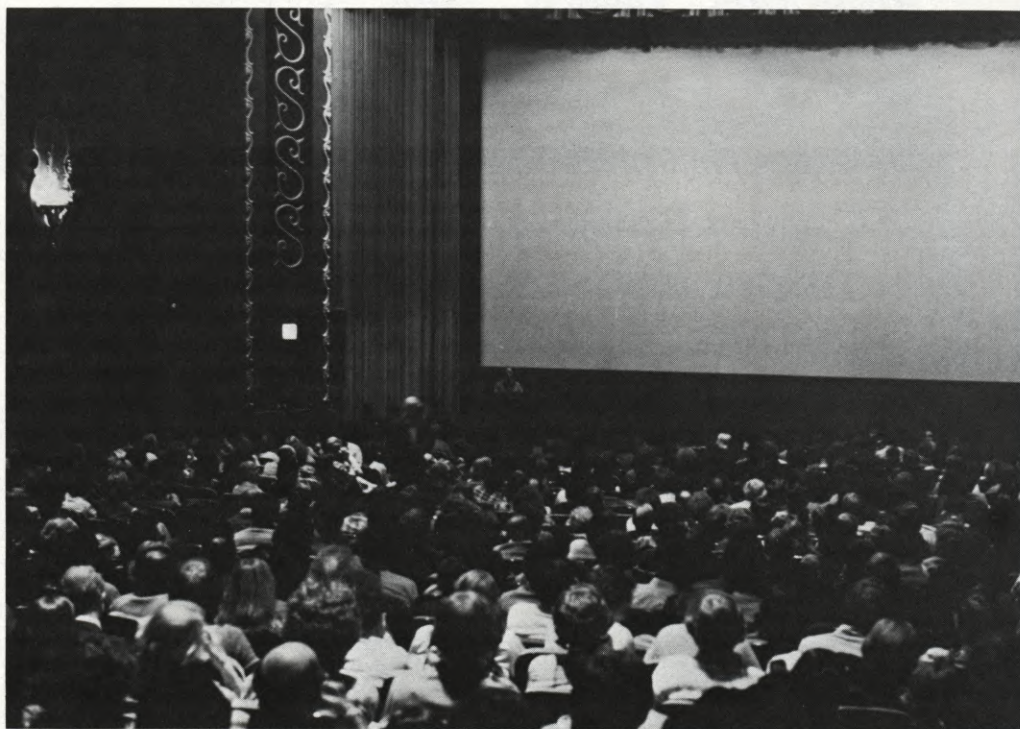
Once the cost of the theatre and publicity was established, it became clear that the PMPEA could not bear the full financial burden of the planned event and rather than skimp on any aspect, a plea for help went out to one of the PMPEA's largest and better-known members, Eastman Kodak. Chad O'Connor, President of the PMPEA, presented the problem to Ken Mason of Eastman Kodak who graciously offered to underwrite half of the theatre expenses. Without this financial assistance and support from Kodak the Trumbull seminar could never have

been the event that it was.

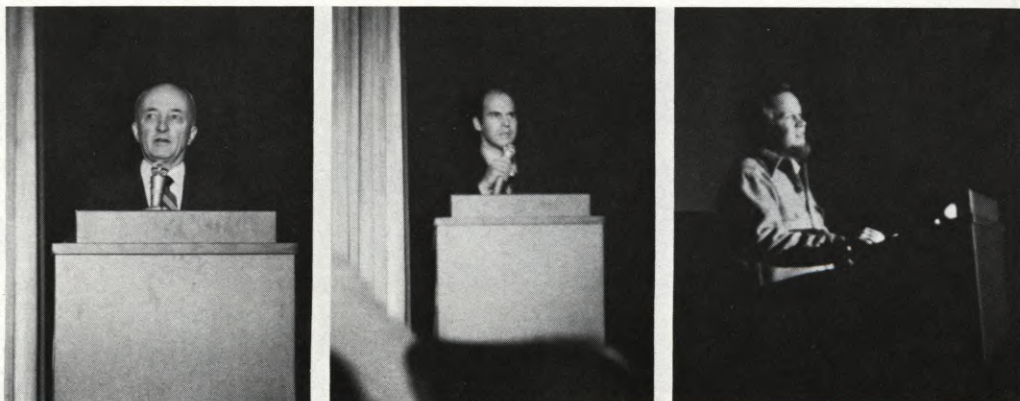
With Kodak's support assured, the PMPEA seminar committee moved ahead with the endless number of preparation tasks. The anchorperson in New York was Cindi Becker of Camera Mart who was also Vice President of the PMPEA. Cindi handled all the practical details and worked closely with Anton, Jeff Friedman of SMPTE and Len Coleman of Eastman Kodak.

Lee Duncan, Secretary-Treasurer of the PMPEA and a vital member of the Victor Duncan organization, took care of

all the publicity, posters, printing, tickets and sales. The inordinate amounts of time spent by Cindi, Lee, Anton, Chad and the other people who helped put the show together certainly bore fruit. By September the entire Ziegfeld Theatre, all 1150 seats, was *sold out*. The interest in the seminar was so great that within days of the sell-out, Lee Duncan was in receipt of almost 400 checks for which there were no tickets. In light of the unexpected response, Doug most generously agreed to do a second show at 9:00 p.m. This second show was virtually



Capacity crowds filled New York's Ziegfeld Theater for both performances of the seminar with Doug Trumbull, co-sponsored by the PMPEA and Eastman Kodak. (BELOW LEFT) Chad O'Connor, PMPEA President, welcomed the audience and thanked those who helped make the event a success. (CENTER) Anton Wilson, program chairman for the seminar, introduced Trumbull following an excerpt from "SILENT RUNNING". (RIGHT) After his spellbinding presentation, Trumbull led a questions-and-answers session.



sold out before the SMPTE conference began.

Both shows were a huge success. Chad O'Connor opened the evening and welcomed the audience to the seminar. Anton Wilson then gave a brief biographical account of Doug Trumbull's filmography and showed a five-minute excerpt from the film "SILENT RUNNING" which Doug both wrote and directed. The dazzling array of visuals in this sequence quickly reminded the audience of Mr. Trumbull's exceptional command of the visual medium.

Doug began his program on a philosophical note and then the house lights dimmed as he began a slide presentation of production stills taken during "CLOSE ENCOUNTERS". The audience saw the planning and execution of miniature landscapes, the creation and mechanization of spaceships and flying saucers and the sophisticated computerized cameras that actually photographed the effects.

Doug went into great detail, both verbally and visually, about the motion recording system that stores camera motion data in a computer during live action filming. This data is then retrieved during special effects filming and used to control servo motors on the camera, which is made to pan, tilt, dolly, etc. in exact duplication of those movements executed during live filming. Unlike early special effects efforts which were usually restricted to static shots, the results of this system allow complex camera movements, while retaining perfect correlation with live action and later created effects.

No secret was sacred, and Doug covered every aspect of his creations including some "inside" anecdotes. His slide presentation was then followed by a 70mm reel of test footage he had shot while developing the effects for "CLOSE ENCOUNTERS". This was indeed a unique experience—to see how the final effects developed from an idea to a practical and dazzling visual.

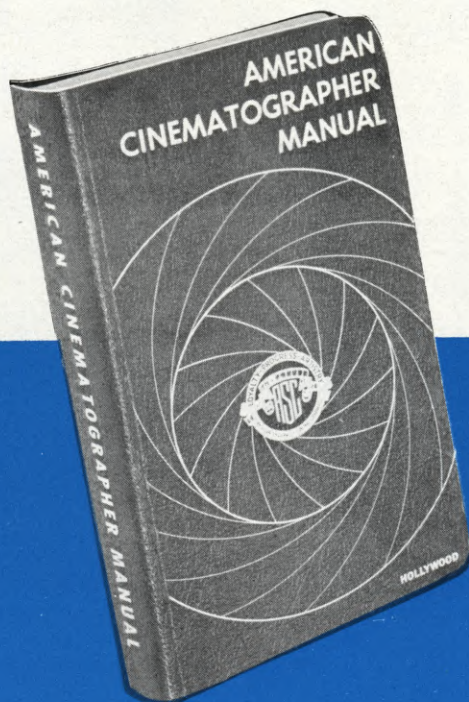
Included in this reel were the marvelous moving cloud sequences, the Mothership sequences, various spaceship tests as well as matte tests. Throughout the reel, Doug explained the technical elements involved.

A lively question and answer session followed and then the *piece de resistance* of the evening was a special demonstration reel Doug had prepared of all the actual special effects from "Close Encounters" in 70mm and six-channel stereo sound. Two thousand delighted people experienced a unique evening they are sure to remember for quite sometime: a Close Encounter with Doug Trumbull. ■



The audience was dazzled by scenes from "CLOSE ENCOUNTERS OF THE THIRD KIND", such as the above, which were pure creations of Trumbull and his team of special effects experts. (BELOW) Douglas Trumbull soared like a comet on the special effects horizon with his innovative work on Stanley Kubrick's "2001: A SPACE ODYSSEY", continued to boggle the minds of audiences with his own "SILENT RUNNING" and most recently made "CLOSE ENCOUNTERS" a thoroughly believable UFO experience with his technical artistry.





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GROOVELESS AUDIO/VIDEO DISC SYSTEM INTRODUCED Continued from Page 145

around but not in contact with the magnet, and a pair of vertical coils are mounted one on either side of the single coil, and in phase opposition to each other. Thus, the stylus can move transversely and longitudinally in response to the particular current flowing in these coils. The current is varied by the tracking error signal, by the time base error signal, or by a command to move the stylus to a desired track, permitting various functions during playback.

Mastering

Recording is performed using a master disc made of glass by means of a special recording device installed in a clean room. The smooth, flat glass disc is coated with ordinary photo-sensitive material. While rotating at a speed of 900 rpm, minute laser beams are irradiated onto the disc, the source of the beams being moved radially at a constant speed.

As a result, as shown in FIGURE 1, fine pits are recorded spirally on the glass disc.

Again, the laser beam is split in two, one half for the information signals, the other for the tracking signals. The information and tracking pits are recorded simultaneously by these beams.

A metallic master disc is produced from the glass master disc by the conventional audio process.

Playback System

Several combinations of the player and auxiliary units provide different video and audio functions.

In the case of video operation (VHD), Normal (back and forth), Special Effect (still, slow, quick motion: back and forth) and Fast Search (back and forth) modes are performed by the player itself. The system is capable of locating a pre-selected single track so that recorded materials can be played back automatically in preprogrammed orders by a user, including special effect modes mentioned before.

In the case of audio operation (AHD), super hi-fi stereo music can be enjoyed by connecting the PCM decoder to the player. In conjunction with the random access unit, the system plays music recorded on the disc automatically searching programs preselected by a user.

Wireless control of the random access unit by a remote controller is available.

As mentioned above, connecting the desired unit to the player can add uniquely different functions to both video and audio operations.

VHD/AHD SYSTEM PERFORMANCE

Pick-up Method	Variable capacitance pick-up of pit row without groove guidance
Playing Time	Two hours (1 hour/side)
Disc Material	Conductive PVC
Disc Size	Diameter 301 mm Center Thickness 1.8 mm
Rotation Speed	900 rpm
Track Pitch	1.4 μ m
Disc Life	> 10,000 replays
Stylus Material	Sapphire
Stylus Life	> 2000 hours

VHD/AHD SYSTEM SPECIFICATION

VIDEO	
Signal modulation	Single Carrier FM Format
Luminance bandwidth	3.1 MHz
Chroma Bandwidth	0.5 MHz
Horizontal Resolution	> 230 lines
Video S/N Ratio	> 40 dB
Audio Signal	2 Channels
Audio Bandwidth	20 KHz
Audio S/N Ratio	> 60 dB
AUDIO (PCM)	
Number of channels	2
Audio Bandwidth	1 Hz ~ 20KHz (\pm 0.5 dB)
Harmonic Distortion	less 0.05%
Dynamic Range	> 90 dB
Wow-flutter	range of crystal
Sampling Frequency	44.056 KHz
Quantization (Recording)	14 bits
Error Correction	V-Format
Recording Method	FM Format

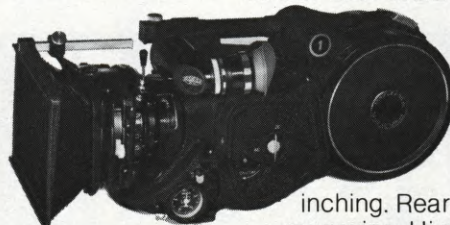
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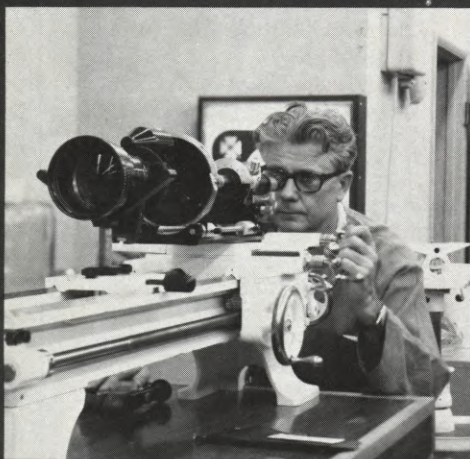
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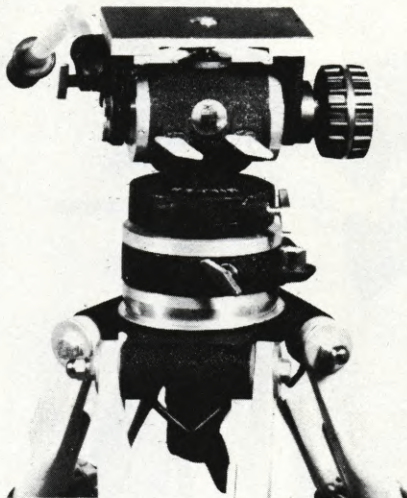
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SMPTE EQUIPMENT EXHIBIT
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era. This ENG/EFP unit is extremely compact and has a very interesting service access feature. The camera splits in half with the rear half of the camera, hinged at the top, flipping up and over the front half of the camera, thus providing access to the electronics of both halves. The LDK-14 was specifically developed as a systems camera, employing many features not found on most cameras in the ENG/EFP class.

Thomson was the first with an ultra lightweight 11 lb. camera and interest still runs very high for this compact ENG/EFP camera. Thomson displayed the Mark I Microcam with an integral microwave transmitter antenna and a rear-mounted Anton/Bauer quick change silver battery. Thus, this is a self-contained, self-powered, self-transmitting unit with no external cables. The entire package (lens, camera, battery, microwave) weighs about 20 lbs. and will run for over five hours continuously. That's portable.

Other ENG/EFP cameras were also represented; Cinema Products MNC 71 CP, JVC 8800, Fernsch KCA 90 and the new Hitachi SK-90. The SK-90 is a high quality camera with features designed specifically for EFP applications.

Sony revealed their BVP 300 camera (which is almost identical to the Thomson Microcam) and the highly anticipated BVH 500 portable 1" Highband type 'C' VTR. Bosch Fernsch demonstrated their popular BCN-20 portable 1" VTR. The versatile BCN (Type 'B') 1" format will soon include the BCN-5, a 20" minute cassette machine. AMPEX also demonstrated their type C 1" machines.

The new generation of video cameras like the Ikegami HL 79A, Philips LDK-14, and Thomson Microcam coupled with broadcast highband 1" VTR's like the Fernsch BCN-20 BCN-5 and Sony BVH 500, come very close to motion picture flexibility.

Miscellaneous

In many ways these items are the most interesting of the show. Some of the more clever gadgets are very inexpensive and one can run out and buy them with pocket change (almost). Into this category goes the new slate and zoom handle from Egriment. The slate is made with a special plastic surface and an adhesive backing. The slate attaches to any existing clapper board. A special pen (provided) uses an ink that dries in minutes to a powder that can easily be wiped off with your hand.

The zoom/focus control lever will fit

virtually any lens and helps provide smooth zooms and accurate focus. Equipment also displayed the camera clamp, a simple but effective device available in a variety of ball bases to accept virtually all popular heads. The clamp converts literally any object into a camera support.

One entire aisle at the exhibit was devoted to the British film industry. Among those exhibitors Ronford Baker, considered the Rolls Royce of fluid heads, unveiled a new compact head with variable viscosity. Photomec displayed compact series 2000 film processors for VNF-1 and Dolby exhibited a new portable unit.

Anton/Bauer premiered their new Digital Control Silver Battery Charger. The charger is completely digitally controlled and consists of over 30 integrated circuits representing more than 3,500 discrete transistors. It is the first charger to make Silver batteries a viable power source. The corresponding quick-change battery module is 12 ampere-hours, three times the power density of Ni-Cad. The battery module can be worn on a belt or snapped on the back of a camera with the quick-change battery bracket.

With equipment getting more sophisticated and costly, Thermodyne cases make a lot of sense. The Thermodyne line of cases includes every size imaginable. The heavy-duty polyethylene cases with aluminum frames provide the ultimate in shipping protection.

Mathews demonstrated a new "Crank-O-Vator", a folding crank-up light stand designed especially for HMI light. It goes up to 13 feet and can hold up to 200-lb. lights, yet it folds to under six feet and weighs only 68 lbs.

Dealers were well represented. Camera Mart occupied both sides of an aisle displaying almost every kind of motion picture and video device imaginable. Alan Gordon from California also exhibited, demonstrating a new digital optical tachometer that can be used for checking the speed of a camera or the flicker of HMI lights. Gordon also showed back magazine systems for both the Arriflex 16BL and 35IIC and a new animation motor and control. Image Devices displayed many of their interesting items, including the Liquid Crystal Digital Slate, a mini sound mixer and a cassette recorder modified for pilotone.

I am sure there are some items I may have overlooked, as it is impossible to catch everything. In any case, a report of this kind is only a poor substitute for actually being there, holding the equipment and talking to the experts. Hopefully, next year you may get the opportunity to attend. ■

Two Hats



That's right, we're wearing two hats! Victor Duncan, Inc., the largest *film* equipment supplier in the Midwest is also a *video* equipment supplier.

As always, our *film* production rental inventories include the very finest in 35mm and 16mm cameras, optics, lighting, support, grip and electrical accessories. And our *check and double check* policy assures you that all equipment is as mechanically and optically perfect as skilled technicians can make it.

Our *video* production rental inventories are the very latest in professional ENG/EFP equipment: MNC-71CP prism optics video cameras, Bosch 1" portable recorders, JVC and Sony 3/4" portable recorders, Videotek monitors, plus the lighting, support, and accessories needed for any video production.

No matter which hat you're wearing today—*film* or *video*—contact Victor Duncan for any equipment needs.



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FILMING "ZULU DAWN"
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with him to create his role, that of Lord Chelmsford?

HICKOX: Well, he's researched it extremely thoroughly. Basically, playing Chelmsford is a hell of a challenge. I mean he was a very, very boring Victorian general. I'm pleased to have an actor with some temperament and some color in the role, because he brings to Chelmsford a quality he actually didn't possess. It's very difficult to play a loser. The interesting thing about Chelmsford is that he redeemed himself after the massacre, went back to Queen Victoria, who patted him on the head and said he was a good boy, and went and lived happily ever after. Disraeli, the Prime Minister, refused ever to speak to him again, and wrote a letter to one of his mistresses, saying, "That man should be impeached."

QUESTION: Is O'Toole playing him like a loser?

HICKOX: Most generals have this cold, very ambitious quality. Peter has a tragic quality; he's playing him like a Wellington in a way. The role is difficult because it's not a spectacular role; it's a subtle, interior role. Because of Peter's own nature, he makes that interesting.

QUESTION: What's been the most interesting thing about working on this film?



HICKOX: The size of it is great fun. I enjoy thousands of troops. It relaxes me to have plenty to put in front of the camera. Also, I feel almost superstitious about the locations. We're crossing the Buffalo River at Rorke's Drift where the army crossed, and the mountain that I've chosen for the battlefield is a place called Isipise, which is where the 24,000 Zulus stayed the night before the attack on Isandhlawana. I think it's right to shoot the film within a few kilometers of where it actually took place. I take the deaths of both black and white very seriously and I would not like to make the

film too facile. I'm determined to bring some form of truth to it. The battle itself was such a muddle. It only took an hour and a half. There are so many different accounts of it, from very many sides—from the Zulus, the soldiers themselves, the men who escaped, and the men who witnessed such horrific deaths. I would like to make this film in such a way that if there were a survivor, he would look at it and say, "Yes, that bit happened to me, and I'm sure that the other nine-tenths that I didn't see of the battle could have happened to the other people." The battle was a real patchwork of incident and I think the film is a unique opportunity to reproduce this patchwork.

QUESTION: Do you think it's possible, in the two hours you have available, to make the movements of the opposing forces understandable?

HICKOX: Absolutely. I will do it, and the audience will understand. I feel very strongly about that. You cannot become involved unless you understand, and to understand, you must comprehend geography. They will comprehend it, because it's going to be very graphic, in shooting style, at certain points of the film.

QUESTION: Are you planning to do any films in South Africa in the future?

HICKOX: Yes, I think the country is marvelous for filming. The greatest thing, for an English director, is to have this wonderful light. I've gradually become used to the fact that the sun comes up in the morning, shines all day, and goes down

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The filming of a garden party in front of the British High Commissioner's residence in Pietermaritzburg, with dozens of actors dressed in elegant 1879 period costume, gave Rawi a chance to get the soft effects he likes. He used fog filters, scrimmed the harsh sunlight whenever possible and bounced soft fill light from large white boards. These scenes are soft, gentle and pretty, but become less so when the action moves toward the battle sequences, which, in the interest of raw realism, are shot minus fog filters or diffusion.



PANAVISION UNVEILS EIGHTEEN NEW ITEMS OF EQUIPMENT

Concurrent with its 25th Anniversary, this progressive company presents the film industry with an array of exciting new tools

At the 1978 SMPTE Conference, Robert E. Gottschalk, President and Chief Executive Officer of Panavision Inc., was awarded the SMPTE's highest award, the Progress Medal "in recognition of his notable engineering contributions to the design, development and production of the Panaflex professional motion picture camera, various improved photographic optics and numerous other equipment innovations related to motion picture photography."

As though to underscore the citation, Bob Gottschalk staged his own equipment exhibition at the Essex House Hotel in New York City in conjunction with Panavision's East Coast representative, General Camera Corporation, and concurrently with the SMPTE exhibition. There was not sufficient booth space available at the SMPTE to accommodate all the new and improved items he had to show.

Many hundreds of cameramen, filmmakers of all categories and motion picture equipment engineers crowded the large ballroom area to view the Panavision equipment for the '80's.

Already the vast majority of major motion picture feature films (that is not including films for TV, TV commercials and other productions) made in the western world are photographed with Panavision cameras and through Panavision lenses. New items just unveiled are bound to attract even more filmmakers.

As the visitors walked around they saw the following exhibits:

PANAFLEX-X CAMERA

A version of the Panaflex camera with the straight-through viewfinder. The version shown was also fitted with an optional TV camera. The Panaflex-X camera has a "brighter than life" optical system incorporating critical sharpness, excellent eye relief and the brightest look-through of any camera.

PANAFLEX-X 16

A 16mm version of the new Panaflex-X camera designed for high quality 16mm production, whose image registration and camera quietness are more important considerations than hand-hold ability. The camera incorporates an entirely new movement, based on the regular Panaflex movement, but with two close-fitting registration pins one above the other. It is the quietest of all 16mm cameras.

"BRIGHTER THAN LIFE" VIEWFINDER FOR THE PANAFLEX

An entirely new optical viewfinder system for the Panaflex camera which gives a substantially brighter, larger and easier-to-view picture than heretofore. The new finder gives excellent "eye re-

lief" and, when in the hand-held mode, allows the operator to use his left eye, as well as his right.

PANAFLEX PANASTAR CAMERA

An entirely new camera with a new high-speed movement, containing two pull-down claws on either side of frame



Robert E. Gottschalk, President and Chief Executive Officer of Panavision Inc., receives from SMPTE President Bill Hedden the Society's Progress Medal, awarded to him "in recognition of his notable engineering contributions; for the design, development and production of the Panaflex professional motion picture camera, various improved optics and numerous other equipment innovations related to cinematography." (BELOW) Industry representatives flocked to New York's Essex House to view Panavision's new equipment.



and two regular pins: one on either side of frame, giving it the capability of crystal-controlled 24, 48, 60, 72, 96 and 120 frames per second. Interchangeable motors are available: a small one for speeds up to 40 fps and a more powerful one for higher speeds. The motors are attached by a locking ring system similar to the Panaflex lens mount making interchangeability quick and simple.

The Panaflex Panastar has the same physical configuration as the Panaflex and all the Panaflex features, including the hand-held capability, "brighter than life" viewfinder, Panaglow and digital readout. While it is not designed for sync-sound dialogue, it is surprisingly quiet at 24 fps. The Panaflex Panastar accepts all Panaflex accessories and is driven by the regular Panaflex 24-volt battery, even at 120 fps. Because it is lightweight and uses the 24-volt battery system, it can be easily hand-held for high-speed photography.

PANAVISION SUPER R200 PSR CAMERA

An updated version of the familiar PSR incorporates a single integrated motor which is crystal-controlled at 24/25 fps or may be switched to variable speeds. The motor is an entirely new compact type which eliminates the need for a "power bulge" on the right hand side of the camera. The fps and footage counter readout are now also of the electrical digital type and are located just below the camera door. The camera now operates off a 24-volt battery instead of the previous 36-volt type. The entire camera now weighs 75 lbs., resulting in the lightest of all cameras of its type.

PANAVISION ULTRA ZOOM

An entirely new zoom lens of 6.25-to-1 range and aperture of T/1.9. The new Ultra Zoom may be converted to an anamorphic lens, becoming a 40/250mm in focal length and a speed in the anamorphic mode of T/2.8. The mounting system of the lens includes a remote motorized focus zoom and aperture control.

PANAVID TV VIEWFINDER

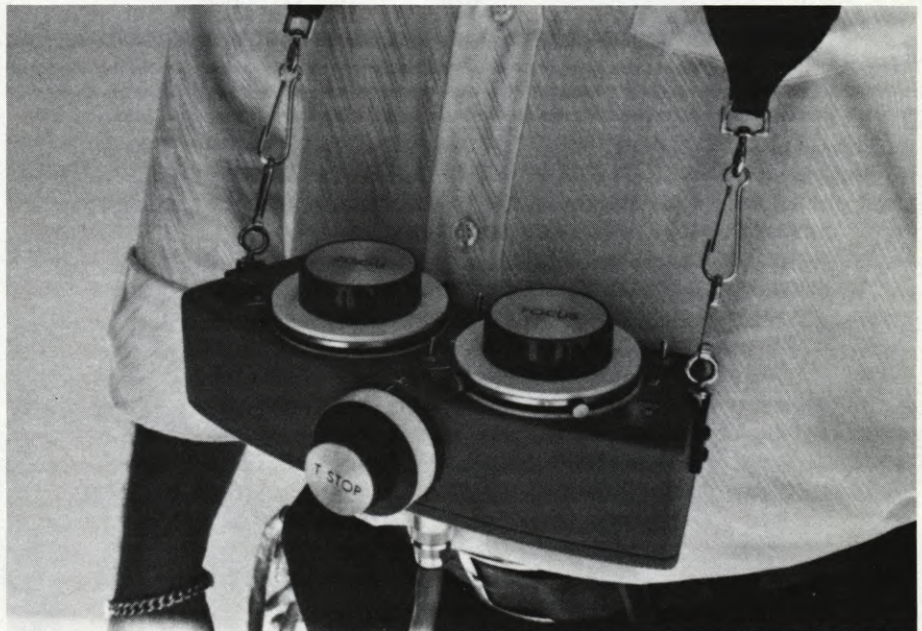
A new TV viewfinder system for the Panaflex camera which is positioned to the right hand side of the magazine. This new location allows the Panaglow facility to be retained and the camera remains hand-holdable.

PANAVISION UNDERWATER HOUSING

An entirely new underwater housing for the Pan-Arri 35mm camera. It features a large reflex viewfinder system which may be viewed easily by a diver wearing

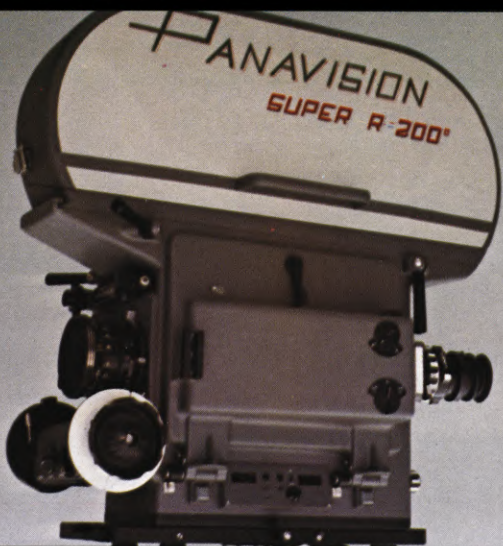


A view of the Panaflex camera showing the new Panavid TV Viewfinder system, which is positioned to the right hand side of the magazine. This new location allows the Panaglow facility to be retained, while the camera remains hand-holdable.



The remote control unit for the new Panavision Ultra Zoom lens features separate remote controls for zoom, focus and T-stop (aperture) control. (BELOW) Seven new lenses from Panavision range from T/1 to T/2 in speed. Six of them are spherical lenses ranging in focal length from 50mm to 200mm. The seventh is the 50mm, T/1.1 Ultra Speed Auto Panatar (anamorphic) lens.





(LEFT) The Panavision Ultra Zoom is an entirely new zoom lens of 6.25-to-1 range, with an aperture of T/1.9. The new Ultra Zoom may be converted to an anamorphic lens, becoming a 40mm-250mm in focal length range, with a speed in the anamorphic mode of T/2.8. (RIGHT) The Panavision Super R200 PSR camera is an updated version of the familiar PSR, which now weighs only 75 lbs. (BELOW LEFT) The invertable Panaflex Panaglide with the camera on top and (RIGHT) with the camera on the bottom.



a face mask. Electrical digital display below the viewfinder shows footage exposed and camera speed. Either 400' or 1000' magazines may be used by virtue of interchangeable backs. The 1000' mags are an entirely new concept of rear-fitting magazines for the Pan-Arri 35.

ULTRA SPEED LENSES

There were 7 new lenses shown and they were as follows:

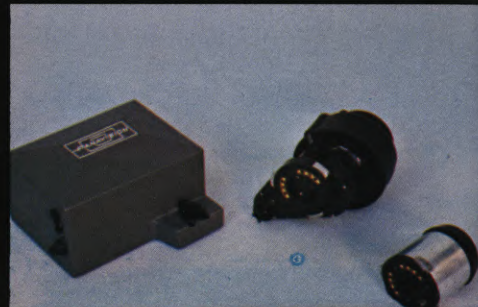
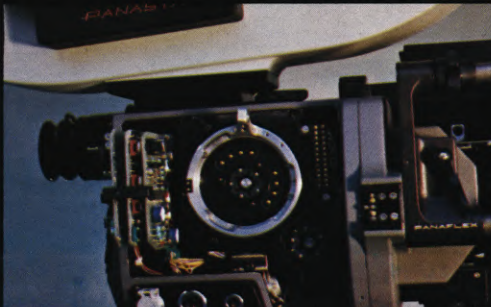
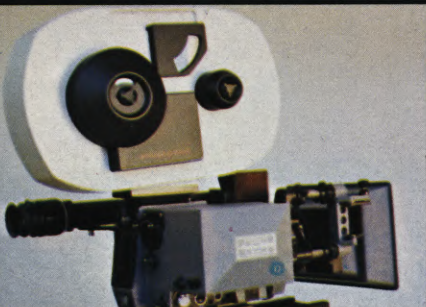
- 200mm T2. Ultra Speed Spherical
- 150mm T1.5 Ultra Speed Spherical
- 125mm T1.6 Ultra Speed Spherical
- 50mm T1.0 Ultra Speed Spherical

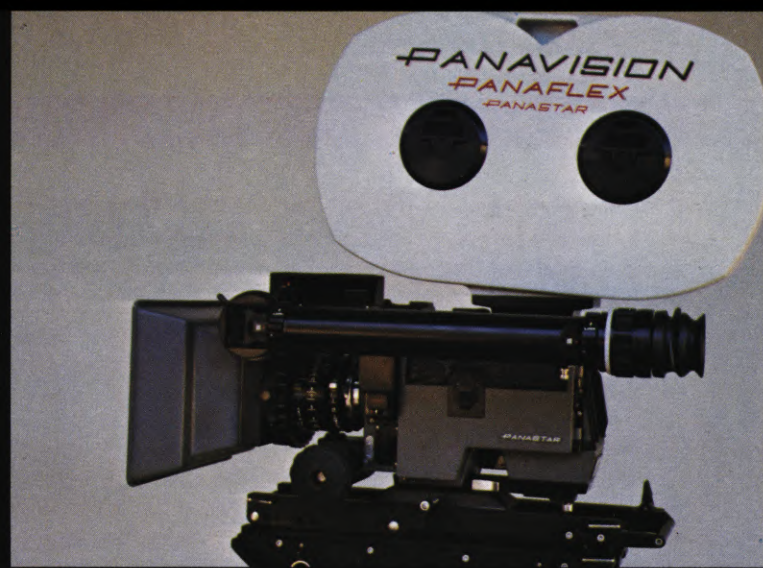
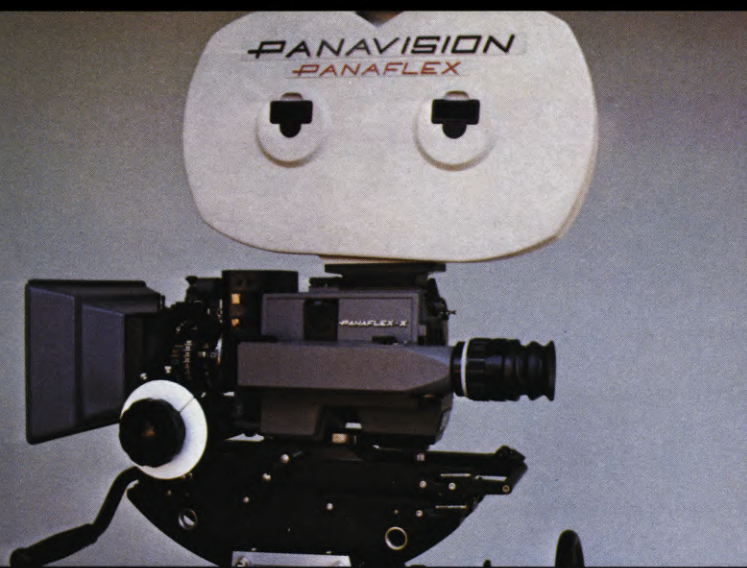
- 100mm T1.6 Ultra Speed Spherical
- 75mm T1.6 Ultra Speed Spherical
- 50mm T1.1 Ultra Speed Auto Panatar (Anamorphic)

PANAFLEX PANAGLIDE

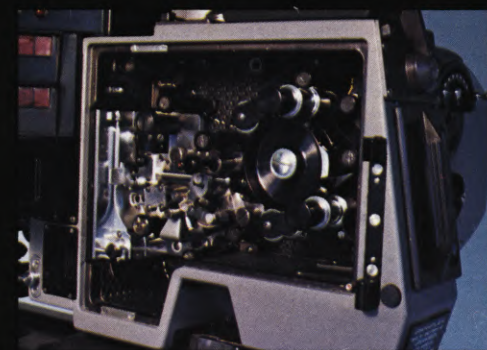
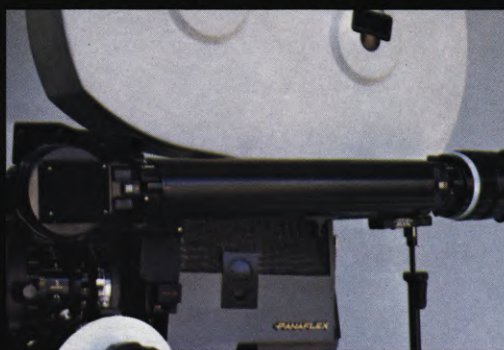
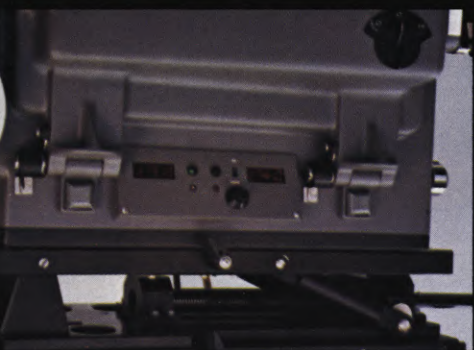
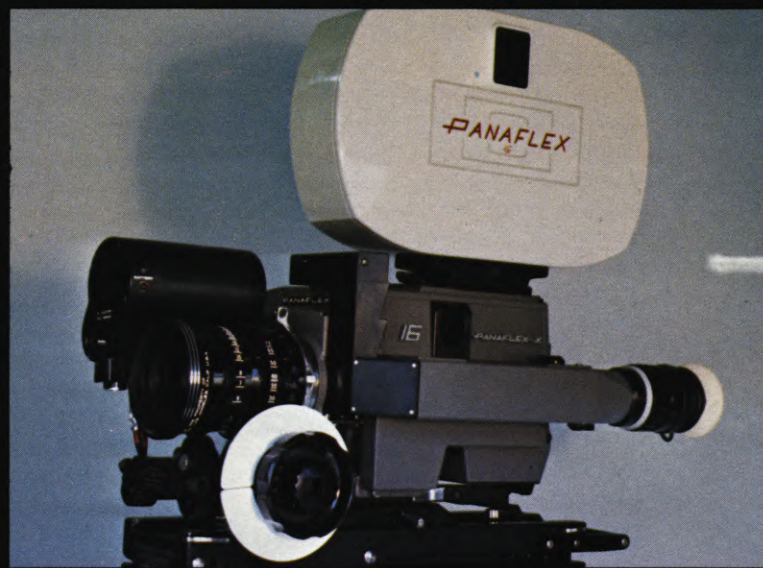
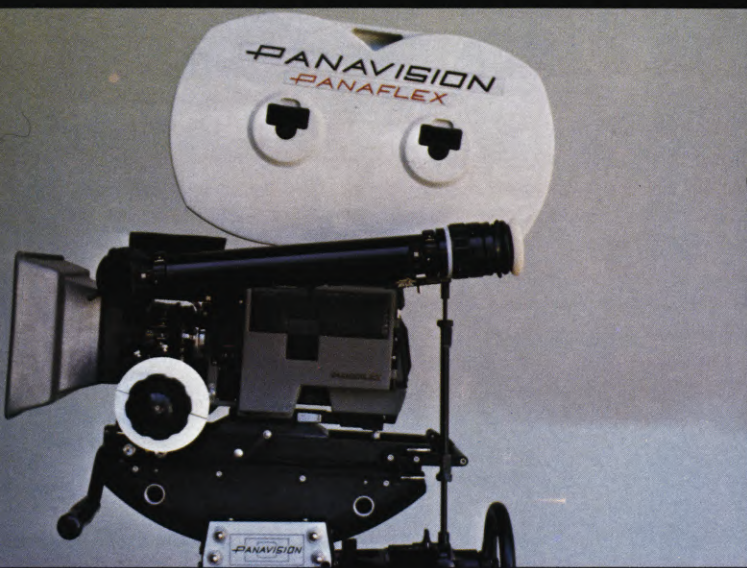
An improved model incorporating a
Continued on Page 197

(LEFT) Motor side view of the entirely new Panaflex Panastar high-speed camera. (CENTER) Motor door side of the Panastar, showing motor coupling mechanism. (RIGHT) Interchangeable motors for the Panastar and motor cover. The camera's high-speed movement includes two pull-down claws on either side of frame and two regular pins (one on either side of frame).

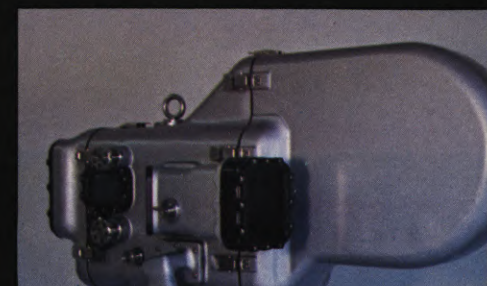
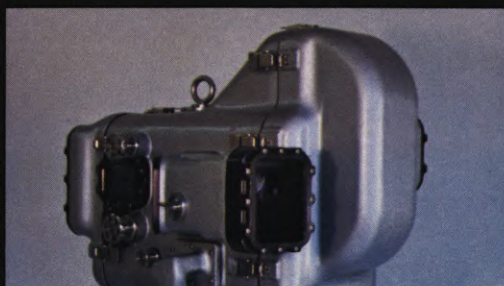
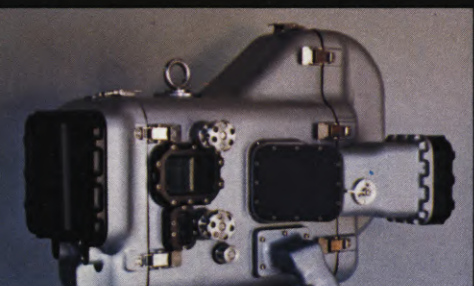




(LEFT) The Panaflex-X camera, a version of the Panaflex with straight-through viewfinder. It may also be fitted with an optional TV camera. The Panaflex-X has a "brighter than life" optical system. (RIGHT) The new Panaflex Panastar camera. (BELOW LEFT) The Panaflex with new viewfinder system. (RIGHT) The new Panaflex-X 16 camera incorporates an entirely new movement, based on the regular Panaflex movement, but with two close-fitting registration pins, one above the other.



(LEFT) Electrical digital counters providing fps and footage readouts on the Panavision Super R200 PSR camera. (CENTER) The new Panaflex viewfinder. (RIGHT) Detail of the Panaflex-X 16 movement. (BELOW LEFT) The entirely new Panavision Reflex underwater housing for the Pan-Arri camera, which features a large reflex viewfinder system that provides easy viewing for a diver wearing a face mask. (CENTER) The underwater housing that accommodates the 400-foot magazine. (RIGHT) The underwater housing version that accommodates the 1000-foot magazine.



FILMING "ZULU DAWN"
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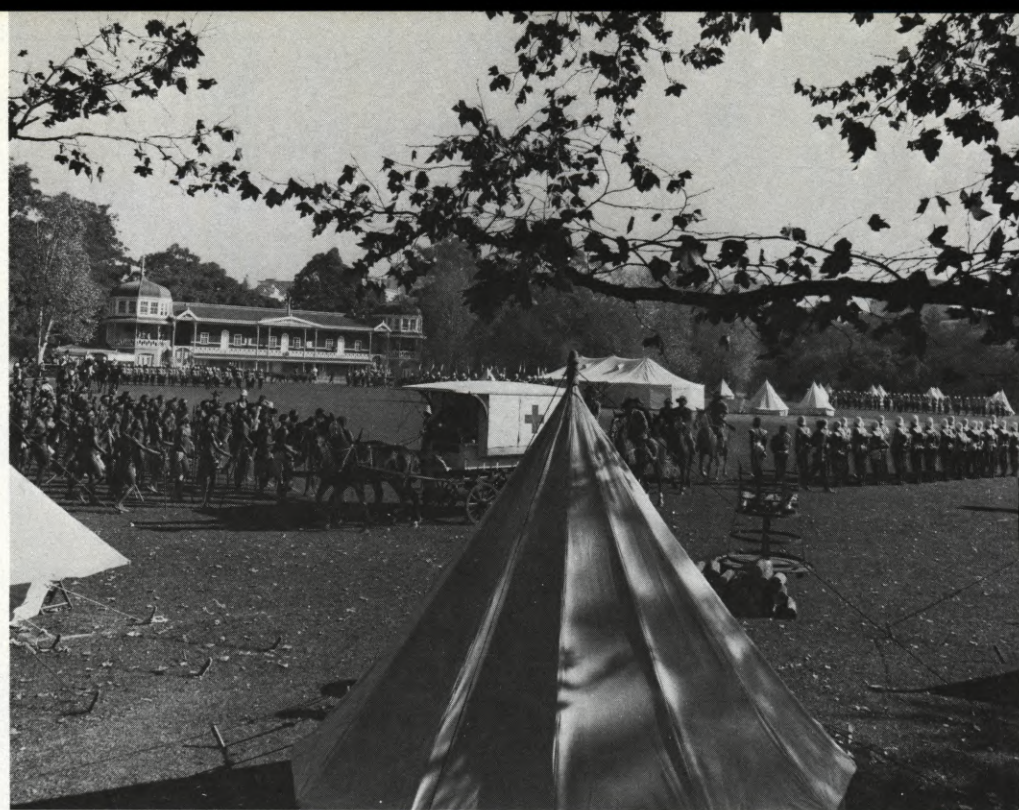
in the evening. So I'm able to foresee shots and plan shots. For example, the shot of the house we did this evening—I was able to see that shot two days ago, and see that the light would be right at that time, so we saved the shot for that time. It's an advantage English and many European directors never get.

Ousama Rawi, Director of Photography on ZULU DAWN, is no stranger to South Africa, having filmed GOLD there several years ago (see *American Cinematographer*, January 1975). He had worked with Douglas Hickox on BRANNIGAN and SKY RIDERS and was most recently Director of Photography on THE GIRL IN BLUE VELVET (a French film) and POWER PLAY (a Canadian film). His other feature credits include: PULP, THE BLACK WINDMILL, RACHEL'S MAN and ALFIE DARLING.

Tiiu Lukk's interview with Rawi on the South African location of ZULU DAWN ran as follows:

TIIU LUKK: What are some of the unusual problems you've faced filming here in South Africa?

OUSAMA RAWI: The problems are the same ones you face when filming in any sunny climate. Very intense sunlight is the biggest problem. In South Africa, except in winter, you have the added problem of the weather being absolutely crisp and clear most days, with no dust particles at all in the air. As you can see, the sky is intensely blue today, which means that the shadow areas are absolutely pitch black. You really have to use a lot of fill light and watch out for those eyes. On this particular film, there's an added problem, because most of the time these soldiers are wearing either



helmets or some other kind of hat which shadows half their faces.

QUESTION: How do you compensate for this?

RAWI: With a mixture of white reflector boards—occasionally scrimming the sunlight where I can—and fill light. Except for one night sequence when I used Brutes, I'm using HMI lighting exclusively on this movie.

QUESTION: Why did you decide on HMI lights?

RAWI: Because of their weight. Today we're filming a garden party, so you're seeing us in the most comfortable situation we'll probably have with this movie. The rest of the time we're in very rough

terrain, going up hills and down dongas, and over rocks and boulders. Frankly, it wouldn't be feasible or economical to carry a Brute up a slope, then try to find level ground to position it. You'd need three men per Brute, not to mention the generating power necessary for four Brutes. So I went for the HMI lighting. It's much quicker and much lighter weight. One man can handle a lamp quite easily, and the power from the 4K HMI's I have here is so intense anyway, that it's the equivalent of a Brute. Of course it hasn't got the spread of a Brute, but I don't think there is, or ever will be, a lamp that will have the spread or the angle of a Brute. However, if you look at it in a restricted way, the 4K HMI is just as bright.

QUESTION: What filters do you use to compensate when you're shooting tent interiors?

RAWI: The color of the tent on a sunny day affects the color of the people's faces, so I have to compensate any fill light I may have on them from the HMI's to make the HMI light the same color as the glow they're getting from the tent. Otherwise you're going to know there are two kinds of colored light on their faces, one from the tent material and one from the HMI light. I used a mixture of filters to compensate. For instance, late afternoons the sun goes very warm and I have to start putting orange gelatines on the HMI. The orange gelatine gets heavier and heavier as the sun gets redder and redder. Otherwise you're going to know that there's a different colored fill light on



their faces. I've got to keep matching that sunlight.

QUESTION: Do you anticipate any problems filming the scenes with thousands of Zulu extras?

RAWI: During the battle scenes, we'll have five Panavision anamorphic cameras rolling. The subject has to be shot in anamorphic because the African landscape just stretches that way. It doesn't go up; you don't have skyscrapers, so the Band-aid shape suits the African terrain beautifully. The man on the horse is also a horizontal image, not a vertical image.

QUESTION: Have you had any problems getting the equipment you need in South Africa?

RAWI: Basically all the equipment, like cameras and lenses, have come from Samuelson's in London or from Panavision in Hollywood. We have a camera maintenance man who is always with us, and we're only 24 hours from getting a replacement, should we need one.

QUESTION: How did you plan the visual look of this film?

RAWI: The Director, Doug Hickox, and I discussed it at length, saw a lot of films, including the original ZULU. I'm normally a soft light merchant. However, we are in the middle of Africa, the sun shines, and it's an exterior picture. The battle is not supposed to be a beautiful, romantic scene, so I've had to control that side of my instincts. We decided that the beginning of the picture, the garden party in front of the British High Commissioner's residence in Pietermaritzburg, and the pre-battle scenes will be soft, gentle and pretty throughout. Then we'll progressively make it less soft, more towards the hard look, so that by the time the battle actually commences, it is ugly—but I hope not bad.

QUESTION: Technically, how will you achieve this transition?

RAWI: By progressing from soft light and diffusion at the beginning, to hard light and much less diffusion later on. But as any cameraman will tell you, occasionally you have to bend your rules or what you're planning to do. For example, one scene, shot with the sun behind the camera and the subject lit flatly, will need a different kind of diffusion than the same scene shot with the sun behind the subject, aimed towards the camera, to make it look the same. For instance, a

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BRITISH ENTRY WINS UNIATEC FILM TECHNOLOGY GRAND PRIX

At its most recent Conference, the prestigious UNIATEC society evaluates film technology world-wide and gives its top award to the creator of mechanical magic for an entertaining James Bond feature

By DAVID W. SAMUELSON

The use of mechanical models and miniatures for special effects in the film *THE SPY WHO LOVED ME* took the premier award of the Film Technology Competition which is a part of the biennial meeting of UNIATEC (the International Union of Cinema Technical Associations).

At the most recent UNIATEC Conference, held in Paris, the award went to Derek Meddings who was responsible for providing all the sophisticated working models and miniatures which ranged from 6" models to 3/4-scale nuclear submarines, used in the latest James Bond film.

Prix d'Excellence went to the United

States for the special effects used in the production of *BATTLESTAR GALACTICA* and to Czechoslovakia for the special filming techniques used in the film *THE SUN*.

Prix d'Honneur went to USA (Airport '77), Finland (TUBANGI), France (L'ANIMAL), Italy (ALLEGRO MA NON TROPPO), USSR (BENEATH THE ARCTIC and THE GYPSY CAMP BENEATH THE SKY).

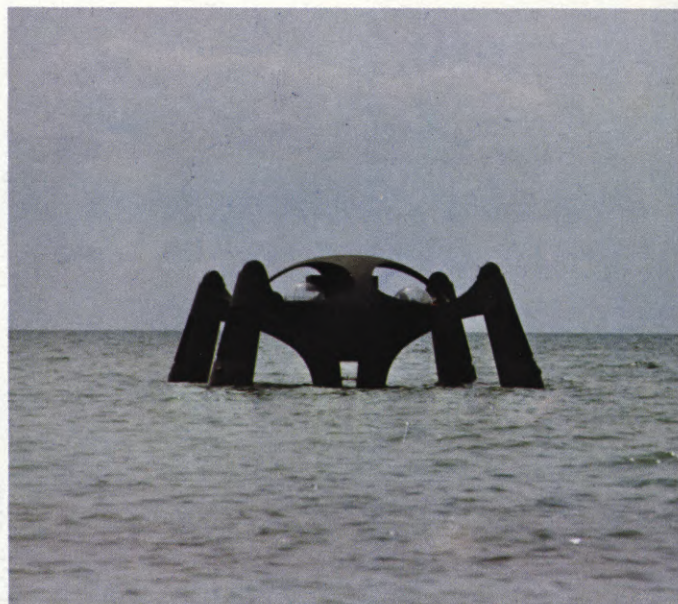
In all, 26 films were entered in the competition from 12 different countries. Every country taking part was permitted to enter up to three films, each not more than 10 minutes in length.

The excerpts from *THE SPY WHO*

LOVED ME included the mechanically and rocket-propelled motorcycle sidecar, the range of six Lotus cars used in the underwater sequence (each one performing a different function), the 63-foot model tanker which swallowed a 20-foot model submarine and the three 3/4-scale submarines "inside" the tanker (see separate descriptive listing of all the sequences).

The United States entry of an excerpt from *BATTLESTAR GALACTICA* was a "state of the art" special effects sequence shot with the aid of the Dykstraflex and used many special optical printer techniques.

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(LEFT) Special effects expert Derek Meddings on location during the filming of spectacular action for "THE SPY WHO LOVED ME". In the background can be seen three-quarter-size model of a nuclear submarine used in the exciting James Bond film. (RIGHT) The *ATLANTIS*, spider-like underwater lair of the film's villain, which is anchored to the sea bottom and can be raised or lowered hydraulically. Due to rising and falling tides, this model had to be moved constantly in order to be at the correct operating depth. (BELOW LEFT) The supertanker miniature (which supposedly swallows up nuclear submarines at sea) was 63 feet long and built with twin hulls, like a catamaran. (RIGHT) During the action-packed climax of the 007 epic, fierce explosions and fires devastate the deck of the supertanker model.



CREATING MECHANICAL MODELS AND MINIATURES FOR "THE SPY WHO LOVED ME"

A giant submarine-swallowing supertanker, a rocketing motorcycle sidecar, an automobile that converts to a miniature submarine—all taken in stride by this creator of magic for the James Bond films

By DEREK MEDDINGS

(EDITOR'S NOTE: The author, winner of the UNIATEC Grand Prix for his use of mechanical models and miniatures in the special effects of the latest James Bond film, THE SPY WHO LOVED ME, has been working at his speciality for the past 25 years. His artistry is currently being displayed world-wide in SUPERMAN, and he is hard at work on the spectacular effects for the upcoming new James Bond film, MOONRAKER.)

When we, as special effects technicians, receive a script we read it and then panic, because straightaway we know that we have got terrible problems and that they will be expecting us to come up with all sorts of miracles.

On THE SPY WHO LOVED ME, the main problems that we had involved dealing with situations that included water and an oil tanker. As every special effects man knows, as soon as you get a shot that involves water you are in trouble, because no matter what you do, you can never scale the water to the ship. If you were going to build the craft full-size you would be all right, but you know you can't afford that, so you have to work it out in such a way that eventually you will be able to convince audiences that they are looking at a full-size vessel.

For this picture, we were asked to go and see the Shell people, because from the start the Director, Lewis Gilbert, wanted to use a real supertanker. We said that we would build it as a miniature, but Lewis was a little doubtful as to whether it would look convincing enough.

We went to a meeting with the representatives of the Shell Company. I sat there very quietly because I knew that I was going to have to explain what we wanted to do with their tanker. They were talking about a tanker that was now in a French port and was de-gassed and had been cleaned out, with the possibility that we would be able to use it. So I thought, "That gets us out of a problem. We will use the full-size tanker." Then they said, "What would you like to do with it?" I said, "We need to see it at sea several times and eventually we will want to do explosions on the deck."

Everything went very quiet. They thanked us very much for coming and talking to them and we didn't hear any more. They seemed to lose interest all of a sudden. Also, of course, there was the fact that we would have to insure the

tanker while we were using it. When we heard what the figure for the insurance would be, that certainly put a real tanker out of the picture altogether. So, it was decided that we would build a miniature at Pinewood Studios (England).

The way we had to approach the problem was complicated by the fact that we had to have three submarines being gobbled up by the tanker. We knew that the submarines would be difficult, because nuclear submarines are huge black tubes with very little detail, unlike the conventional submarines with bits and pieces sticking out all over them. This meant they would have to be built to a good scale to look believable. So I worked out what I thought would be a good size for a submarine and then scaled the tanker to the submarines. The tanker you see in the picture turned out to be 63 feet in length.

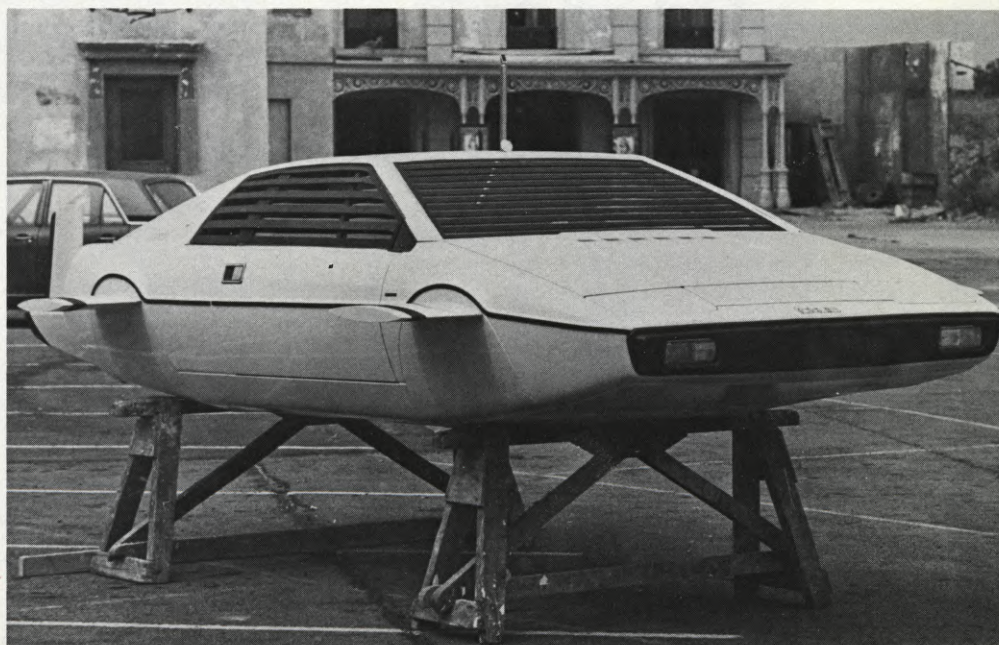
We had to build the tanker so that the bows would open and a submarine would be taken inside by the tanker driving over it. We did this by building only the last ten or fifteen feet of the tanker as a boat; the rest was like a catamaran. If you looked underneath you would find that it was bottomless, so that when we opened the doors hydraulically, the tanker could drive over the submarines without any restriction whatsoever.

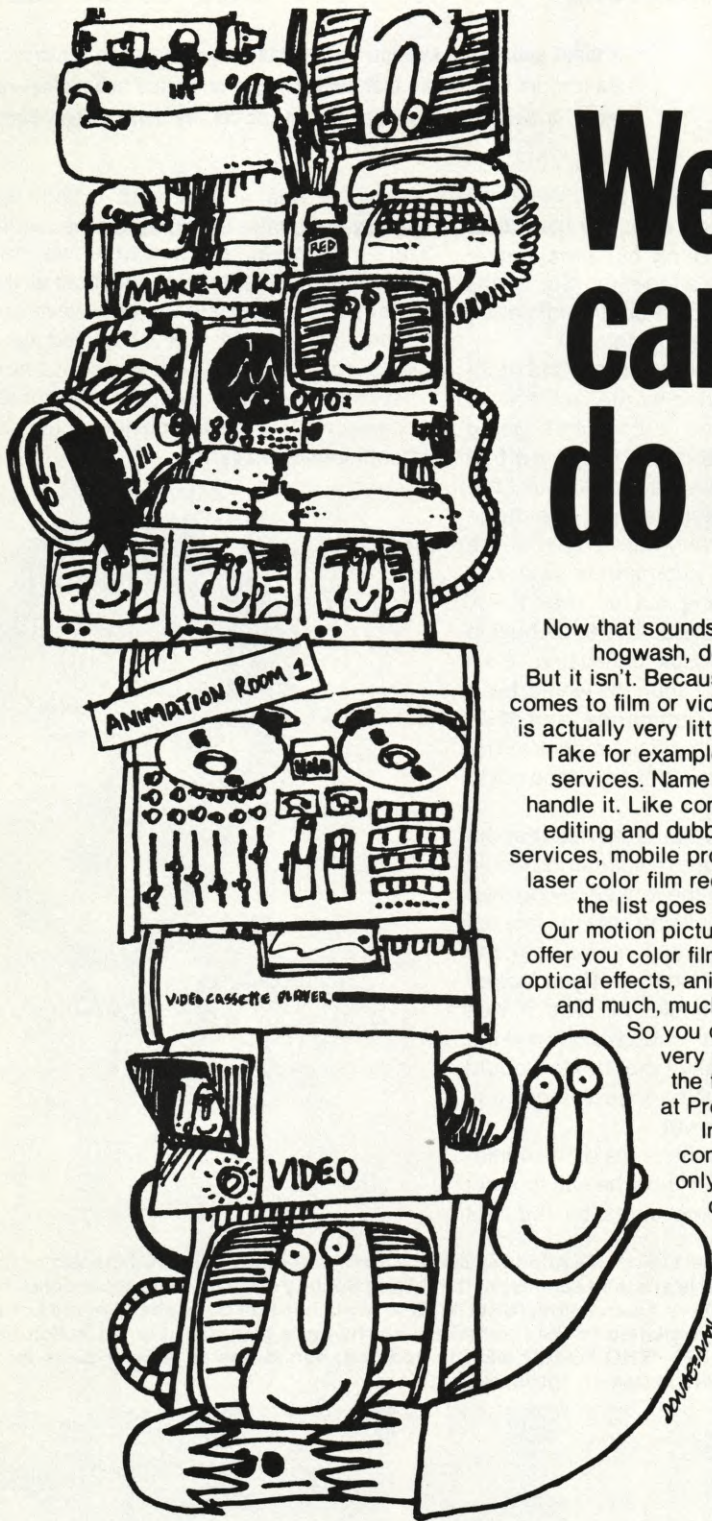
Until Lewis saw the shots of the miniature tanker at sea, I know he still thought we should do some shots on the real

tanker at sea and intercut it with the miniature to take the curse off the miniature. However, by the time we had finished the model tanker and built all the things into it to create the bow wave and water disturbance that is caused by a vessel of that size at sea, and shot it from several different angles, he was totally convinced, and throughout the whole picture. **Continued on Page 193**



Special effects expert Derek Meddings (ABOVE RIGHT) originally delivered the text of the accompanying article at a joint seminar of the British Society of Cinematographers and the British Film Producers Association. (BELOW) One of six full-size body shells of the Lotus Esprit automobile furnished to the filmmakers by the car's manufacturer for action sequences in "THE SPY WHO LOVED ME". In addition, miniatures of various sizes were employed to film the extremely intricate sequence.





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The Czechoslovakian entry, *THE SUN*, was quite remarkable and included sequences shot by laser light and of the periphery of the sun photographed at the time of a full eclipse.

Other films worth mentioning were the East German entry *SPORT SHOW* which documented all the preliminaries of a major athletic event in stop motion done on an optical printer, the Canadian entry, which showed how very inferior film can be transferred from Super-8 to 16mm via a video process with remarkable improvement in image quality, and the Finnish entry, *TUBANGI*, which showed a cigarette in limbo smoking by itself as it puffed away to the accompaniment of coughs and wheezes. It demonstrated how a simple piece of cinema magic can have immense impact—in this case, for an anti-smoking campaign.

The French entry, *L'ANIMAL*, was a combined animation and live action main title sequence. It was interesting to note that the Director of Photography of that film was Claude Renoir, who also photographed *THE SPY WHO LOVED ME*—marking probably the first time the work of one cinematographer has been entered by two countries in the same UNIATEC Technical Film Competition.

Hungary entered a very amusing optical test film designed to help and encourage cinema projectionists to improve the quality of sound reproduction in cinemas. By using a "show business" style of presentation in place of the usual dull test film, it is hoped, presumably, that projectionists will relate to the message and assure that their equipment is properly adjusted.

The Italian entry *ALLEGRO MA NON TROPPO* which won a *Prix d'Honneur* was a mixture of animation and live action and won high acclaim from many judges.

As before in UNIATEC Film Technique Competition, the Rumanians demonstrated their prowess with the optical printer to take a single dance sequence and by multiple printing, and printing the colour separations "out of sync", produce a beautiful image which is a ballet in itself.

The Polish entry, also called *THE SUN*, was an animated sequence where each frame of film had been separately printed by hard stamping. The result was very graphic and illustrated a means of producing images without recourse to photography or a camera.

One of the USSR entries, *GYPSY CAMP BENEATH THE SKY*, was photographed and shown on 70mm film and necessitated the jury having a special

viewing session in the cinema in the Champs Elysees. The comfort of the cinema, especially the seating, was even more overwhelming than the film, underscoring a fact which has been long appreciated in France—namely, that if you want to get paying customers into the cinema, then the presentation must be perfect and the seats and ambience more comfortable than the homes they left.

I doubt if there are cinemas anywhere in the world which can compare with France for good projection, comfortable seating and a welcoming ambience.

The awards for Technical Film Literature were won by David Samuelson for his book *MOTION PICTURE CAMERA AND LIGHTING EQUIPMENT* published by Focal Press and the French magazine *LE TECHNICIEN DU FILM*. ■

THE SPY WHO LOVED ME

(Descriptions of the Special Effects for which Derek Meddings was responsible, involving mechanical models and miniatures.)

ACTION

This sequence begins with James Bond and Anya in the Lotus Esprit being followed by a motorcycle. The motorcycle fires a sidecar which pursues the Lotus, misses it and explodes into a lorry carrying a load of mattresses.

DESCRIPTION

This involved the design and construction of a full size mechanical model of a motorcycle with sidecar. The sidecar was driven by a separate combustion engine guided by a stuntman hidden inside, lying on his stomach. As the sidecar was released, the motorcyclist fired rockets which gave the sidecar an extra boost to accelerate from the motorcycle.

ACTION

Sequence continues at the end of the helicopter chase, which was cut in the interests of time. A helicopter forces the Lotus, carrying Bond and Anya, down a narrow road and onto a jetty projecting into the sea. The Lotus leaves the jetty and splashes into the sea where it converts into a submarine.

DESCRIPTION

A mechanical model of the Lotus was fired by a compressed air ram along the jetty. Underwater, a four-foot model of the Lotus and several full-size mechanical models were used to simulate the sinking of the car and the conversion into

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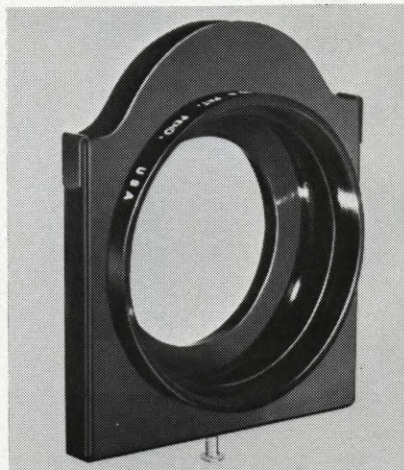
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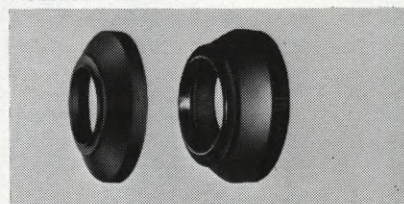
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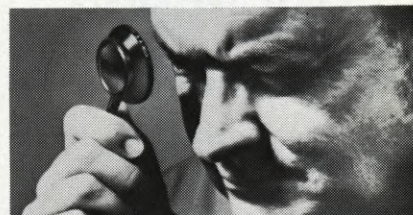


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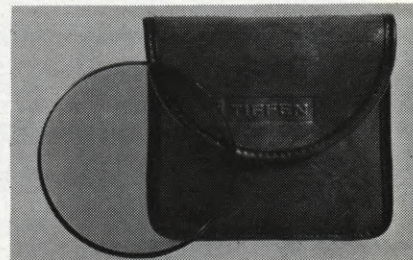
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a submarine including the retraction of the wheels, the projection of fins and the emergence of a periscope. All the underwater shots in this sequence were shot in the open sea with underwater cameras. No use was made of a tank or of dry shooting through underwater ports. In all, six full size Lotus car bodies were used, each specially designed for specific purposes in this sequence, in addition to several miniaturised models of the underwater car, ranging from four feet to six inches.

ACTION

Bond fires a small guided missile from the rear of the Lotus which explodes the helicopter hovering above.

DESCRIPTION

This portion of the sequence involved the use of full-size mechanical models of the Lotus and rocket, plus cuts of a full-size helicopter and an identical five-foot radio-controlled model which was blown up.

ACTION

Next, Bond and Anya travel underwater in the Lotus.

DESCRIPTION

This vehicle was a full-size Lotus car body specifically designed and adapted for underwater travel. The vehicle was propelled by four battery-operated motors and guided by an operator sitting in the passenger compartment. Actual performance of the vehicle (top speed approx. ten knots, and the ability to turn on its own radius) exceeded the performance of existing commercial underwater vehicles.

ACTION

Underwater, the Lotus approaches the submerged Atlantis and hovers near the control room and exits from the vicinity.

DESCRIPTION

This part of the sequence involved the use of several different sized models of the Lotus, as well as shots of the full-size mechanical self-propelled Lotus. Parts of the background were miniaturised models of coral reefs and several different scale models of Atlantis and portions thereof. The control room shot was a painted matte with action projected on it.

ACTION

After the Lotus exits from the vicinity of Atlantis, frogmen on underwater scooters emerge from a full-size section of Atlantis and, together with a

Stromberg submarine, give chase. A fight ensues involving underwater rockets fired by the scooters, the Lotus, and the Stromberg submarine.

DESCRIPTION

All the devices used were full-size mechanical models specifically designed for the film, with the exception of the Stromberg submarine. The Stromberg submarine was an existing mini-submarine commercially available and specially modified with underwater weapons for the film. The rockets, the ink and the mines were all worked from inside the Lotus by operators.

ACTION

Following the fight, the Lotus, partially damaged, makes for land surfacing at a popular tourist beach in Sardinia and drives away.

DESCRIPTION

This sequence involved the use of specifically designed full-size underwater self-propelled Lotus. A full-size model was towed out of the water on to the beach by a hidden mechanical track. The full-size Lotus automobile was driven from the beach.

ACTION

This sequence begins with an American submarine approaching the tanker "Liparus".

DESCRIPTION

All shots of the "Liparus" in the film involve the use of a 63-foot model of the tanker, driven by an internal combustion engine and operated by a crew of three. The shots of the American submarine, both underwater and on the surface, are of a 20-foot model.

ACTION

After the American submarine is forced to the surface, it is swallowed by the "Liparus".

DESCRIPTION

The exteriors are model shots, in the interior, a three-quarter-size mechanical model was towed into a live set where it docked.

ACTION

Later in the sequence the two other submarines captured by the "Liparus", now called Stromberg submarines 1 and 2, leave the tanker.

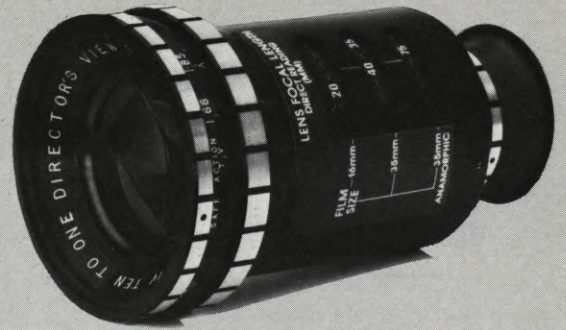
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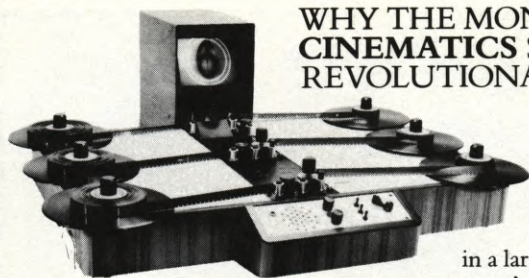
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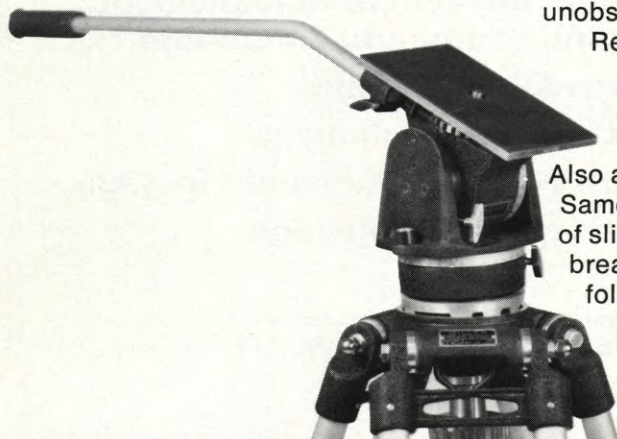
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tracks. The exterior shot of the 20-foot model and the tanker model is in the open sea.

ACTION

After a full-scale battle which takes place inside the "Liparus" (this portion of the sequence has been cut out in the interests of time), Bond and the American sailors manage to enter the control room and reprogramme the Stromberg submarines to destroy each other.

DESCRIPTION

The underwater shots of the missiles being propelled from their tubes and then surfacing and speeding towards their targets involved the use of a model section of the submarines and seven-foot model missiles fired by compressed air (as they are launched in actuality by the Polaris submarines). A chemical propellant fires as the missiles break surface (again, similar to the way the missiles are actually propelled from the Polaris submarines).

ACTION

Following the successful elimination of the Stromberg submarines, Bond and the Americans assemble aboard the American submarine. They blast open the doors of the sinking tanker and escape.

DESCRIPTION

This portion of the sequence involved the mechanical submarine moving in the real set. Underwater shots are of a model of the portion of the submarine's torpedo compartments and the firing of a model torpedo. The sequence ends with cross-cutting between the three-quarter-size mechanical submarine moving in the live set and a model of the live set measuring 20' x 8' x 5'. The interior collapse of the overhead gantries was shot on the model set. The exterior portions of the sequence were filmed using a 63-foot model tanker and a 20-foot model submarine at sea. The explosions and sinking of the "Liparus", including the underwater portions thereof, involved the use of the model tanker.

ACTION

The next sequence begins after the death of Stromberg, when Bond meets Jaws in Atlantis. Following a fight, they enter the shark tank, where Jaws is picked up by an electro-magnet and dropped into the tank by Bond.

DESCRIPTION

The fight between Jaws and the shark involved the use of a mechanical shark

on the surface shots and live sharks in the underwater shots.

ACTION

Torpedos are launched from the American submarine towards Atlantis. Atlantis explodes and sinks.

DESCRIPTION

This portion of the sequence involved the use of the complete Atlantis model and sections thereof in various scales.

ACTION

Bond and Anya manage to make their way to an escape chamber and float to the surface.

DESCRIPTION

This sequence involved the use of a model escape chamber in various scales from a few inches to seven feet (approx. half actual size), underwater and breaking the surface. A full-size model was used for the long shots with the recovery vessel. ■

MECHANICAL MINIATURES

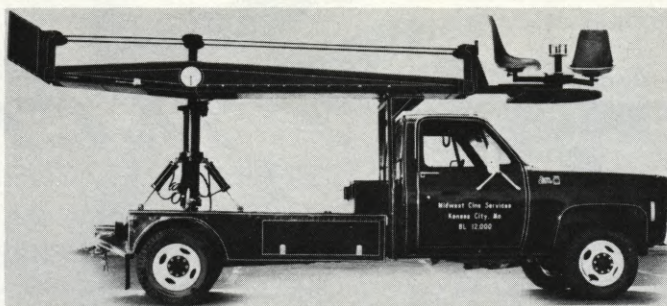
Continued from Page 187

ture only the miniature was used.

The tanker had a crew of three and was a very maneuverable boat. In the final part of the picture the tanker is set afire by explosions going off along the full length of it and finally it sinks. Before actually blowing it up and sinking it, we stripped it of its very expensive Evinrude outboard engine and various pumps in the flotation chambers along the sides of the front part of the tanker. This was done because we discovered, after our first sea trial, that it had a tendency to nose dive because of the high speed it had to attain. Otherwise, it gave the impression of hardly moving when filmed at high speed. The flotation chambers would then be flooded to assist sinking the tanker.

These chambers had given us a lot of trouble even though the front part was empty. There was still not a lot of space because of the room needed for the submarines to enter, so the chambers were long and narrow with open tops for quick filling. Even when filled we found that it would only sink to the level of the deck, so Peter Lamont (the Art Director) started to make cement blocks with rings set into them so I could hang them inside this bottomless boat. As always, when filming this type of sequence, some things work for you and others don't. You build a boat to float and to sink; it wants to sink when it should float, and float when the darn thing should sink! When I approached the boatbuilding yards about this, they said, "We don't know anything

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Although most things had been worked out, you could sink the tanker only once. Even though I did have a scheme for getting it to the surface and filming it again if it wasn't right the first time, thank the Lord we didn't have to do it.

When we came to the car situations, again we intended to do this with models, but as the picture progressed and we got involved with the people who make Lotus cars, they were so helpful that we thought it was quite possible that we could use one of their full-size cars in the water. Altogether Lotus provided us with six body shells of their latest *Esprit* car, which had to do varying things. The wheels had to retract inside the car and the wheel arches fold over to convert it from a car into a very smooth looking submersible. We started off by thinking we could fit most things into maybe two cars, but we had so many things happening with the wheels and the fins—firing rockets out through the back windshield and firing missiles from the front of the car—that we found it was easier to have several vehicles and use them to build in the requirements that we needed—plus one that was totally submersible traveling underwater.

The design of the screens on the car was very cunningly done because Ken Adam, the Production Designer, and I decided that if we actually blotted out the windshield and the side windows with louvers we wouldn't have to show who was sitting inside. We knew that eventually we were going to have to have divers inside driving it.

When it started out, they tried to use re-breathers because we didn't want bubbles coming up from the car, but this became a little difficult because there are certain dangers in using re-breathing outfits. After our first few days of rushes, we realized that it looked better to have some bubbles coming from various parts of the car. It just seemed to enhance the shots, so the divers were told to forget their re-breathing apparatus and we would use normal diving equipment which made it a lot easier for them. In spite of the full size Lotus cars, we still had to use miniature one-quarter-scale cars for certain shots in the picture. The first time you see the car underwater it is the miniature.

All the shots you've seen were shot at sea in the Bahamas and this presented us with problems because we were working in shark-infested waters. If you're a coward it's the usual thing, when you go anywhere, to enquire into the sort of things that swim around in the water. They said, "You know, we've got a lot of

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sharks, but you don't see them often." I thought, "Yes, we've heard that before somewhere. Just wait until we get the camera out and get into the sea; they'll arrive in schools." As it happened, we saw only two. One was a nurse shark and the other a 12-foot hammerhead which we hooked on a line at seven one morning. I thought of lots of good reasons for not going in the water that day.

The sequence in which the helicopter chases Bond off the jetty in his Lotus car was shot in Sardinia, Italy, in sunny weather, so it was decided to film all of the miniatures in the Bahamas in order to match that weather.

The helicopters were large radio-controlled models which had to explode and crash into the sea. One of them Bond shoots down with a missile fired from underwater after it has chased him into the water. The director asked me if we could get a shot of the helicopter from underwater, with the camera looking up and seeing the shape of the helicopter hovering just above the water.

We were shooting the Lotus car underwater sequence when I got the message that the surface was just right for that shot, so we thought we would try to get a test shot to see how it looked. We hung the helicopter on a cable from the crane and suspended it just above the surface. From the moment we hung the thing on the crane the weather changed from calm to windy and a choppy sea. Lamar Boren (cameraman) and I went down, but had terrible difficulty seeing the helicopter through the water because we were being washed around by sea swells. Every so often I would spot it and Lamar wouldn't. It was very difficult looking through the viewfinder in rough conditions. I would give Lamar a prod and point up. Lamar would stick the camera upwards and shoot. When we surfaced we knew it was useless unless the conditions were perfect. Anyway, we had it printed as a test. It went into the picture. The fleeting glances you got of the helicopter were just what the director wanted.

We had a large crew from Pinewood—riggers, carpenters and plasterers—working fifty feet down, despite the fact that most of them had never dived in their lives. The deepest that any of the crew had ever been down was twenty feet! They had to rig up tracks on the seabed. We had to build dollies that could track into the various models including a four-foot model of the Lotus car for the sequence where it went in between two rocks and when it approached Atlantis. Atlantis was that monster you saw standing like a big spider which Bond and Anya found.

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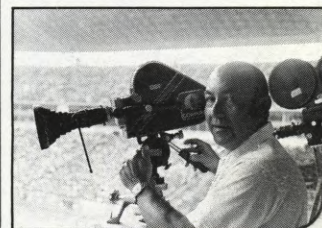
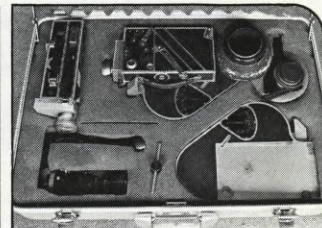
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To build this full-size would have been an enormous undertaking, so we used a large miniature, which meant that we had to scale the car down to quarter-size and still have it maneuverable to use when it approached Atlantis.

We had to have the model of Atlantis coming out of the sea slowly. In order to do this, we built a hydraulically-operated rig which we could put about twenty feet down and then operate it to bring it up out of the water. We ended up with problems. For example, by the time we got it set up in the right depth of water, the tide would turn, the sea level would drop and then we would have to rearrange the rig and tow it a little farther out. It was very important that it came out of the water at the right height and towered above you, in order to give the impression of size.

I think the model shots in THE SPY WHO LOVED ME were an achievement because producers and directors always have this thing about miniatures in their mind. They remember the worst model shots they have ever seen and somehow cannot get it out of their minds that the same thing is going to happen to their picture and that they are going to end up with a good picture and terrible miniature shots.

We are currently in a period when pictures are becoming more ambitious and people are dreaming up all sorts of shots where there will be no possible way to get the desired effects other than through the use of miniatures. If you are going to do something like a James Bond film, for example, it's certain that you are going to be involved in miniature shots somewhere along the line. ■

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Arrangements as to availability and other details are to be made directly with the individual A.S.C. member. For further information, contact: American Society of Cinematographers, P.O. Box 2230, Hollywood, California 90028. Telephone: (213) 876-5080.

**PANAVISION UNVEILS 18
NEW ITEMS OF EQUIPMENT**
Continued from Page 182

low profile streamlined electronic unit/ battery case, shaped so that it does not act as an airfoil when using the Panaglide mounted on a fast moving platform or in windy conditions. The TV viewfinder monitor of the Panaglide is very, very much brighter than before and displays a picture even when the sun is falling directly onto the face of the monitor.

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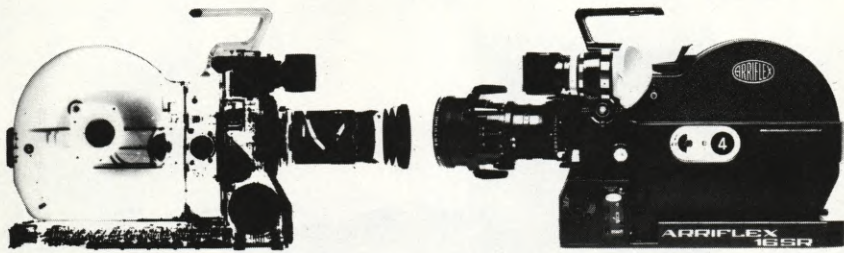
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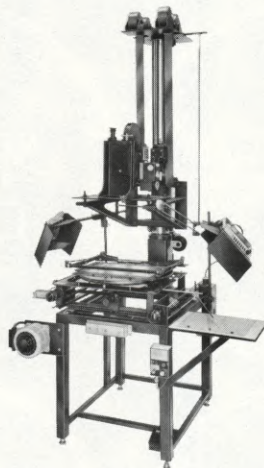
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FILMING 14 TV MONITORS WITHOUT SHUTTER BAR Continued from Page 155

The control room scene was an actual control room of CFTM in Montreal, Canada. I had to replace all of the black and white monitors in that control room with color monitors. All of the monitors had to be color balanced for the same color temperature and I adjusted them for 100 footcandle maximum white output. It was decided that we would photograph the monitors adjusted for 5600°K and all lighting would be quartz boosted to 5400°K. This would allow a natural control room feeling.

Prior to the shoot day, I checked my specially designed shutter on the modified BNCR.

To photograph a television picture, one must realize that a television picture is scanned continuously from left to right, top to bottom. One frame occurs every 1/29.97 of a second, or 33.366 milliseconds. Each line is scanned in 1/15734 of a second, or 63.5 microseconds. There is no pull-down of the television picture like in film. The retrace, the time it takes the electron beam to go from the lower right corner of the screen to the upper left corner of the screen, is typically less than 1 millisecond.

If it were possible to have a motion picture camera photograph an entire television frame, it would have to have a shutter opening of approximately 288° and a shutter closure of 72°. This would allow an exposure of 1/30 of a second. The cameras that are used today have a shutter opening of 280° or less, typically 180°, or 1/50 of a second. This means that one cannot photograph in real time an entire television frame. We have to make a compromise and settle on one field of the television frame (remember that a television frame contains two fields; field 1 contains the odd-numbered lines, field 2 the even-numbered lines).

In order to photograph one field, it would be easy if we had a shutter that instantaneously opened, exposed the film for exactly 16.683 milliseconds and then instantaneously closed. But in reality we have a shutter that slowly opens, makes the exposure and slowly closes. The opening and closing typically takes more than 1.25 milliseconds. During this slow opening and closing, upwards of 15 or more television lines are scanned.

If we could place this slow opening and closing during retrace of the television picture, we would have no problem. But since the motion picture camera is running at 23.976 frames per second and the television is running at 29.97 frames per second and we are photographing a field of information in 16.683 milliseconds,

there is a shutter closure time to allow for film pull-down and registration of 25.025 milliseconds. During this shutter closure time, 1-1/2 fields are scanned by the television monitor. This means that the shutter opening is now occurring when the television is scanning the middle of the television picture.

If the fade-in by the shutter and fade-out are not precisely correct, there will be an exposure difference between the latter part of one field and the first part of the next field.

In the conversion from 29.97 to 23.976, we find that every other frame has to have a perfect lap dissolve of one television field to the other. If the shutter opening is too wide by a very small amount, the lap dissolve will be overexposed, causing a white flicker to appear at a repetition rate of 12 times per second. Likewise, if the shutter opening is too narrow by a very small amount, the lap dissolve will be underexposed, causing a dark flicker to appear at a repetition rate of 12 times per second.

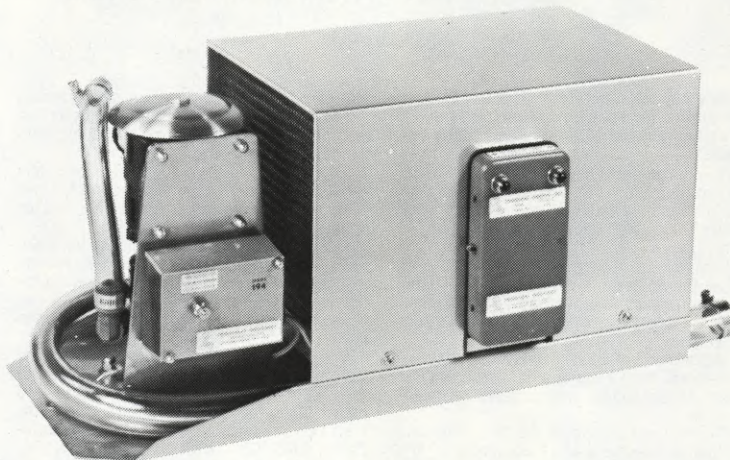
A camera with a variable shutter is made up of two halves: an opening shutter and a variable closing shutter. The two are mechanically coupled together and, in actual running, the closing shutter jitters relative to the opening shutter by whatever amount of slop is in the mechanical linkage. If this were used to photograph the monitors and if it were possible to set the shutter exactly for an exposure of 1/59.94 of a second, the resultant film would end up with alternately black and white flicker, depending on where the closing shutter happened to be during that revolution.

To eliminate this problem, a shutter had to be machined, taking into consideration the transmission factor of the lenses, the culmination of the light by the lenses and the position of the shutter relative to the nodal point of the lens and the film plane and the reciprocity of the film stock. This machined shutter gives us an actual exposure of 1/59.94 of a second. This is equivalent to a 144° shutter, but in actuality is not 144°. A way of checking the machining of these shutters to an accuracy of better than 10 minutes of arc was developed.

Prior to the shoot, all of the video tapes had to be edited, color corrected and cued and a way of starting all of the machines simultaneously was rigged. To color correct the footage shot with the portable camera, it was necessary to play the tape through a digital time base corrector and a color corrector and re-record the output onto fresh tape. The split screens that were called for had to be electronically produced through a video switcher.

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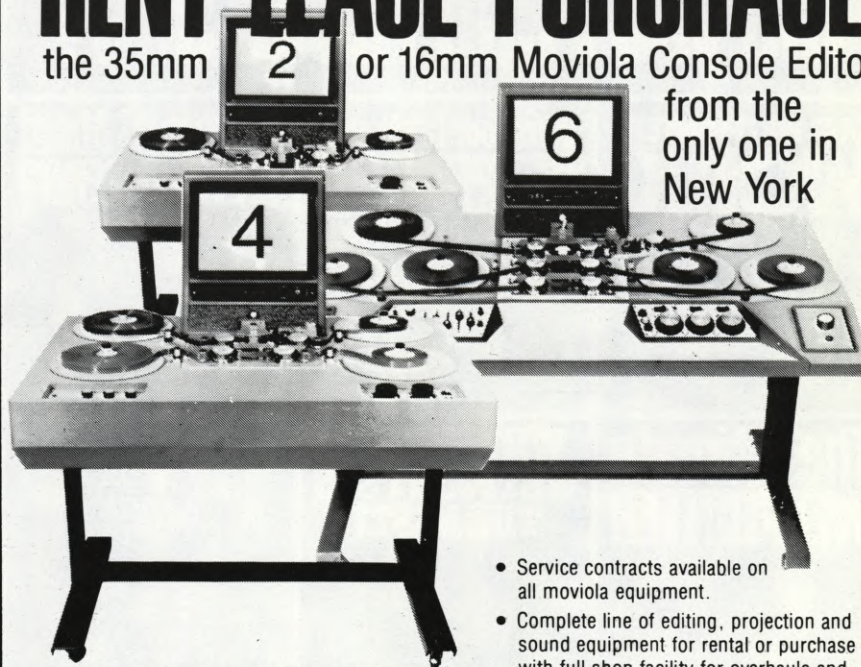


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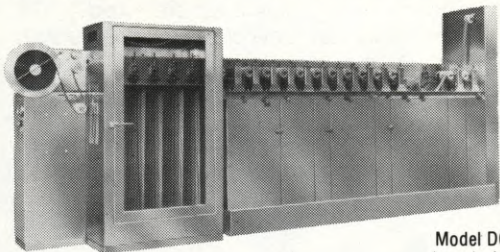
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The BNCR, the television cameras, the video tape machines (both 2" and 3/4") and a stroboscope were all synchronized from CFTM's master sync generator. The BNCR was initially phased to the television picture by the use of the stroboscope. The filming was continuously monitored by an oscilloscope showing the phase of the BNCR shutter to the video picture. Since the camera is running at 23.976, I sent a sync pulse to the sound man so that the sound track would be in perfect sync. Upon rolling the camera, I would speed up the BNCR to catch up with the video and, when in phase, would electronically lock them together. This took just a few seconds.

It had been suggested by the film crew to run the video at 24—or 25 frames per second, as in the European format. But since CFTM was on the air and all of its facilities were designed for the NTSC color standard, and all of the tapes from other locations—the film-to-tape transfers, the tape editing equipment, and the monitors—were also designed for the NTSC color standard, it would have been impractical to modify all the necessary television equipment to run at 24 or 25 frames per second.

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As a result, the TV images were clear, stable, with good color quality, with no shutter bar, roll bar, or visible splice line. ■

THE PHOTOGRAPHY OF "LOVE AT FIRST BITE" Continued from Page 165

ROSSON: We used nets. We have 18 different nets. Some are more dense than others, obviously, and we also have some graduated nets. We have certain nets that we have sprayed with a thinned-out lacquer cement that puts miniscule drops across the squares of the net (especially in the corners) and this has helped break up the image and diffuse it where we wanted that effect. In most scenes we have used a combination of nets and low contrast filters. Very seldom have we used glass filters by themselves.

QUESTION: Have you done any post-flashing on this picture?

ROSSON: Yes, we've post-flashed some

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scenes in order to dig into the dark areas a little bit. We've had very little blue in any of the scenes, and that, coupled with the underexposure, has led us to post-flash certain low contrast scenes to grey-down the black areas a little bit. It's helped considerably and given the picture, I think, an interesting look.

QUESTION: Dracula is, by definition, a "sinister" character (all that blood-sucking, don't you know), but you've spoken of "romantic" scenes also. How did you manage to make him look sinister and romantic at the same time?

ROSSON: A "sinister" effect on faces is usually achieved by keeping the key light at a very low angle, but there were some scenes in which we wanted a very, very cosmetic light—even from a low angle. We achieved this by bouncing the light into sheets of Foamcore onto which balls of cotton had been glued. Sometimes we even sprayed the cotton with a different color—amber or green, for example. Bouncing diffused sources into these cotton pads gave us an extremely soft, soft light. This is something we had experimented with before in commercials.

QUESTION: Working back, how did you arrive at the style of photography used in LOVE AT FIRST BITE?

ROSSON: We did a lot of pre-production planning, and during that time I looked at many films, including some of the earlier Dracula efforts. We decided to go for a combination of styles. On the one hand, we would incorporate elements of the Early French Look, which features very softly lit actors, with backgrounds lit a bit harder. Combined with this would be elements of the Gothic Look—with slashing edge lights and eye lights and lashes of light on the backgrounds. Now, of course, the Gothic thing worked only in certain sets, but for most of the Dracula scenes the key light was kept physically at a very low angle and very soft. As the picture progresses and becomes more romantic, the key raises a little bit and the slash light on Dracula's eyes changes somewhat. The slash light on the eyes was used only on the fill side of the face, not the key side. We used hand-held in-kies for the slash light and moved around with him as he moved, so that we could always maintain the light in the same place. Basically, the simplest way to describe the photographic style we used is to say that we used soft lights for the foreground and hard lights for the background—with the latter being kept

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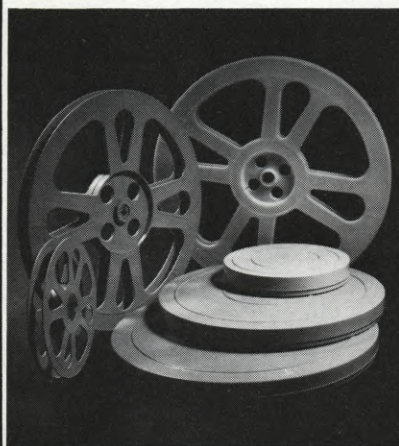
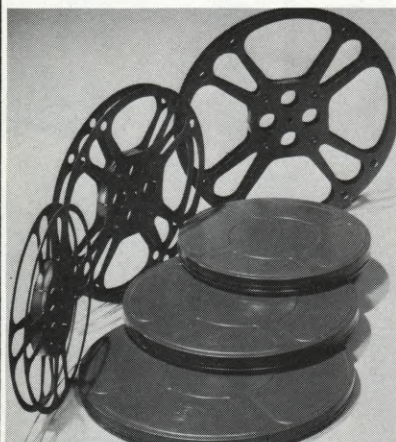
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physically low in order to throw shadows upward, as in Deco lighting.

QUESTION: In order to create a sharply defined slash light for the eyes, it must have been necessary to have some sort of masking device on the light, isn't that so?

ROSSON: Yes, we had a moveable iris on the inkie that could be opened and shut with the left hand very easily, so that as the man was moving with the eye light and holding it in his right hand, he could iris with his left hand. As Dracula got closer to him or farther away, he could iris accordingly. Incidentally, it was a rectangular iris, not a circular iris, and we kind of devised it specially for this show.

QUESTION: Rectangular. Does that mean that it had four leaves that could be moved horizontally and vertically?

ROSSON: No, it had 16 leaves, and even though it was generally rectangular in form there was no sharp outline, because the eye-light, when we irised it down, had sawtoothed edges all the way around. As a result, you never see anything that looks like an actual rectangle. It really worked very nicely.

QUESTION: And you had no trouble maintaining uniform size and intensity of the eye-light as you followed Dracula about?

ROSSON: My gaffer himself was operating the thing. He had it on a gimbal and he could just go anywhere he wanted with it so easily—and he never, never missed Dracula with it. There was so much intensity behind that light that we could have the sawtooth iris open to where it was maybe only a quarter-of-an-inch and there would still be sufficient intensity to the light hitting his eyes. Actually, it was a very simple device to build and operate. It could go from the tiniest slit to an opening of almost two inches. It's proven very successful on the picture and we're all very happy with it.

QUESTION: Do you think the audience will be consciously aware of the fact that Dracula has an eye-light following him around?

ROSSON: I certainly hope not. In this film there are nuances and subtleties that may go over the heads of 99% of the people watching the picture. That's fine. Photography shouldn't take over a picture; it should enhance it. I would feel

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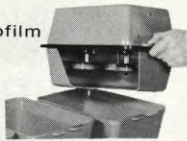
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very hurt if someone came away from seeing this movie and said, "I love the photography. It was so great!" I would feel like a bandit if that happened. All I was trying to do was help the picture make the statement it did make, by means of what I felt was the right kind of photography.

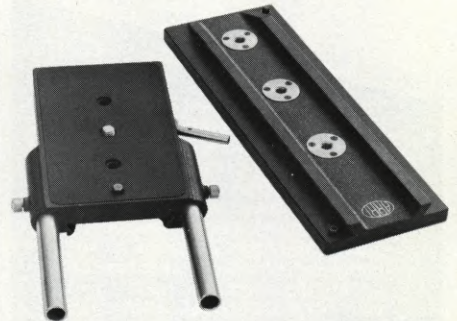
QUESTION: What would you say was your most significant challenge in photographing LOVE AT FIRST BITE?

ROSSON: The fact that we were shooting out of continuity. This is routinely done on most films, of course, but in this case there were very significant differences in the lighting of the principals from sequence to sequence and I had to constantly recall those differences. For example, in the beginning of the picture Dracula is lighted in a rather spooky manner, with the low placement of key lights and all that. Then, when he comes to New York and gets involved with the girl, the lighting on him changes a bit. It's not as spooky as it was before. Finally, when the two of them are full-out in love with each other, there are several romantic sequences in which the lighting becomes very cosmetic, very dreamy and not at all spooky. As we shot out of continuity most of the time, keeping all the separate cuts in my memory and remembering where each was to fit and what lighting it required became a bit of a challenge, in the logistical sense.

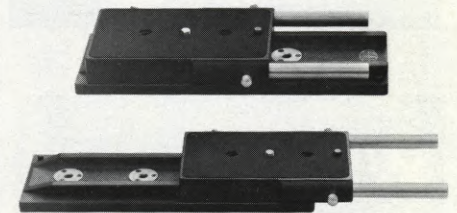
QUESTION: Having met that challenge and others inherent in the subject matter, how do you feel about the final result?

ROSSON: I can take apart lots of scenes that I now feel I could have improved upon, but for the most part, I'm very, very happy with the way it came out. I wasn't trying to do something new, because I guess everything has been done before. What can you do with a subject like Dracula? You can either go into your colored gels or you can do what Haskell Wexler did in BOUND FOR GLORY. My approach was to combine soft "French" foreground lighting with hard "Gothic" background lighting, but none of it is really new. I got unbelievable service from the labs. They did superior work. They never tried to "help" me by correcting what I was going for—which would have ruined it. I usually criticize my own work very harshly and I'm very unhappy about everything, but this time I'm pleased with about seventy-five percent of the film. Seventy-five percent, for me, is incredible. I'm usually down around ten percent. ■

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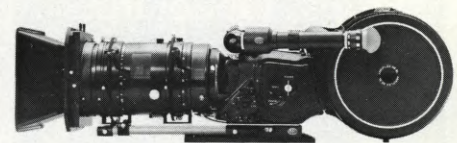


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FILMING "ZULU DAWN"
Continued from Page 185

Number 2 low contrast filter on a back-lit situation will not look the same as if that same scene was front-lit, so you then increase the contrast filter to a Number 3 or possibly a Number 4, and get that same look you got with a Number 2, back lit. Bearing that in mind, you have to adapt, depending on where the sun is pointing and what lens you've got on—whether it's your good-quality or bad-quality zoom lens, or whether it's your excellent quality prime lens. You have to know the lenses you've got, and how they behave. Not all lenses are alike. Some of them are better than others. All our lenses have been tested and we know them all.

QUESTION: What lenses will you be using the most on this film?

RAWI: This film will be shot, the majority of the time, with long focus lenses. This again is the result of discussions with the director. In the beginning of the film, where you get the wide expanses, and in the soft sequences building up to the battle, we'll use a lot of super wide-angle lenses. When the battle actually gets going, most of the time we'll be on very long focus lenses, just to compress the hordes of Zulus charging. Imagine, you're on a 30mm wide angle, which is the equivalent of a 15mm on your still camera, and thousands of people are charging at you—it's not quite the same effect as if you're on a 1000mm and you get all these heads, compressed like ants, moving forward. This has a different, eerie effect—that's what we're going to try to achieve.

QUESTION: Have you had any problems balancing the light between exteriors and interiors, given the tremendously bright African sun?

RAWI: Doug Hickox, the director, loves to see through windows, and stages a lot of background action through windows and doorways. He has people walking from inside, out, or vice-versa, and has people carry on in the scene. Usually the easy way out is to let the background burn out, because there's not much happening outside, and you're concentrating on the scenes inside. In this case, because the background actually plays a part, I really have to raise the illumination level of the interior so high that I'm shooting at f/11 or f/16 in order that we can see what's going on outside. The HMI's help, because they're very bright lights, so you need less heads. Say, if you were using Mini-Brutes—6-lights or

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QUESTION: Do you put gels over the windows?

RAWI: No, I'm against that. One, it slows you down. There's nothing worse than waiting an hour-and-a-half for someone to perfect gelatine over windows. Second, it always looks as though someone stuck a gelatine on a window as soon as there's a bit of a breeze, and the gelatine starts flapping. Third, it's pointless to put a gelatine over a window when the director's going to say, now the door opens and the guy goes out, and you've got to leave that bit clear. I try as much as I can never to use them.

QUESTION: What problems are you anticipating in shooting the battle scenes?

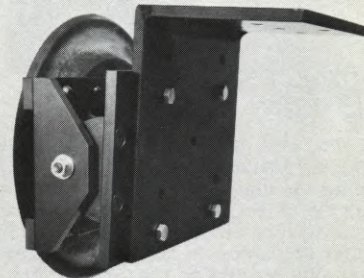
RAWI: One of our major problems is going to be a logistical one. How do you get thousands of Africans dressed in 1879 period costume, ready for a crack-of-dawn shot? I'm fearing turning up there at four in the morning, cameras ready, principal actors ready—but we've only dressed 2,000 Africans, there's still a few thousand to be dressed, the sun is coming up, and it's supposed to be a dawn sequence. That is my nightmare.

QUESTION: How will you bring such a vast subject, in such a vast landscape, down to a human level?

RAWI: We have a marvelous cast, and they are giving performances that are totally believable. You're believing in them and caring for them. And I hope the film will not be just a series of pretty pictures that make people say, "Oh, isn't Africa lovely!" I hope they'll be caring about the characters who are involved in the battle, and not get lost in images. I'd rather they got lost in the story and the performances. The director gets the performances, and as the cameraman, I'll try and make the photography as unobtrusive as possible, so that you're not aware that "here's a beautiful shot." Of course as soon as you have a sunset shot, people immediately react, and say, "Oh, isn't that a lovely sunset," but I hope it won't be self-indulgent, just a series of pretty pictures.

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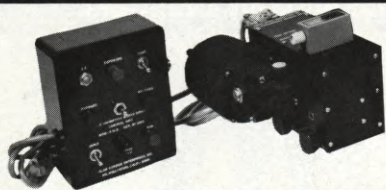
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QUESTION: What film stock are you using?

RAWI: Eastmancolor 5247 which is very, very good stock now. It's been modified, so there's nothing wrong with it now. It's very good. This film is going to be blown up to 70mm, so you need to start off with a very fine-grain negative, and this Kodak film is the finest grain film around at the moment.

QUESTION: Do you have any advice for aspiring young cameramen and women who would like to break into the business?

RAWI: There's no substitute for experience. The best way to learn is to go out and do it, because no one can teach you experience. Only when you practice filmmaking do you come up against problems. Filmmaking is a compromise. You can plan things down to a-b-c-d, and find that, in the end, you'll have to throw it out of the window and compromise, and that's where practical knowledge is invaluable. You can figure the next best way out. So I would advise them to go out and do it. Buy a cheap camera, pay for their own film, and practice.

WHAT'S NEW
Continued from Page 112

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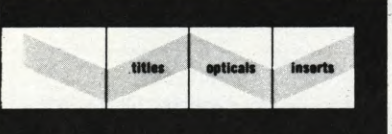
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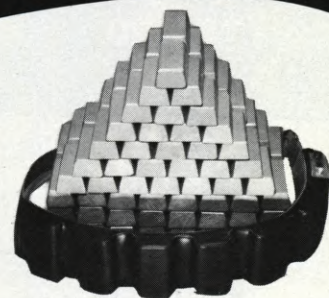
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Continued on Page 210

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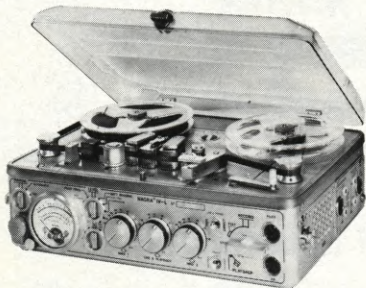


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The Foba all-metal professional motion picture tripod features a Pro Jr. flat-top plate which accepts Pro Jr., O'Conner C and 50, Miller F and Pro heads. Foba's unique tubular adjustable legs allow the tripod to be used in both standard and baby positions. Legs can be adjusted individually or simultaneously. Tripod comes complete with triangle-type leg locks and elevating riser plate. Foba was selected for use in filming the 21st Olympiad.

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FASTER TV NEWS PROCESS
Continued from Page 140

putting together a successful news package. The news audience is the hardest in the world to change. It's tough when the other guy has it and you have to go get it, but it's a challenge that we believe we have a good chance of meeting."

Six minutes may not seem like much, but to Rock Carbone, photo manager at WIXT-TV, it's a lot. The time saved with process RVNP at the Syracuse station means a great deal when it comes to editing, he notes.

Carbone processes approximately 1,600 feet of film a day, mostly Ektachrome video news film 7240 and 7250. He says that the station recently purchased its first ENG camera, but film remains a staple, especially with the speed of the new process and improved picture quality as well.

"The station's Allen processor is 12 years old, but the new chemistry worked fine right from the start," Carbone says. "It's also a much cleaner mixing process for the lab attendant. That's another plus."

All four stations are in agreement that process RVNP should pay the biggest dividends to smaller television stations with lower operating budgets. ■

CINEMA WORKSHOP
Continued from Page 120

era. While modern EFP/ENG cameras rarely require adjustment, it is usually the registration that ultimately needs attention.

This three-tube design may appear "old fashioned" and troublesome, but in reality it is remarkably easy to maintain and affords the cinematographer a flexibility not found with film. Eventually the red, green and blue signals are combined to form a single composite video signal. However, the cameraman has access to the three individual color signals before they are combined. With controls provided, the cameraman can "paint" the scene by varying the gain of the individual red, green and blue components. Additional controls facilitate optimization of white and black levels as well as contrast. Combining a firm command of the nuances those adjustments provide with existing knowledge of filters and lighting give the cinematographer extensive control of the video "look". Most impressive, the cinematographer does not have to wait for dailies; his efforts can be instantaneously evaluated on a portable color monitor.

Next month we will look at other aspects of the video camera. ■

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WHAT'S NEW

Continued from Page 207

true zoom lens, dubbed the variable prime, because of its exceptional image quality and normal focal length range. For the first time in the 16mm field, a zoom lens has been made available of this quality that will readily allow blow-ups to 35mm.

With a constant maximum aperture of T/1.3, the new zoom provides the highest image quality, equivalent to the finest fixed focal length lenses under extremely low ambient light conditions (5 foot-candles).

The visitors to Ferco were shown the new 2.8x16B variable prime on a number of professional 16mm cameras. To make the lens more flexible, two front mounted attachments were also demonstrated. The retrozoom or wide angle attachment changes the focal length to 12-34mm while only changing the photometric aperture to T/1.4. On the other hand, the front mounted tele-attachment changes the focal length to 52-74mm with the same T/1.4 aperture.

Angenieux has stated that limited production on this lens will begin within 30 days, with full production slated for the Fall. The new lens is to be available in all professional mounts: Arriflex, Cinema Products, Eclair, Frezzolini, etc. ■

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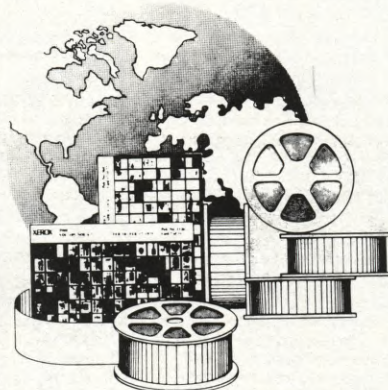
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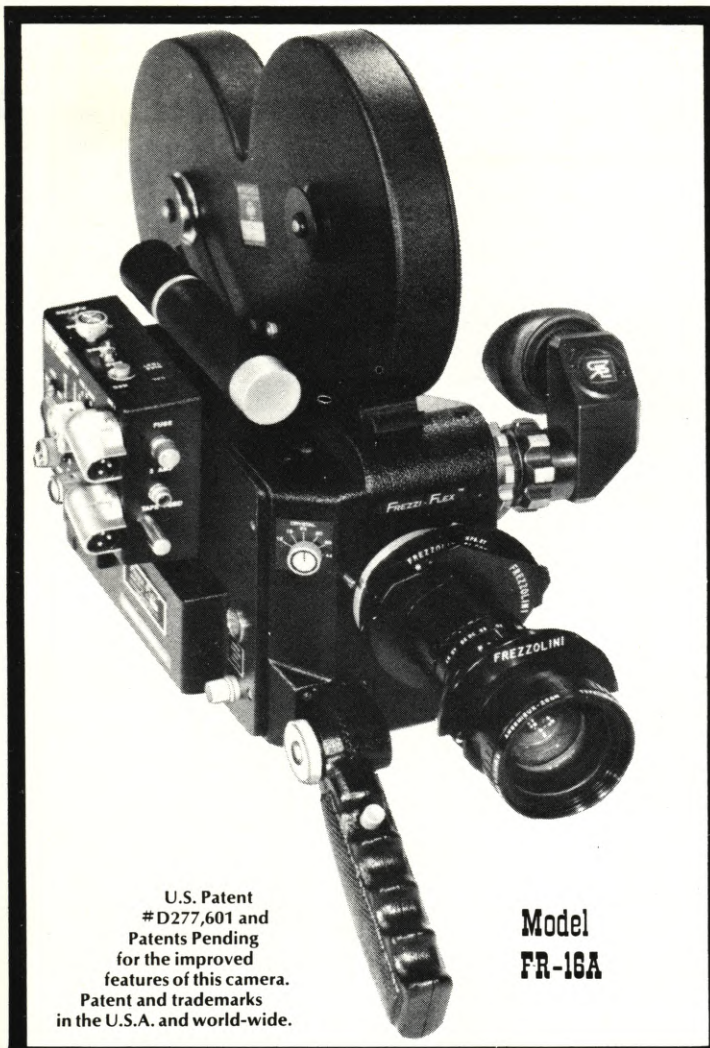
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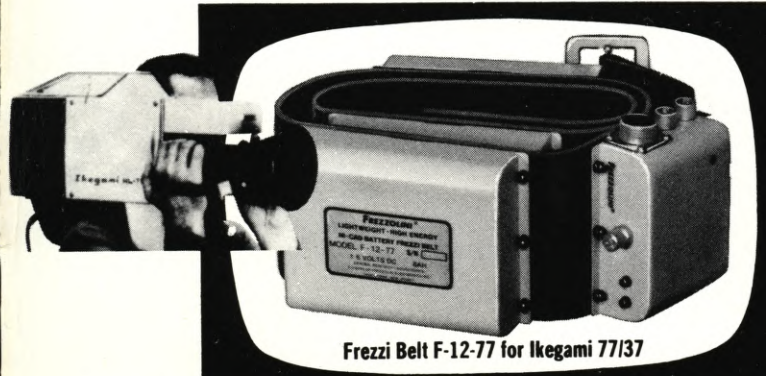
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