

American Cinematographer

International Journal of Motion Picture Photography and Production Technique

JUNE 1972
75 cents



Filming President Nixon in China

EXCLUSIVE CSC CONVERSIONS

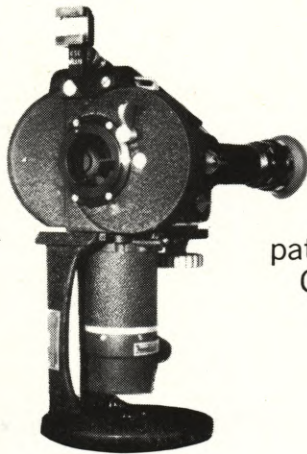
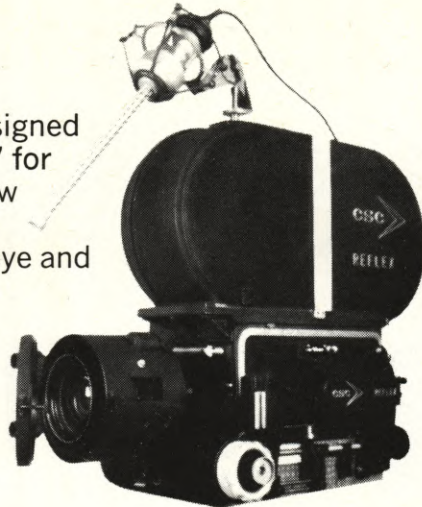
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EXCLUSIVE CSC CONVERSIONS

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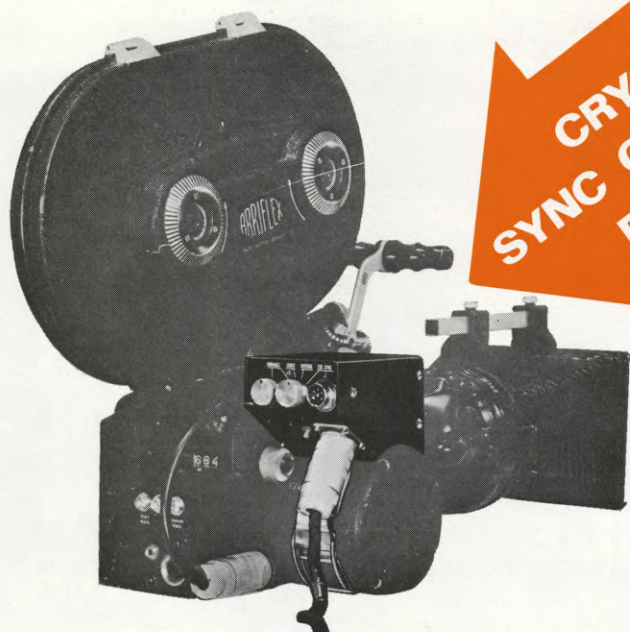


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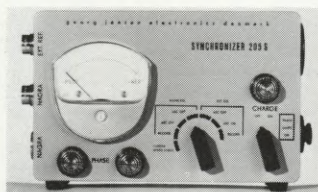
CRYSTAL SYNC CONTROL FOR 16 BL

Here's the real Jensen 505 Multisync at only \$750.

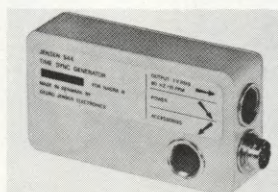
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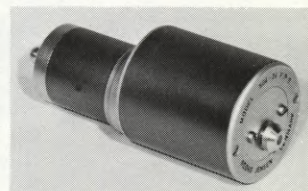


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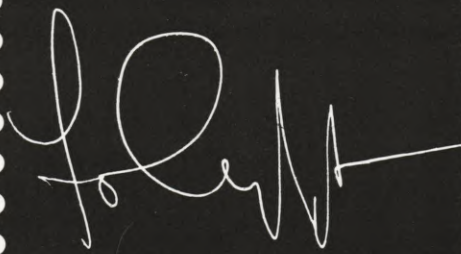
"I WILL
NEVER GO
ON
LOCATION
WITHOUT
THE
CINEMOBILE"

AL RUDDY
PRODUCER



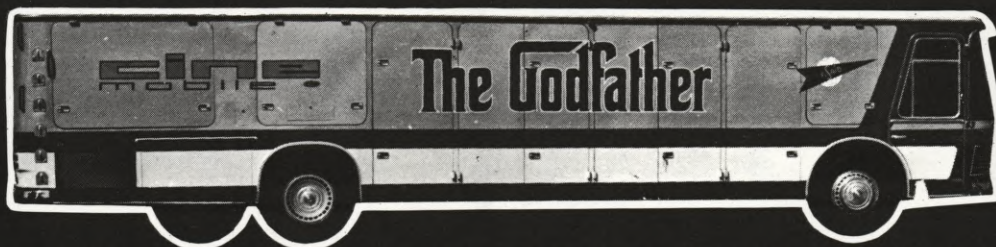
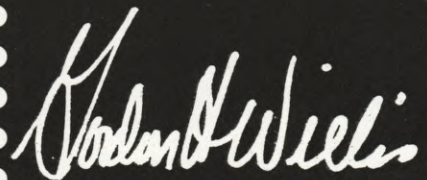
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Herb A. Lightman
editor

Three Tyler
editorial assistant

Milt Darnell
production control

Jan Mazza
advertising manager

Barbara Prevedel
accounting

Claudia Pollard
circulation

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

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

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

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ON THE COVER: Cameramen Jim Kartes and Willis "Skip" Brown, both of CBS News, check their "one-man-band" filming gear in front of the Shanghai Industrial Hall, while on TV newsreel filming assignment during President Nixon's recent visit to the Peoples Republic of China. Cover design by PERRI & SMITH. Photograph by DIRCK HALSTEAD.

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When your microphone becomes the industry standard,
what do you do for an encore?
Something even better!

the
LITTLESHOT
an innovative new condenser microphone
with the best virtues of cardioid and shotgun

and the
BIGSHOT
worthy successor to the
famous MKH 805

You did it. You and your fellow professionals. Made our MKH 805 shotgun condenser microphone the industry standard.

While we're not particularly surprised, we are grateful. Grateful you appreciate our MKH 805's unusually wide, flat response, extreme directionality and high overload resistance. Grateful you appreciate its ruggedness, compactness and light weight. And most of all, we're grateful you use it so widely, both in studio and field-recording, that it's become the most talked-about microphone success story in decades.

But the MKH 805 shotgun microphone was a hard act to follow, especially since we don't bring out new products for change's sake. Now, however, we are pleased to bring you our new MKH 415 and 815—the "littleshot" and the "bigshot"—two remarkable microphones representing a third generation of Sennheiser condenser microphone design.

the littleshot

Not too long ago, we discovered our shotgun microphone being used for applications beyond our original intentions. Because of its small diameter and longer-than-normal size, reporters used it for interviews at normal miking distances. And because of its flat response and high directionality, studios often used it to pick up performers and to actually "close-mike" instruments from a distance, due to its lack of proximity effect, and "pop" reduction.

"Why not," we reasoned, "create a new condenser microphone especially for these diverse applications, where extreme directionality is not required?" The MKH 415, "the littleshot" is the result.

Using an improved combination of pressure-gradient and interference principles, the MKH 415 is truly a remarkable microphone. Directionally speaking, it behaves as a super-cardioid below 2 kHz; at higher frequencies, it exhibits a beam-type (or baseball-bat) pattern. Besides reducing leakage, this design provides higher on-axis conversion efficiency, with two more benefits.



First, pops and wind-noise are reduced, even without its accessory windscreen and shockmount. But even more important in many applications, is the MKH 415's virtually total freedom from proximity effect, which, coupled with its unusually flat response, makes possible "close-miking" of singers and instruments without need for bass attenuators. Beyond these features, the extremely wide response, low ambient noise, high output and overload resistance characteristic of all Sennheiser microphones have also been retained.

Physically, the MKH 415's 10" length provides reporters and other outdoor users with the added "reach" they seek, while performers will find the design less fatiguing to use and more aesthetically pleasing, since they need not hide their faces to project their sound.

the bigshot

In the MKH 815, all the good things that made its predecessor's reputation in filmmaking and broadcasting have been retained. And another advantage has been added: through an improvement in the microphone's interference design, by increasing the number of slots along the microphone's sides (to reduce the area of individual ports), the MKH 815 has additional resistance to pops and wind noise. Thus, in many situations formerly requiring additional precautions, the MKH 815's accessory windscreen and shockmount will not be required.

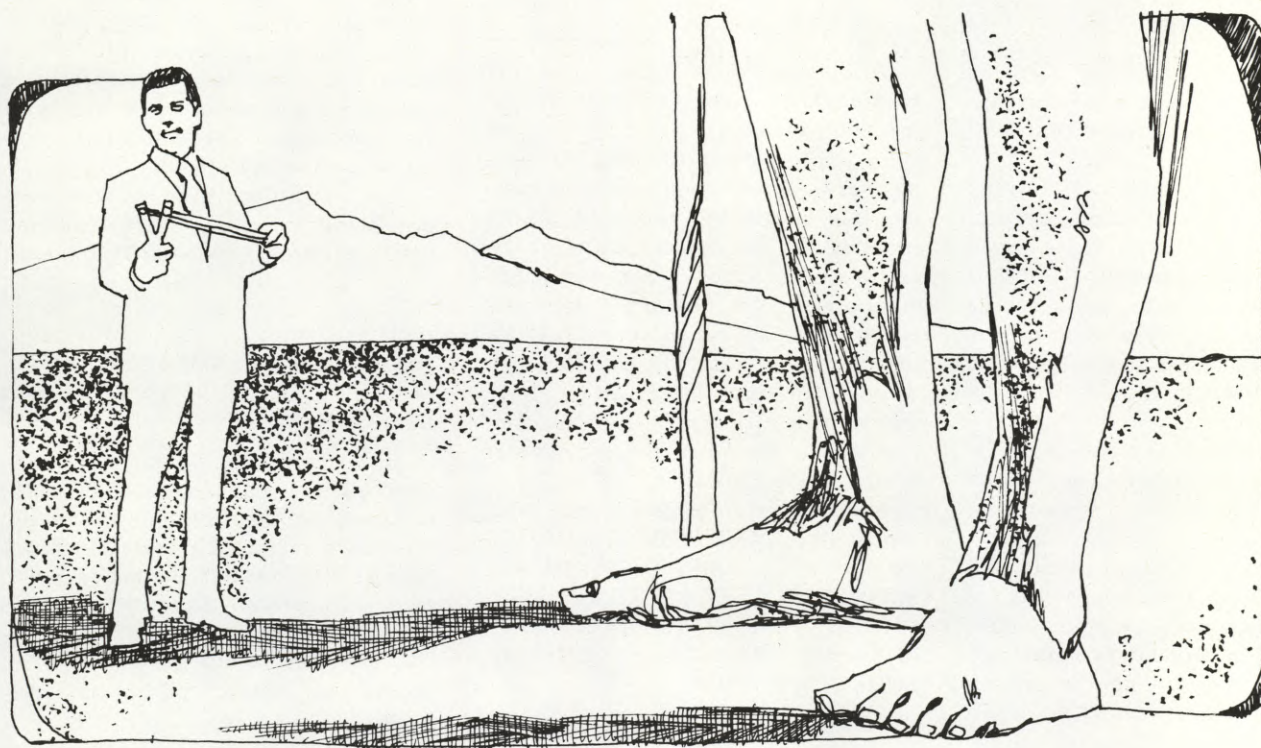
more encores

Besides the amazing new "littleshot" and the improved "bigshot," there are many more new things on the way from Sennheiser. While we'll be talking about them in the future, you can find out about them now by requesting the second edition of our Micro-Revue—which contains a good deal of useful audio information besides. Please write or call:

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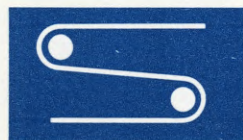
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WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE

NEW REMOTE CONTROL FOR ARRI 16BL FOR USE WITH TAPE RECORDER

The Arriflex Company of America has announced a new remote control device for the Arriflex 16BL for use with the Arrivox-Tandberg Tape Recorder. The new installation enables the cameraman to control the stop-start functions of the recorder remotely and automatically as he stops and starts the camera. It will also serve with other tape recorders designed for remote control of stop-start.

The Arriflex Automatic Remote Control consists of a miniature electrical relay installed on the start-mark circuit board of the 16BL, a new 6-pin Pilotone outlet on the camera, and a special Pilotone cable. The installation can be completed within 48 hours providing shop-time is reserved at least 10 days in advance.

The new installation is believed to be a great help for small crews and especially for production crews working on difficult locations.

The parts for the Automatic Remote Control come in a kit which lists for \$80. Installation labor, which costs \$36, can be arranged through all authorized Arriflex dealers or through the Arriflex Company of America, 25-20 Brooklyn-Queens Expressway West, Woodside, New York 11377, telephone (212) 932-3403.

NEW PAR-TYPE PHOTOLAMPS FOR DAYLIGHT CONVERSION

The introduction of Dichroic filters and Dichroic coated PAR type photo lamps for conversion of incandescent light to daylight has increased the overall efficiency of incandescent lamps when used as daylight fill for photography.

Art Bodkins Optics, Inc. proudly announces the development, under a Patented system, of the new ART BODKINS PAR-64 and PAR-36 Photolamps for Daylight Conversion. Now for the first time on the Market photolamp users can be assured of the following features:

Guaranteed not to fade for the life of the filament.

The PAR-64 can last from 100 to 150 hours of burning life.

The PAR-36 can last from 15 to 20

hours of burning life.

Radiant heat in the light beam is reduced by nearly 50% in the new system. These lamps will resist fresh and salt water.

They will withstand tropical and sub-freezing temperatures.

Will maintain a Kelvin Color temperature of $5600^{\circ}\text{K} \pm 400^{\circ}\text{K}$

All at a lower cost than ever before!

Arthur Bodkins, President of Art Bodkins Optics, Inc., has been experimenting with photographic lighting and color improvements for over 25 years and has now developed a dichroic coating that meets the standards of the Industry for the same exposure of the multi-layers of Color Film as does natural daylight. All dichroic filters and photo lamps are tested at the Bodkins laboratories pursuant to the Film Balanced Color Meter developed by Photo Research in cooperation with the Motion Picture Producers Research Center in Hollywood, California.

For further information and price lists, write to ART BODKINS—OPTICS INC. PHOTOLAMP DIVISION, 77 SUMMER STREET, BOSTON, MASSACHUSETTS, 02110—TELEPHONE (617) 542-1944 CABLE ADDRESS: BODKINS—BOSTON.



NEW 12-INCH 5000-WATT FOCUS-RING FRESNEL LIGHT

Berkey Colortran, Inc., a division of Berkey Photo, Inc., announces the introduction of its new 12" 5000 watt Ring-Focus Fresnel. The unique focus ring permits rapid focusing from any position. A new lens design provides

greatly increased performance.

This new 5000 watt Fresnel features the Colortran four-point contact socket (patent pending) for positive mounting and improved lamp life. Lamp life is further enhanced by the Fresnel's unique cooling design. Focusing is done by moving the lens rather than moving the lamp. Filament vibration and shock is eliminated, further increasing lamp life by as much as 50%. Thrust out relamping permits lamp changes without moving the fixture or disturbing barn door adjustment. The unit accepts 5kW 3200° and 3400° tungsten-halogen lamps. The Bi-post lamp socket remains stationary; thus, no flexing of the input wiring. It is available in both hanging models for grid use or stand models for floor operation. The unit weighs only 36 lbs. and costs \$325.00.

For more information, write to Berkey Colortran, Inc., 1015 Chestnut Street, Burbank, California 91502.

NEW LINE OF COMPACT, AUTOMATIC FILM PROCESSORS INTRODUCED

H.G. Cramer Co. of Sarasota, Florida now offers a complete line of small, compact, automatic motion picture film processors in Super-8, 16mm and 35mm format. Processes include black & white reversal, negative and positive as well as Ektachrome color.

All models, except the MARK V, are fitted with the Cramer combination Super-8/16mm roller. The MARK V is fitted with combination 35mm-16mm rollers and will process black & white reversal & negative up to 10 FPM. The MARK III and the MARK VII will also process Ektachrome color Type EF and MS using the E-4 chemistry. The speed for color processing is 2FPM. Although quite slow this can be useful for TV news film, test runs, and short in-plant runs. The MARK VII will also process black and white reversal up to 20FPM.

Incorporating new features like elevator legs, nylon gear-roller chain drive and increased chemical capacity tanks, the Cramer Processors are ideally suited for low budget film processing. Simplicity of construction allows trouble-free maintenance and replacement of any part by the operator within minutes. Due to stocking policies, shipment of any model can usually be made the day after the order is placed. Parts, accessories and chemicals are always shipped the same day. Prices range from \$695 to \$2250.

For further information, write H.G. Cramer Co., Rt 3, Box 24A, Sarasota, Florida 33580.

EXTRA! EXTRA! Read all about it!



NEW AGE CATALOG NOW AVAILABLE

HOLLYWOOD—The big news is that the brand new Alan Gordon Enterprises Professional Motion Picture Equipment Catalog is hot off the presses and available free for the asking.

The giant 112-page catalog lists more than 3000 items of interest to the professional filmmaker, from cameras to cranes, from Dynalens to degaussers. What's more, the catalog contains 300 illustrations and

all items are cross-listed in an easy-to-read index.

If you're in the business of making films, you shouldn't be without the new AGE Inc. catalog. Write for your free copy today or, if you're in a hurry, call us at (213) 985-5500 and ask for Catalog Number 10.

And, remember, always check with AGE Inc. first for all your motion picture equipment needs. Most pros do.

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Roscolex, in a modular 4 by 8 size, is a lightweight, semi-rigid panel, easily cut to size and positioned with a minimum of fuss and effort. Samples and prices are yours for the asking.

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

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

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

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

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

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

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Magna-Tech's electronic method of altering sound tracks makes "looping" obsolete.



If you are still making hundreds of loops for a single feature, then consider a fast, precise and economical method of altering sound tracks that makes "looping" obsolete.

The new Magna-Tech system electronically synchronizes a reel of picture with a reel of full-coat magnetic sound-recording film. Footage and frame "PRESETS" permit the recordist to select the scene to be "dubbed" and to fully control the advance and return of the film as the actor voices the line to be "dubbed."

The system is so accurate it will even permit the change of a single word without danger of erasing an adjacent word.

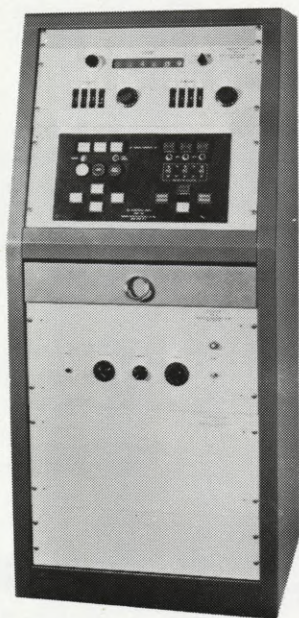
High speed return of the film to "start" saves time and permits new starts without waiting for a "loop" to complete its trip.

Actors, who so often succumb to the rhythm of a loop, are spared this hypnotic interference. Acceptable "takes" can be stored on the 3-track film and replayed for final selection.

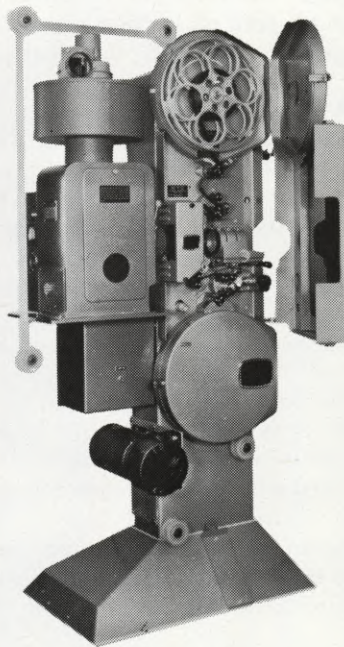
A complete remote control system is provided the director so that, once the recording engineer has preset footages, the director can take over if he wishes and directly control every facet of the recording.

The Electronic Looping System precludes the need for cutting loops and eliminates the need for editing of the track. Complete reels of the motion picture are run in synchronization with the full-coat magnetic film on which the sound track is recorded. Transfer of the best takes is then made to the third track of the same recorder.

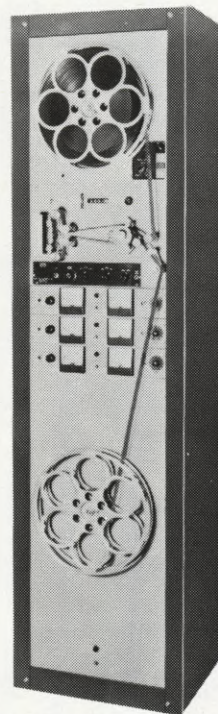
This track now has all of the final takes in sequential position and ultimately permits the screening of the picture and the final edited track in perfect synchronization. From this point the track is ready to go to a mix and no further editing is required.



Electronic Looping Console



35mm Projector



Master Magnetic Pick Up Recorder with Selective Erase



MAGNA-TECH ELECTRONIC CO., INC.

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

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

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QUESTIONS & ANSWERS

Conducted by CHARLES G. CLARKE, ASC.
and WALTER STRENGE, ASC.

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



Q When trying to penetrate consid-
erable haze in aerial shots, using
5254 neg and the 85, will the 85 be
sufficient to penetrate the haze by itself
or would you add either a haze or
polarizer? If you were to add either of
these two filters, which would be the
best?

A It is not necessary to use a haze
filter when using a Wratten 85
filter. A haze filter such as a Wratten 2B
filter has a transmittance at 400 nanom-
eters of 19%. Therefore, adding a Wrat-
ten 2B filter to a Wratten 85 filter
would do little to absorb additional
haze.

Q When using a polarizing filter with
its 1½-2 stops, do you open up
the lens 2 stops for the filter in its
darkest position and 1½ stops in the
lightest position or do you allow 2 stops
regardless of where the filter is set?

A Polarizing filters are generally
used in photography to darken
the sky; however, they are also useful in
reducing or eliminating reflections from
shiny surfaces. Since approximately
one-half of the reflected light is ab-
sorbed by the polarizing filter, an in-
crease in exposure is necessary. This is
true regardless of the rotation of the
filter. A filter factor of 3 is usually
assigned to polarizing filters which rep-
resents an increase of 1½ stops for
nearby flat-lit subjects. When the filter
is used with side lighting or top lighting,
an additional increase of from ½ to 1
stop in exposure is required. Refer to
the third edition of the *American Cine-
matographer Manual*, page 460.

Q I have an assignment to photo-
graph a botany subject of cacti.
To make the static scenes appear to
have motion, I would like to pan around
the plants, but this presents a depth-of-
field problem. Do you have a sug-
gestion?

A You might use a reflex camera,
such as an Arriflex, and pre-plot
such a scene, keeping a record of the
focus setting at each plane of the
subject. After such a rehearsal, then film

the scene, having an assistant make the
focus changes as you pan. Check pan-
ning speed recommendations on page
229 of the Third Edition of the *Ameri-
can Cinematographer Manual*.

Q I need a high-contrast effect on
16mm stock. How can I achieve
this?

A If your work is in B&W, you
could use *positive* film, such as
that which prints are made of, for your
negative. If your work is in color, then
underexposure and high contrast light-
ing would produce this effect.

Q I must photograph some old, fad-
ed, yellowed still pictures on
16mm black-and-white film. What filter
should I use?

A We would use POSITIVE film,
such as that used for making B&W
prints, as a camera negative, since this
film is of high contrast and is only
sensitive to blue light. Blue being the
complement of yellow would produce
the most detail and contrast. If you
wanted to use regular B&W negative
film, then a blue filter, such as the
Wratten #37, should be used over the
lens or lights.

Q What is the best way to photo-
graph oil paintings to avoid reflec-
tions from the oil on the canvas?

A Any lights used to illuminate the
oil paintings should be placed at
acute angles so as to avoid direct reflec-
tions. We have found that using yellow
filtered light to illuminate the painted
area helps to penetrate old varnish and
make the painting appear more rich and
natural. A lemon yellow filter, or even a
light orange, such as an #85, might be
barn-doored on to the painted area.
Eliminating any yellow filtered light on
the gold frame, should produce the best
results.

Q What is the best 16mm camera?

A Why not check with the people
who use them?

Dear Leo:

It was obvious to me, when assigned as official historical cinematographer to cover every aspect of President Nixon's trip to the Peoples Republic of China, that the Eclair ACL was the only camera to handle a project of this magnitude.

The crew, four people including myself. 4 ACL's with 12 magazines and 9 batteries were taken with an assortment of zoom lenses. Two of the ACL's were to be used as back up cameras, while the other two carried the burden which averaged out about 15 hours a day for 8 days. As it turned out, the spare cameras were never used. The working cameras each had 6 magazines. 3 magazines were loaded with 72 52 for daylight scenes, other magazines were loaded with 72 42 to be used in filming under adverse lighting conditions. The raw stock was loaded on daylight 200 foot spools and taken up on 200 foot spools. This gave camera crews additional speed by eliminating the need to go into the changing bag. Not once did we experience any jams with the daylight loads, although we were warned it was a gamble as to whether or not the daylight spools would continuously perform their function.

This factor, plus the speed in which we could change magazines gave us the enviable position of having complete continuity of scenes. In comparison with our brother newsreel cameraman, who had to struggle with the weight of a conventional newsreel camera, we also enjoyed the luxury of not freezing our fingers when threading up as with the other antiquated camera systems. The weight and balance of the ACL, with the eye piece location gives perfect configuration of total portability with precise balance.

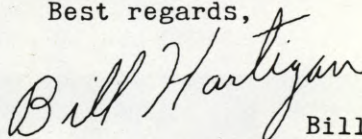
Another factor which made this camera the ideal selection was the batteries and crystal control motor. For example: On the day the President visited the Great Wall of China, both cameras were exposed to a wind of about 20 miles an hour and with the outside temperature, this added up to a chill factor of minus 15 degrees fahrenheit. After this length of exposure both cameras started without any hesitation. There was no hunting of the motors. Nagra recorders indicated perfect sync and enabled us to acquire historical footage of the Great Wall of China and the Presidential party's official visit.

Of great importance was the performance of the batteries. Because of their convenient size, they were carried in our pockets. The first few days, we each carried 4 apiece, on the third day, it was obvious to us, these batteries were capable of handling up to 10 magazines without showing any capacity loss. We don't know if they could have gone more than 10 magazines because prudence precluded our pushing our luck. With a transistorized power supply connected to a Chinese car's battery, it gave us a portable field charging unit and of course, the charging speed, about twenty minutes per battery, is another factor that field producers working under the most adverse conditions could make note of.

In summation, this was the most sophisticated camera unit ever used in the field to provide the Official Historical Film Record of a Presidential Trip Abroad. In considering the dimensions of the China Trip, everything had to perform with perfection each time the starting button was pushed, and the Eclair ACL far exceeded our expectations.

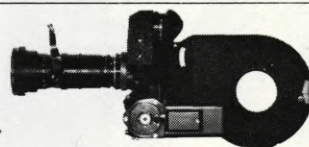
ACL has clout.

Best regards,



Bill Hartigan

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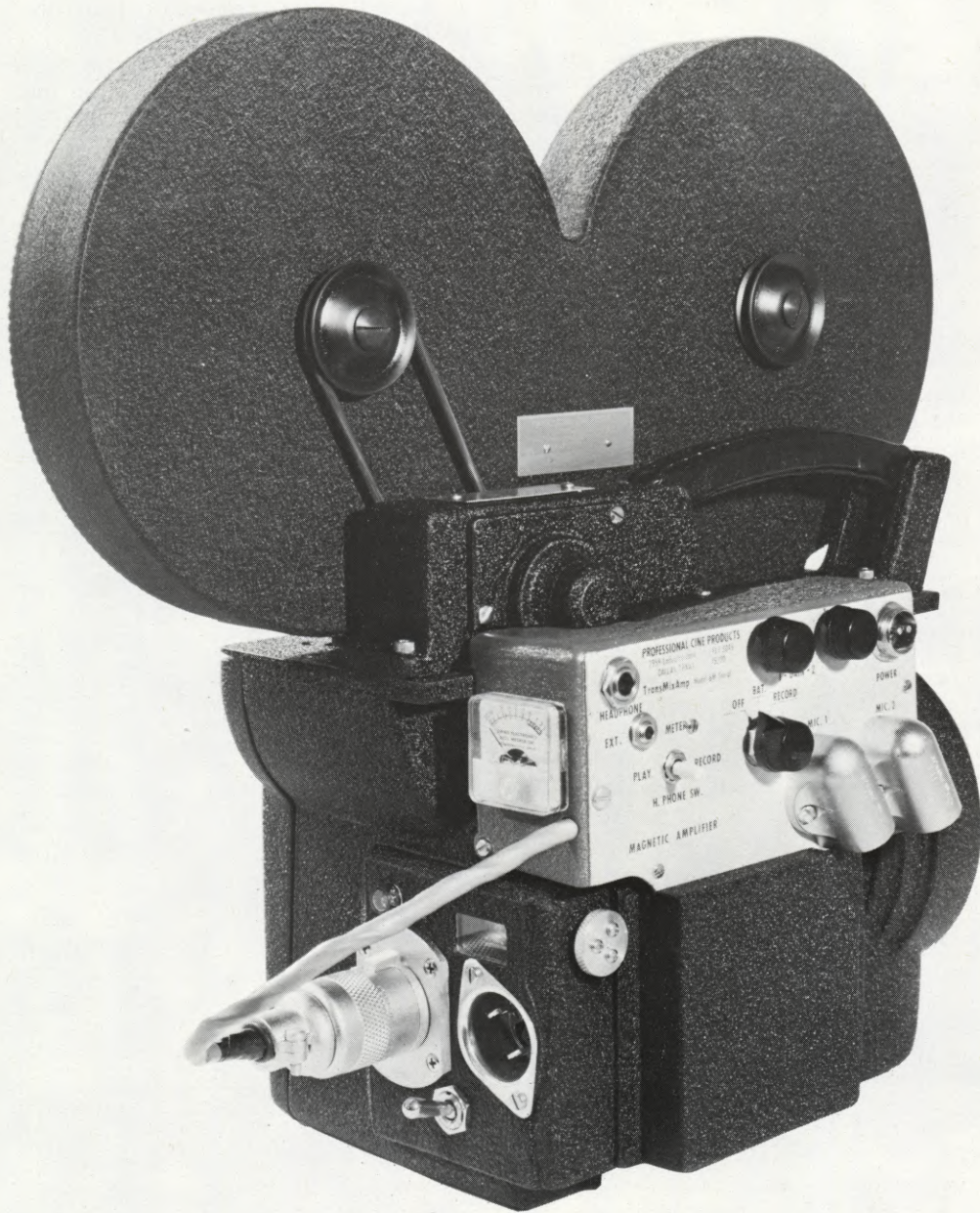
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CINEMA WORKSHOP



By ANTON WILSON

FILM RAW STOCK

The cinematographer, like any artist, carefully selects his tools to match the particular situation. The type of camera, lens, filter, etc., will be chosen on the basis of the visual effect desired. This same care should be exercised in selecting the raw stock, and the method of printing.

Each type of film stock exhibits unique characteristics that will determine its suitability for a particular situation. A series of tests has been devised to rate each raw stock according to several different criteria. The results of these tests will reflect the 'personality' of the particular film stock. The cinematographer can then select the stock that will provide those qualities important to the specific application.

The test data most relevant to the cinematographer are the exposure index, color balance, latitude, resolving power, RMS granularity and modulation-transfer curve. Each motion picture raw stock on the market has a film data sheet on which the value of each of the mentioned criteria is listed. Proper interpretation of these values will reveal the

film's visual and recording personality: contrast, sharpness, graininess, detail, etc. One can determine lighting levels, lighting contrast ratio and effective subject contrast ratio, in addition to the proper filters to use under abnormal light sources.

It is obviously to the cinematographer's advantage to have a thorough knowledge of the terms used in the data sheets and an understanding of the relationship between the values listed and the respective visual qualities. The best approach to becoming familiar with the data sheet is to fully understand the procedure involved for determining the value of each criterion.

Modulation-Transfer

The modulation transfer curve is most closely associated with the image-detail characteristics of the film. Specifically, it will reveal the tendency of the film to lose efficiency in reproducing fine details of the image. This is usually due to diffusion of light within the emulsion layers or, possibly, to adjacency effects in development. The procedure for determining the modulation transfer curve is logical and direct.

The test chart consists of a series of black and white bars (FIGURE A). Note two important facts about these bars, however. A close look will reveal that they are not sharply defined black and white areas, but rather an area of white that gradually goes through the gray scale to black and vice versa. This is actually a sinusoidal pattern; the areas change from light to dark to light, etc., sinusoidally. Moving left to right, note also that the spacing of the areas gets progressively smaller, or expressed sinusoidally, the frequency of the pattern increases progressively. This test chart is photographed on the raw stock in question. FIGURE B shows the photographed test chart magnified to the size of the original chart.

The photographed image is then scanned with a microdensitometer. The microdensitometer is essentially an ultra-ultra-narrow beam spot light meter that is used to measure light transmittance (density) through a minute area of the film. This area is extremely small, usually a circle with a diameter less than one-thousandth of a millimeter, much

smaller than the spacing of the photographed pattern. As the microdensitometer scans the chart from left to right, it will respond to the light and dark areas. The needle will move sinusoidally back and forth indicating the respective changes in light transmittance (density). FIGURE C is a chart recording of the microdensitometer as it scans the negative in FIGURE B.

Note that, as the frequency of the pattern increases, the microdensitometer no longer records a full swing from black to white; the response begins to fall off. In other words, the film did not faithfully record these fine changes in light. Due to diffusion in the emulsion, the light and dark areas begin to blend into a gray. Looking again at FIGURE C, the frequency will reach a point

Continued on Page 677

FIGURE A



FIGURE B

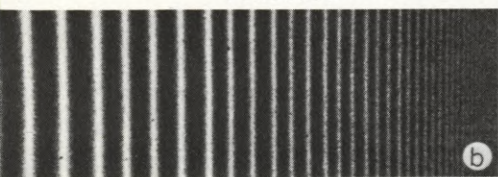


FIGURE C

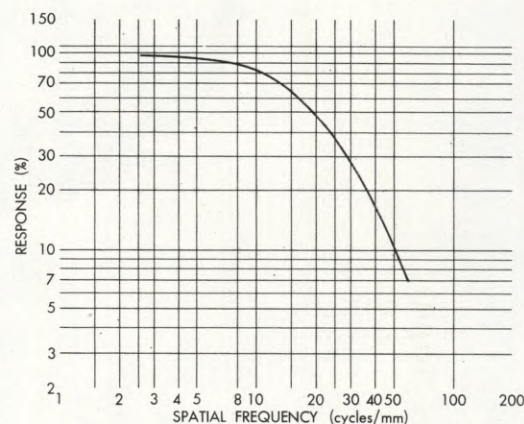
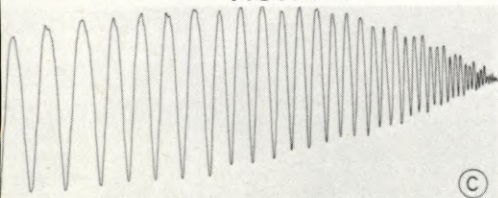


FIGURE D

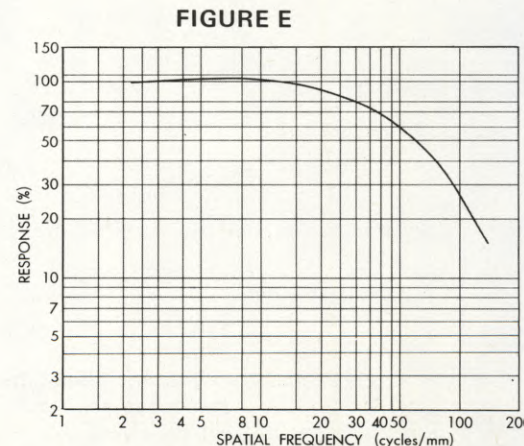


FIGURE E

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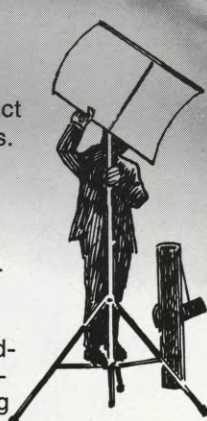
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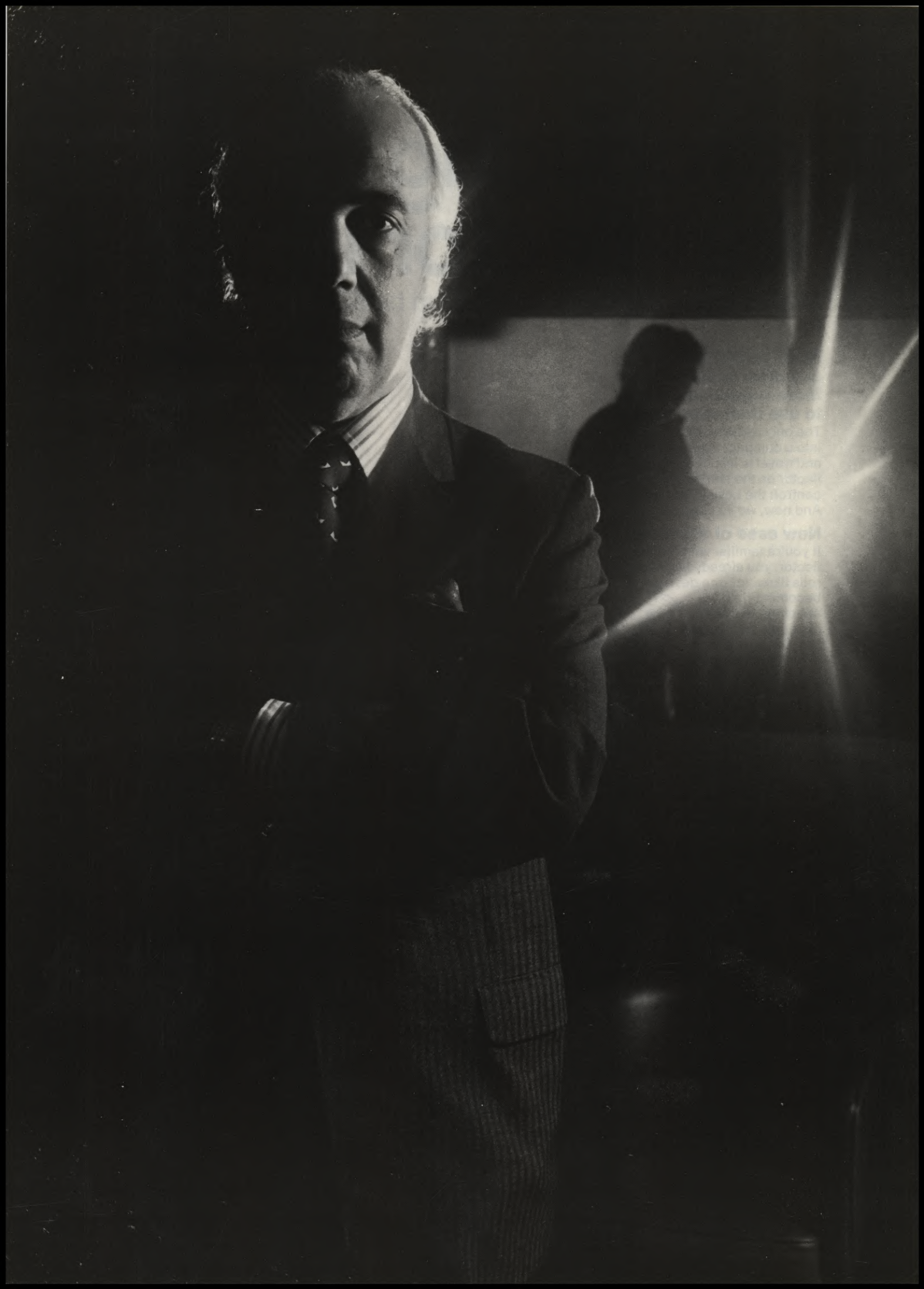
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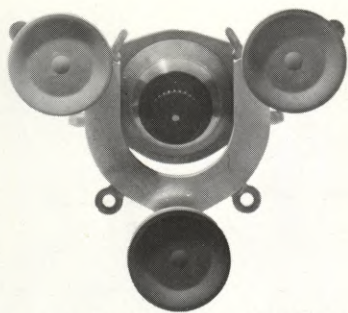
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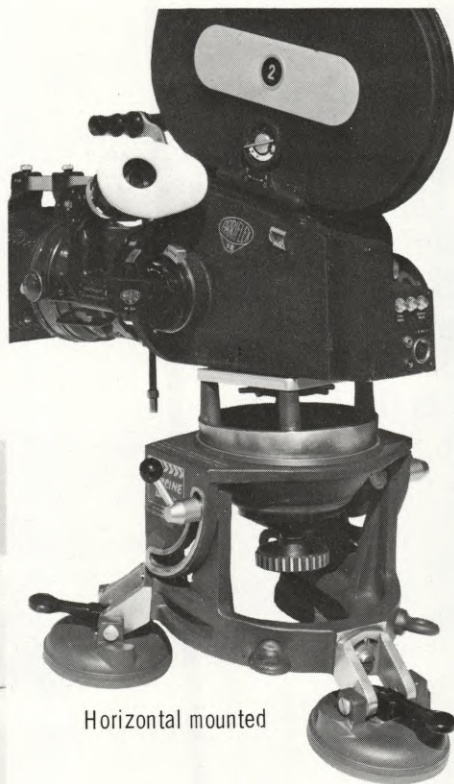
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The unshot Okefenokee Swamps...



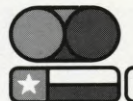
of Texas.

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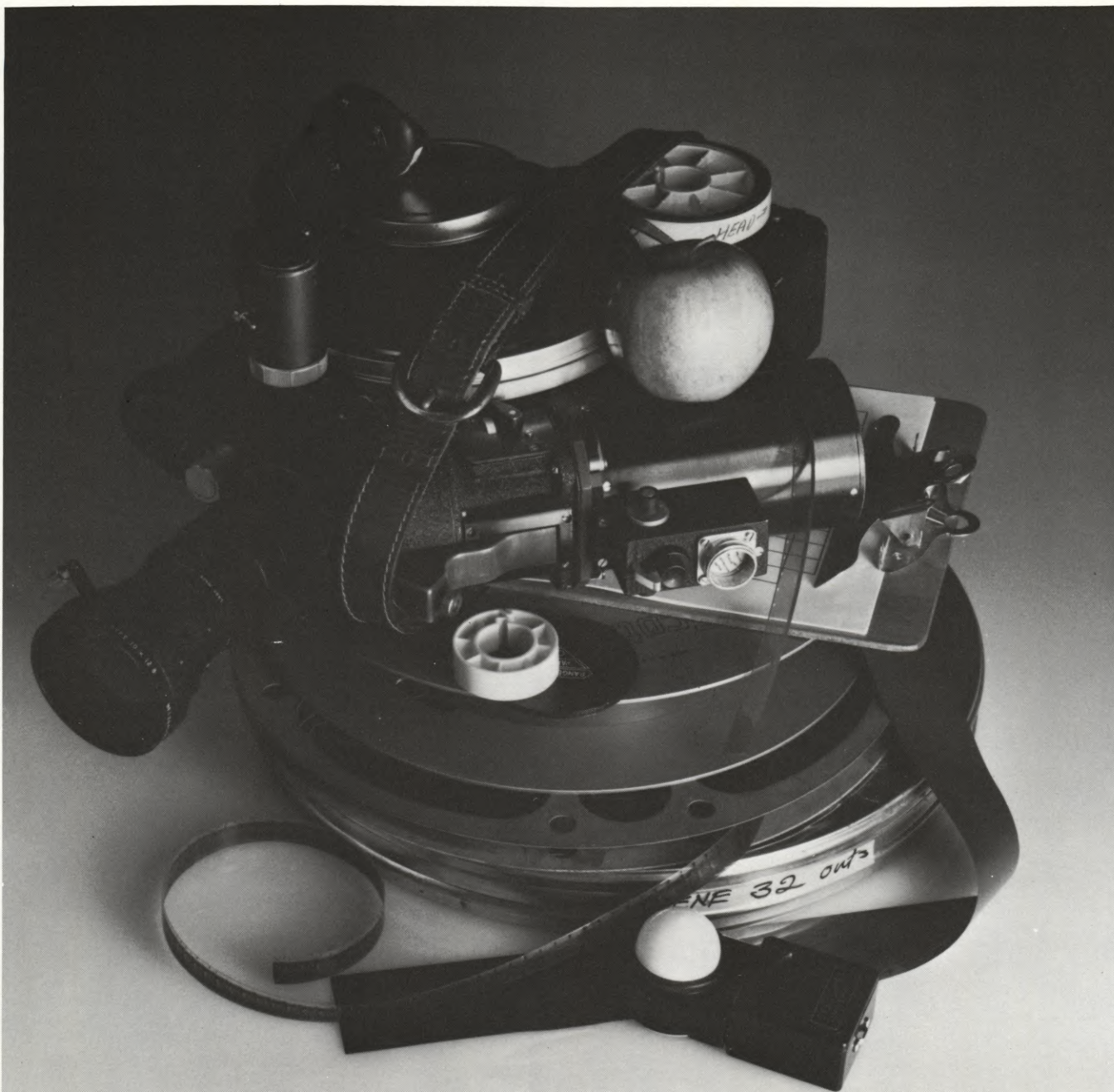
towns. But Texas is a big state. We don't expect you to spend the rest of your budget sight-seeing and exploring. Just call us. We've got the answers . . . and the photos to prove it.

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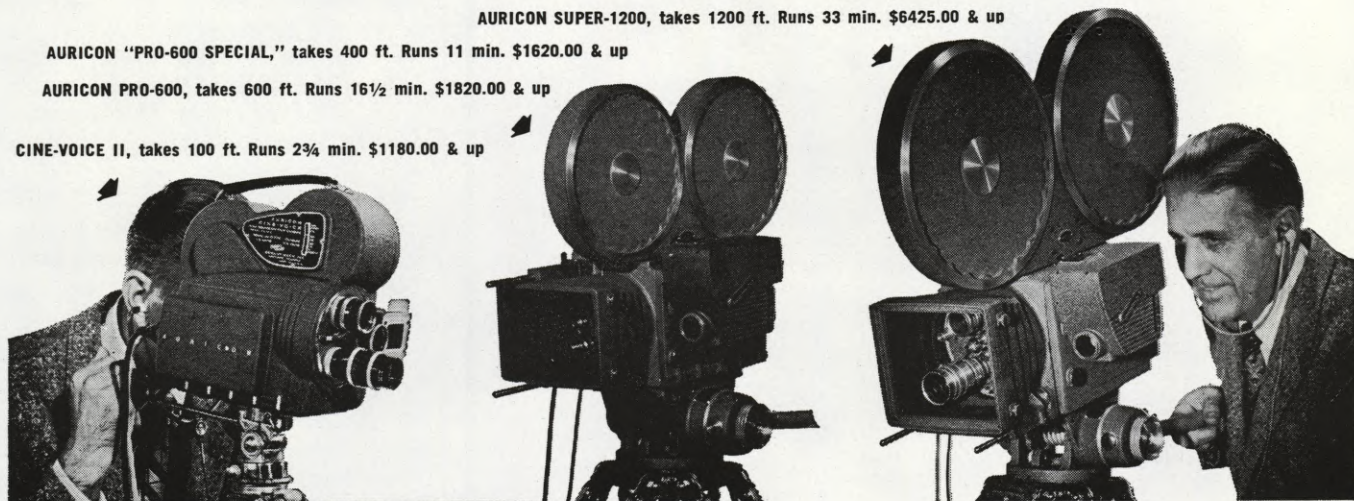


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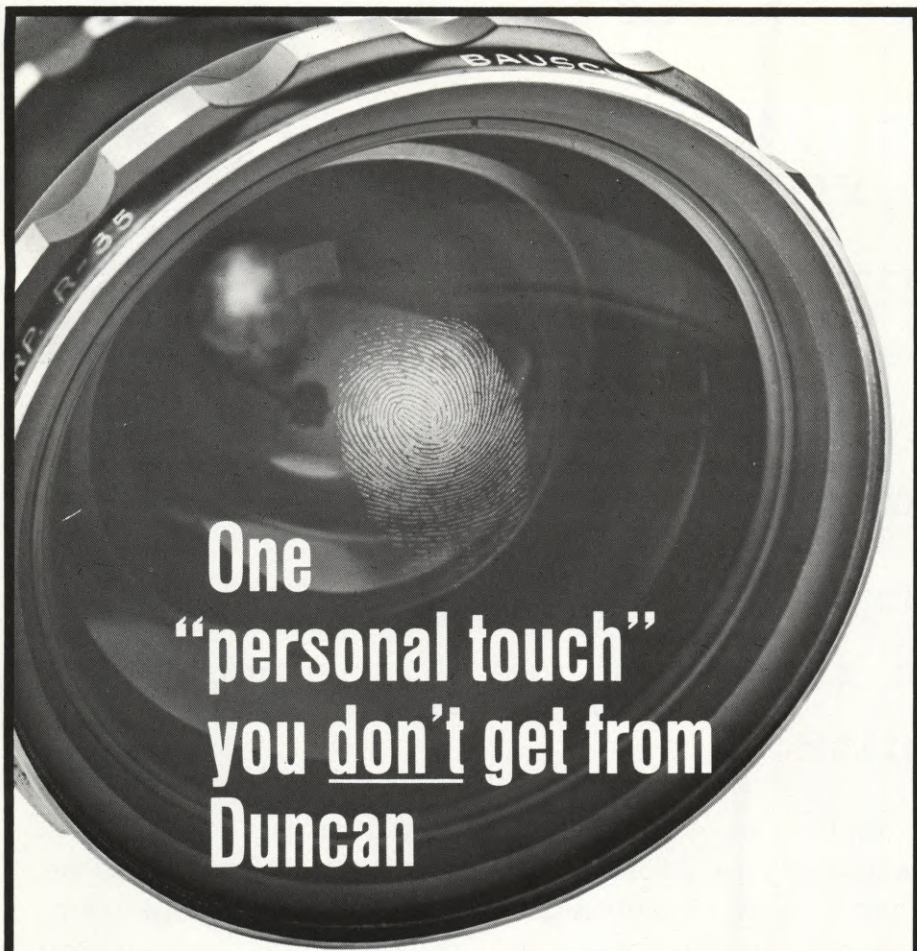
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THE BOOKSHELF

By GEORGE L. GEORGE

Erich von Stroheim's 1924 masterpiece *Greed* emerges in the original state of its uncut 9½-hour version in **THE COMPLETE GREED** (Arno Press \$50.) This splendid, large-format volume, well worth its price, contains some 400 rare stills that recreate Stroheim's original continuity and display the artistry of his camera team, William H. Daniels, Ben F. Reynolds and Ernest B. Schoedsack. Weinberg, a noted film critic and historian, contributes a learned and informative preface to his meticulous reconstruction.

* * *

The screen image of the Negro as a major character in American movies is assessed in **BLACKS IN AMERICAN FILMS** (Scarecrow Press \$7.50), a well-documented appraisal by Edward Mapp. His book, covering the 1905-70 period, focuses on the last decade in a detailed study of the evolution of filmmakers' racial concepts under the impact of black self-assertion.

* * *

A "then and now" appraisal of film business stems from two current books. Prof. Howard T. Lewis' **THE MOTION PICTURE INDUSTRY** (Ozer \$17.95), a timely reprint of a 1933 volume, is a knowledgeable and enlightening survey of the era when banks took over from free-spending entrepreneurs. This historic study is part of the notable reprint series, *Moving Pictures: Their Impact on Society*. The current scene is viewed with a decidedly cool eye in **HOW TO INVEST IN MOTION PICTURES . . . AND WHY YOU SHOULDN'T!**, a booklet by Tom Laughlin, well known L.A. financial consultant to many film producers.

* * *

A practicing non-pro filmmaker and writer, Lenny Lipton, offers his innumerable colleagues a thoroughgoing and lively textbook, **INDEPENDENT FILM-MAKING** (Straight Arrow \$12.95/5.95). Ambitious and efficient, its 431 pages encompass the whole technical field of equipment and production. Illustrations are abundant and detailed, the writing explicit with a personal touch. A most useful book for its intended audience.

* * *

Interviews with 59 telefilm producers, supplemented by much personal

digging, shape Prof. Muriel G. Cantor's **THE HOLLYWOOD TV PRODUCER** (Basic Books \$7.95) into a well-researched and meaningful volume. It covers expertly the producers' relations with networks, their own multiple functions, and their work with directors, writers and, in passing, cameramen.

* * *

Tony and Patricia George Miller have compiled a guide to the language and structure of film production, **"CUT! PRINT!"** (Ohara \$5.50). The glossary, while competent, contains bloopers (viz. "cinema"). Budgeting breakdowns, production flow and studio organization charts are O.K. Its industry directory is mostly notable for glaring omissions: DGA, WGAw, PGA, all IATSE and NABET locals and many other unions.

* * *

The bruising encounters between Hollywood film personalities and witch-hunting politicians have produced two sober-minded and factual books. One is historian and scholar Eric Bentley's **THIRTY YEARS OF TREASON** (Viking \$20.), a massive volume of selected excerpts from the 1938-68 hearings of the House Un-American Activities Committee. The other is actor Robert Vaughn's **ONLY VICTIMS** (Putnam \$7.95), a perceptive study based on his doctoral dissertation on the effects of blacklisting.

* * *

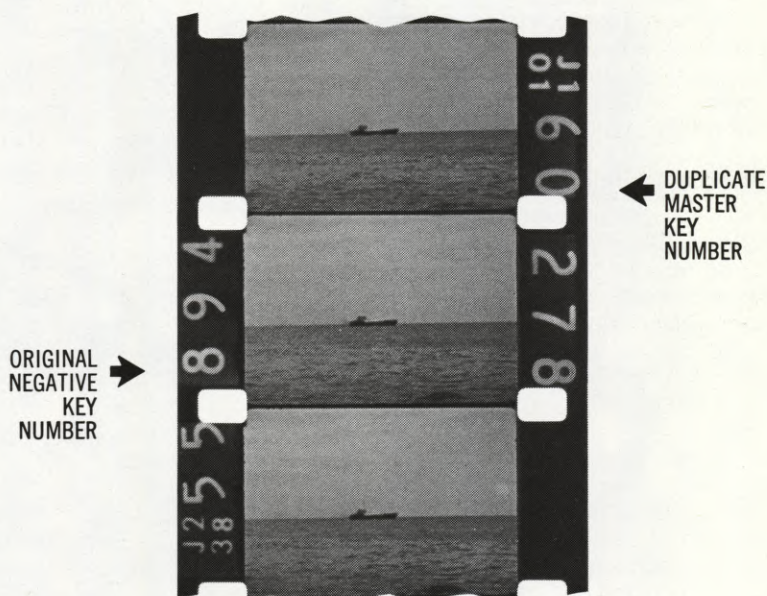
The political contents of movies on a world scale is discussed by Swedish critics Leif Furhammar and Folke Isaksson in **POLITICS AND FILM** (Praeger \$12.50). It is an eye-opening survey of the historic, social and ethical nature of propaganda pictures from *Tearing Down the Spanish Flag*, a 1898 epic of the Spanish-American war, to John Wayne's recent *The Green Berets*, and such classics as Eisenstein's *Potemkin*, Leni Riefenstahl's *Triumph of the Will*, and John Huston's *The Battle of San Pietro*.

* * *

Among recently published screenplays, David Mayer's **EISENSTEIN'S POTEMKIN** (Grossman \$7.95), an annotated shot-by-shot description of the film, is an attractive and scholarly book. **FILM SCRIPTS**, a two-volume set edited by Garrett, Hardison & Gelfman (Appleton \$7.95 ea.) includes *High Noon*, *Henry V*, *The Defiant Ones*, *A Streetcar Named Desire*, *Twelve Angry Men* and *The Big Sleep*, with index, bibliography, and a discussion of the screenwriter's craft. ■

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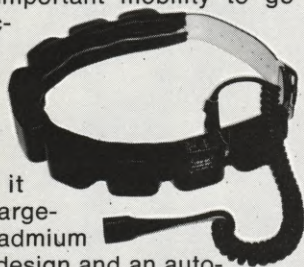
(the next-best thing to instant success)

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

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

Instant Power

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



Instant Quiet

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



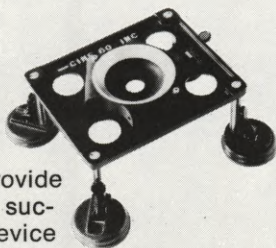
Instant Camera Pod

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



Instant Camera Platform

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



Instant Camera Mount

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



Instant NPR

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



Instant Zoom

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



Instant Rentals

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

Instant Information

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Only two cameras in the world can make all these statements. The new Nizo S-560 and S-800.



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2 *Variable speed shutter.* It allows you to compensate for extreme light conditions. A Nizo first.



3 *Built-in intervalometer.* This lets you make time-lapse films without any attachments. Nizo introduced it in 1968.



A silver label with the guarantee number is affixed to the inside of the film chamber door. It is your assurance that the camera has undergone a 100% inspection according to an 18 point standard and carries the extended U.S. 2 year guarantee.

4 *Extended U.S. 2 year guarantee.** A recent Nizo innovation is an extended U.S. 2 year guarantee on these two cameras.



The new Nizo cameras embody the latest in technological advances — most of these capabilities were developed by Nizo and most remain Nizo exclusives. And when you've had an opportunity to examine the other features of the new Nizo S-560 and S-800, you'll see we haven't stinted anywhere else. To mention only a few: incomparable Schneider Variogon zoom optics with as much as an 11.4 to 1 zoom ratio; automatic metering that works all the way up to ASA 160; built-in sound synch pulse generator; and instant slow motion. The suggested retail price is \$595 for the S-560 and \$695 for the S-800. See your dealer for a complete demonstration. He'll have some statements of his own to make concerning the amazing new Nizo movie cameras.



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The engineering flawless. The design dominated by logic.

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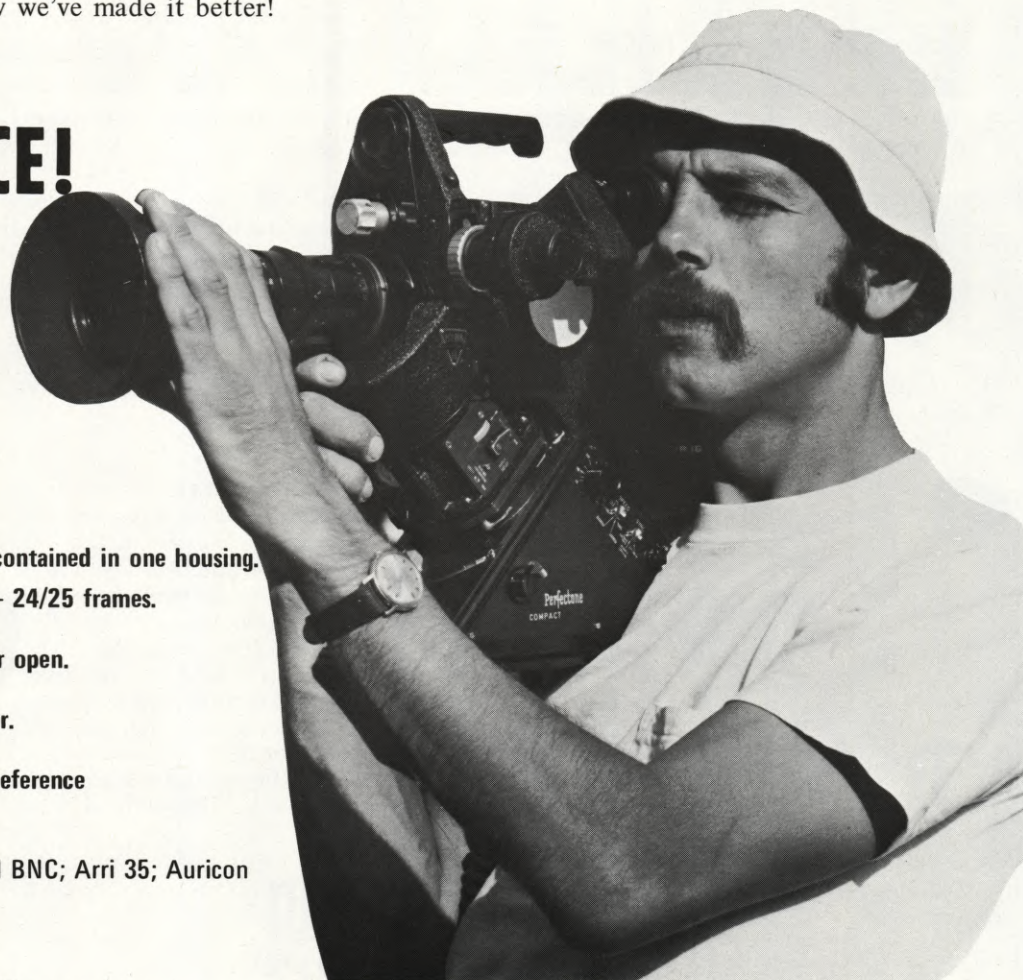
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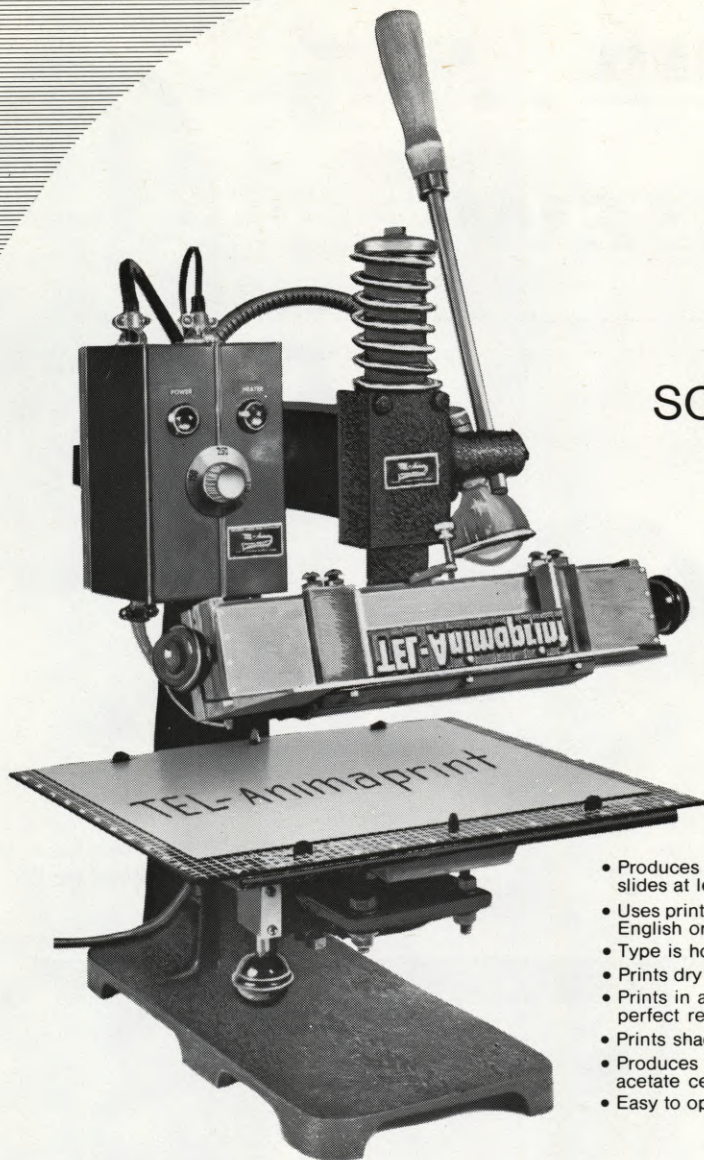
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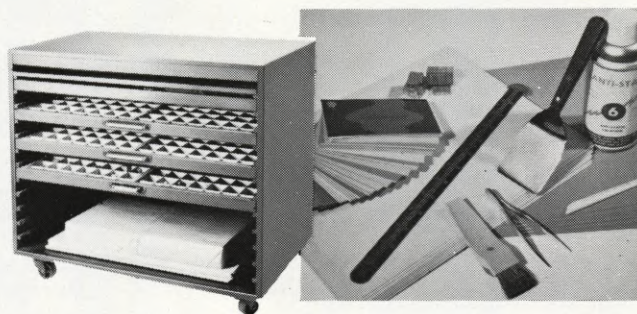
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THE CP-16

AN ALL-NEW CAMERA Not a Conversion

The all-new CP-16 Single System/ Double System 16mm Sound Camera was designed especially for cameramen who are on the go. Manufactured of lightweight magnesium, it provides maximum portability and comfortable hand-holding balance. Additionally, the CP-16 represents a breakthrough in crystal motor technology. Its drive system consists of a small, highly efficient DC motor, an extremely accurate crystal control circuit and a compact plug-in rechargeable NiCad battery, all located within the camera body. *There is no external power pack, no camera cable.*



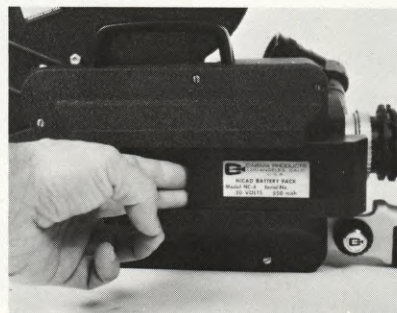
The CP-16 is now in use by television stations throughout the U.S.

FEATURES:

- Camera body weighs 9 lbs., including motor, battery and control circuit.
- 1/2 Amp-hr. plug-in battery provides 3000 ft. minimum filming capacity per charge.
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While filming the International Gelendesprung Championships at Alta, Utah for his feature production, "The World of Skiing," John Jay, John Jay Films, got some sensational footage of spills and aerial acrobatics on skis with the Photo-Sonics 1PD camera at 200 fps, despite a raging blizzard. The rugged camera was totally dependable, and light enough to shoot from moving skis.



This new camera, Model 1PD, designed to meet the more sophisticated requirements of documentation and sports, is a direct by-product of Photo-Sonics' 36-year record of meeting and exceeding the most rigid specifications for cine and high-speed motion picture photography.

Outstanding features include . . .

- Rugged construction
- Movement: 2 pulldown, 2 register pins.
- Speeds, 16 to 200 fps, to 500 fps optional.
- Continuous reflex viewing; image always correct. 360° rotation perpendicular to film plane, 360° rotation around viewer centerline.
- Interchangeable ground glasses.
- Clear gate; no spring loading of pressure plate against film.
- 200', 400' and 1200' daylight load magazines

change in five seconds.

- Designed for use with Arri bayonet mount zoom lens.

Optional features:

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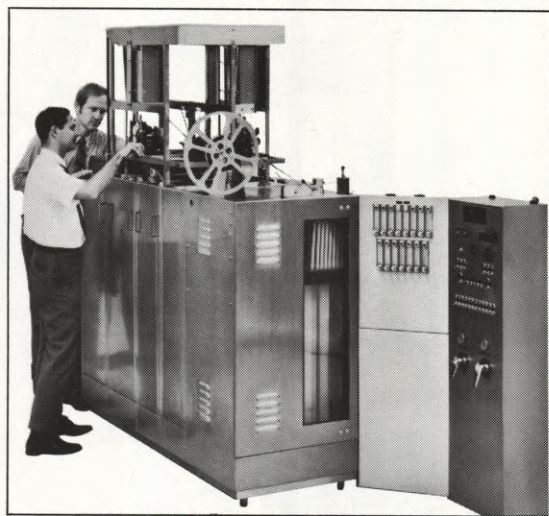
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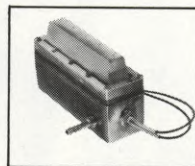
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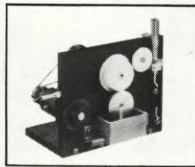


There's a Jamieson color film processor in the size you want, for the process you want to conduct. For complete technical data and specifications on the Mark IX series, Mark IV series, and Compac models, write for our catalog on Jamieson Color Film Processors.

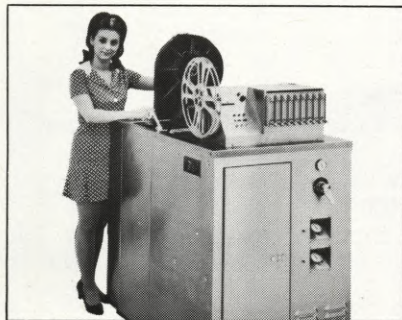
Jamieson Mark IX, Model B. \$26,325. Conducts ECO-3 and ME-4 for all 16mm, 8mm Ektachrome camera and print films at 65 to 75 f.p.m. Other models in the Mark IX series for Eastman Color and other processes in 16mm and 35mm.



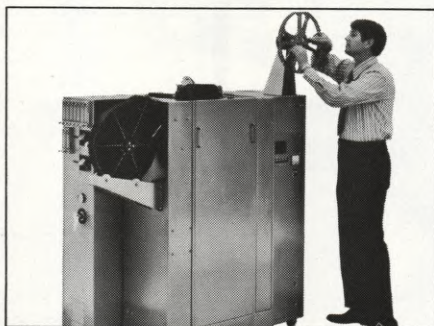
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Jamieson Compac 16/8. \$6,980. Conducts standard ME-4 at 20 f.p.m. Runs 16mm and 8mm interchangeably. Also available for 35mm/16mm. Other Compac models for B & W reversal and negative/positive.



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A young man, his work, and his camera

MARK SHEPARD—Student Filmmaker and Cinematographer □ Speaker on Student Filmmaking in Los Angeles City High Schools and Member of the L.A. Film Teachers Association □ Student at California Institute of the Arts and Valley Junior College □ Producer/Cinematographer of "Mirrors" (a short subject, soon to be released theatrically) and "Spiderweb" (a student-made feature length film)



"If I were to choose which is tougher: making a professional film or a student film—there is no doubt in my mind that I would choose the latter. This comes from ten years' personal experience... from my Brownie to the Beaulieu. What can be more ulcer-producing than having no backing, no huge crew, no budget to speak of, time limitations, deadlines to meet, no sets, very little equipment, and dreams of an epic that might never see its way out of the can for lack of just about everything.

As a student filmmaker, I can honestly say I have been through everything a

cameraman can be through, even though I'm very young. After all, my career started at age 9! Any teenage filmmaker will acknowledge the fact that very little in motion picture equipment meets both our quality requirements and financial limitations. A happy medium is hard to find.

But one is arrund, the Beaulieu 16mm camera, which my film group discovered and began to rent regularly early last year. The Beaulieu has been a lifesaver



ever since. It suits all our needs...from the rental price to the design.

The Beaulieu R16B is one of the least expensive and very best auto-exposure 16mm reflex cameras you can rent from the professional camera supply houses—

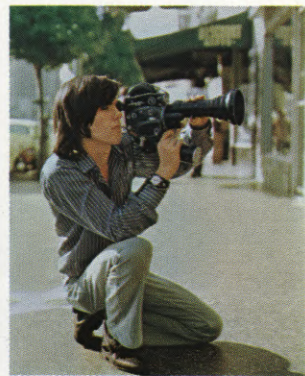


and it gives you the greatest results the first time around. This (and the fact that it is small and compact) meets the most important needs of the student filmmaker—who has one eye on a slim budget while the other is planning a shot.

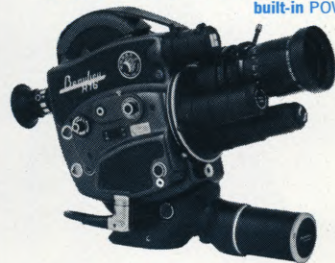
In my own style of filmmaking, I prefer to get the feel of the sequence once we get to our actual location. The Beaulieu 16mm camera lets me have total flexibility, as you can literally just grab it up and shoot away. It's small, so I find it easy to strap it to a car or wheelchair for dolly shots...or for just lying on my back to get an ultra-low angle. It's truly a personal camera. As far as I'm concerned, the Beaulieu R16B can do anything—but anything—you want it to, and in any style you want...from a scripted flick to cinema-verité.

Total versatility and freedom—and that is really what young filmmaking is all about."

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It lets you be there
when it's happening.



Visit your favorite professional M.P. rental house to rent (or purchase) the new Beaulieu R16B(PZ) camera with built-in POWER ZOOM, now available with Angenieux "Auto" 17-68mm (illustrated) or 12-120mm zoom lenses.



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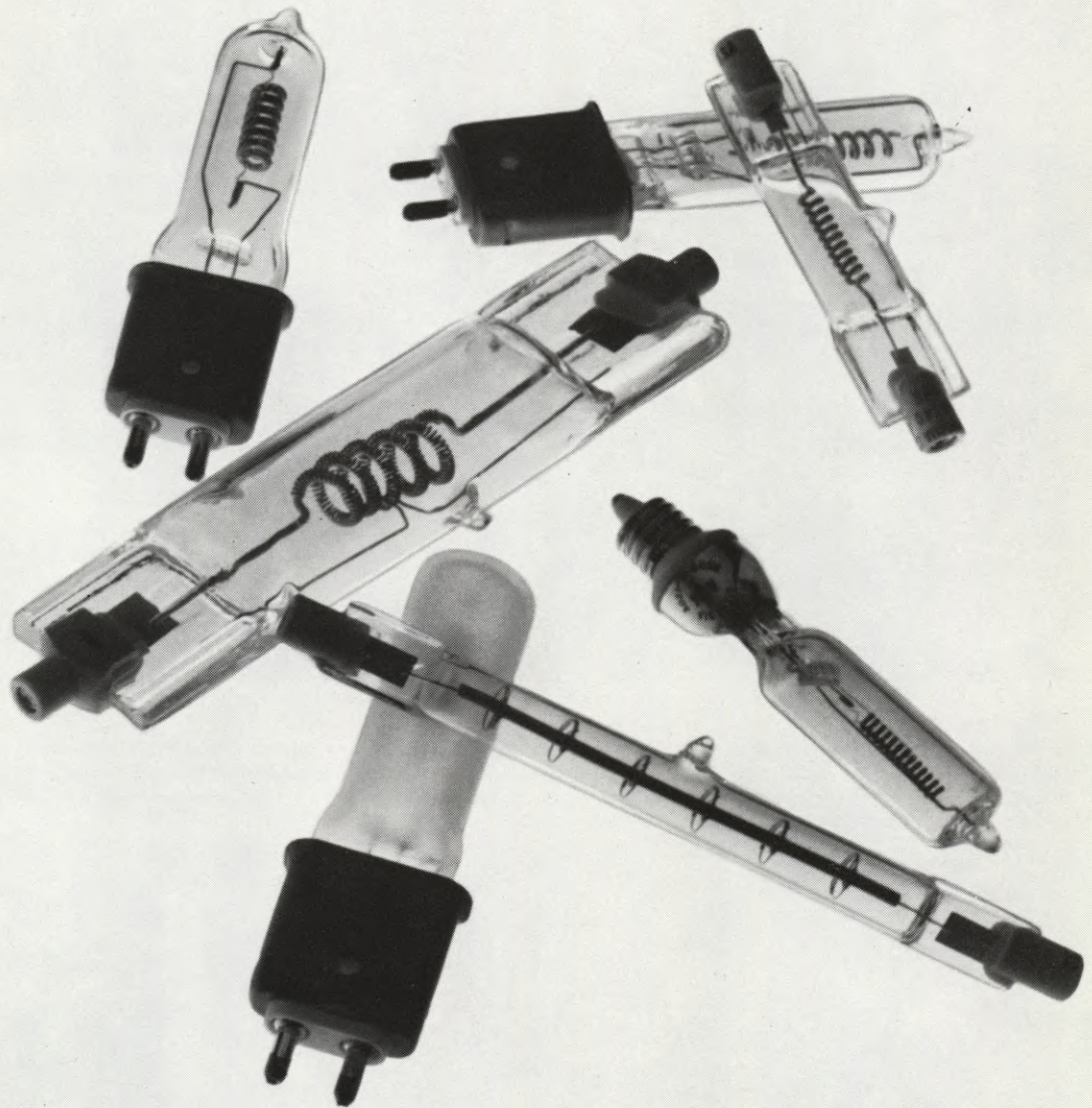
To receive literature on the Beaulieu 16mm camera, visit your finest camera store or write Cinema Beaulieu, General Office: 14225 Ventura Blvd., Sherman Oaks, California 91403.



**Some of our substitutes
for those big, fat incandescents.**



Some of our substitutes for our substitutes.



Those big, fat incandescents blessed the world with a lot of big, fat fixtures and sockets.

So after we came up with our skinny, little tungsten-halogen lamps, the first thing we had to do was set them up on big, fat bases so that they'd fit the old sockets.

Which meant developing a complete line of Substitution Lamps. (You see some of them at the left.)

But soon new fixtures arrived on the

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(Which, by the way, outlast the fat incandescents about 3-to-1, don't blacken and lose brightness with age, and don't fall off in color temperature.)

For the new fixtures, we developed a complete new Standard Line of tungsten-halogen lamps, like the ones on the right.

Whenever studios replace their old fixtures with new ones, they can substitute

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Which is OK with us.

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GTE SYLVANIA

FILMING PRESIDENT NIXON'S VISIT TO CHINA

Never-say-die American TV newsreel cameramen worked their sprockets off to get the important story on film—but shared in an unforgettable adventure

By JIM KARTES

Free-lance Cameraman for CBS News



Our Pan American 707 was making its final approach to Shanghai Airport. The speakers in the cabin had been turned on, and the reporters, photographers and technicians aboard our press plane could hear every word of the ground-to-air transmission as the big jet prepared to land. It was February 20, our first day in China, and the tension in the air, coupled with the staccato rhythm of those voices crackling over the speakers, in a kind of count-down pattern, produced an eerie sensation. As George Romilly of ABC put it, "I feel like I'm landing on the moon for the first time."

But once we were on the ground, all illusions of space travel vanished. Cameras already were rolling as the plane taxied by the armed soldiers who lined the runways. Cameras were rolling as we stepped from the plane to film reactions of Chinese officials and American correspondents. In fact, cameras never *stopped* rolling until we left China eight days later. George may have been right. Arriving in China was like the end of a space voyage. But *working* there was something else.

(ABOVE) The author, Jim Kartes, and Skip Brown, both of CBS News, shown with Fred Montague, NBC, in front of the Shanghai Industrial Hall. (BELOW LEFT) Cameraman Izzy Bleckman and Jim Kartes on the Great Wall with correspondent Walter Cronkite and producers Gordon Manning and Ed Foughy. (CENTER) Interior of the Shanghai Exhibition Hall. Hall was lit by the Chinese, who mixed 3200 Kelvin light with daylight. (RIGHT) Unidentified video cameraman tapes a dance class.



(LEFT) The author lines up shot of a Chinese family. (CENTER) Proud fathers are the same all over the world. (RIGHT) Cameraman Fred Montague, NBC, helps Jim Watt with sound, while filming stand-up interviews with correspondents Herbert Kaplow and Barbara Walters on the Great Wall. Out of more than 2,000 applications to cover the President's trip, just 87 newsmen were approved. Of these, there were only nine cameramen and two soundmen to serve three networks.





(LEFT) Cameraman Skip Brown totes his "one-man-band" filming rig in Tien-an-men Square, Peking, before the gate of Heavenly Peace. (CENTER) Brown runs out of hands and grasps the microphone with his teeth. (RIGHT) Fred Montague, NBC, films stand-up interview with correspondent Barbara Walters. Cameras started rolling as the plane touched down at Peking airport and didn't stop until the President left eight days later.



(LEFT) The fabulous camera-headed man is actually Jim Watt of NBC News. (CENTER) Watt displays his configuration of the "one-man-band" filming rig. Each cameraman had his own pet gimmicks and gadgets attached to a basic camera. The rigs averaged 40 pounds in weight, including power packs and extra magazines, carried on the shoulders and backs of the cameramen. After the third day, several were taking muscle relaxers to ease the pain. (RIGHT) Chinese cameraman filming Nixon's departure.

The press had made more than two-thousand applications to cover the President's journey to China. But only eighty-seven were press personnel approved through negotiations between China and the United States. Of the eighty-seven newsmen, thirty-three were picked to represent the three major television networks, ABC, NBC, and CBS. This included correspondents, network anchormen, and producers. There were only nine cameramen and two soundmen, and each network basically was allowed three people to film with. Actually, I was told that during negotiations the Chinese could not understand why only *one* cameraman couldn't represent *all* of the American networks.

Because of these manpower limitations, the networks decided to employ the "one man band" principle that most local television stations use for their daily news coverage, with each cameraman doing his own sound and lighting. Eight of the cameramen who went to China were set up this way, and there was one "pool" cameraman and soundman who always travel with the President. Their job was to film only when a single crew would be allowed to accompany the President or Mrs. Nixon. Bruce Hoertel ran the camera and Eugene Gerlac handled the sound. Both are employed by CBS, but in this case they were working for all three networks.

The cameramen representing the networks were Murray Alvey and George Romilly of ABC... Masaki Shihara,

A group of American newsreel cameramen on the Great Wall, getting set up to film the President's arrival. (Left to right) James Watt, NBC; George Romilly, ABC; Byron Shumacker, White House photographer; Fred Montague, NBC, and John Dominis of LIFE magazine. Most cameramen did their own sound and lighting, as well as photography.





Brown and Kartes on steps of one of the many ornate buildings in the Forbidden City. Untangling mike cables, catching power packs as they slipped from shoulders and riding gain on sound while shooting, cameramen had all they could do to get it on film, without trying to be creative.

Fred Montague and James Watt of NBC, and Isadore (Izzy) Bleckman, Willis Brown and Jim Kartes of CBS. The United States Information Agency also was represented by Ferco Productions of New York, which sent two cameramen and two soundmen.

Before leaving for China, each network prepared differently. CBS left it up to the individual cameraman as to how he would work and what equipment he would take. NBC purchased five of the new Frezzolini cordless

cameras along with the new Transist-O-Sound amplifiers. They made special brackets for lights and amplifiers to be mounted on the camera, then gave the equipment to their cameramen for a few weeks of testing. NBC cameraman Jim Watt made the comment that all he needed was a harmonica and cymbals and he would be all set.

ABC used General SS-IIIs with Frezzolini's new power belt inverters which worked well. Romilly said they seemed to have much more punch.

The new light-weight, low-profile BEAULIEU "NEWS 16" professional 16mm sound camera (see Page 666) is tried out by cameramen in front of the video facility specially built for the President's visit in Peking. This all-new, highly sophisticated camera was given a thorough shakedown on the China trip and performed perfectly.



The equipment did not disappoint us. The Frezzi-Cordless performed admirably, and the special Ni-Cad batteries for the cold weather were a great help. With all of the equipment we had to carry it was a blessing not to have a power-pack falling off our shoulders. Bill Landrum of Transist-O-Sound worked his engineers overtime to supply the networks with his new Model 3-CA amplifier. When you're a one-man-band, having a compact unit like that with the auto-gain is a big plus.

Everyone was told to prepare for unusually cold weather, so most cameramen brought along barneys with hand warmers inside to keep the cameras warm. But, as it turned out, the weather was surprisingly mild most of the time.

By the time all of this equipment was put to use in China, the strangest configurations began to appear. Lights and amplifiers were mounted to shoulder braces and cameras in every conceivable fashion. And when the cameraman had his 30-volt power packs for his Sun Gun and the extra magazines and film packed, it was estimated he was carrying about forty pounds of equipment on his shoulders and back. After about eighteen hours a day it felt more like *eighty* pounds. By the third day some of the cameramen were taking muscle relaxers to ease the pain in their backs so they could get some sleep at night.

One of the biggest problems was transportation. I'll never again complain about American compact cars. By the time we put a driver, interpreter, correspondent and producer in one of those small Chinese compacts, there hardly was room for the cameraman with his equipment. But as it turned out, that problem often solved itself. Most of the time we simply couldn't get cars.

But the equipment held together very well, at least the pictures always seemed to come out. Even when we had to squeeze big cameras into tiny places, untangle yards of microphone cables, catch power packs as they slipped from our shoulders, and all the time trying to keep from locking lenses with other cameramen like bulls locking horns at the Forbidden City. I'd wager that one of the most lasting impressions the Chinese will carry in the days ahead is not President Nixon toasting Chou En-lai in the Great Hall, but the sight of those hulking American television cameramen chasing around under forty pounds of metal, and trailing mike cords behind them like some kind of ritualistic snake dance.

After a few days, when we became more accustomed to doing our own sound, we began riding sound levels

instead of using the auto-gain. But because we were constantly doing so much, most cameramen found that their creative ability was impaired. It's almost impossible to think good picture and remember sound and lights. Next time maybe I won't be so critical of local television news. It's an almost impossible job those "one-man-bands" have.

The other cameramen generally felt the same way. Izzy Bleckman, who travels with Charles Kuralt "on the road" for CBS, said after the China trip, "I never made a really great picture. I felt more like a moving tape recorder." Jim Watt of NBC said, "I found myself losing both mobility and creativity because I had to worry about too many other things." I think we all felt that when you are given such an important assignment, it's a shame you can't have your full crew along. But again, those manpower limitations . . .

Working with the Chinese film crews was another experience. The big problem was the language barrier. Another was the fact the Chinese were not used to the way newsreel cameramen and newspaper photographers compete. The Chinese were always placed in the prime spots to shoot from and we Americans found it very difficult to remember our manners and not to push and shove so we could get the good angle, too. When some of the "still" boys finally gave them an elbow or two on occasion, the Chinese had the strangest looks on their faces. But, in time, they learned how to elbow right back, so we began to feel more at home.

Another thing which disturbed me personally was that each Chinese cameraman had two electricians with a two-lamp sun gun device. I hate to burn someone up with a sun gun and in many cases, especially when we were filming Mrs. Nixon, as many as three of these units were used at once. It was especially irritating because the Chinese do absolutely no sync filming and when we were doing sound takes those sun guns were going on and off constantly. At times it became a nightmare. You would be rolling by yourself with your one modest soft focused light which is all one man could manage to carry, when suddenly three of those lights would come on, changing your F-stop from a 2.8 to a 5.6 or more. Try changing your F-stop quickly with microphones and lights in your hand. Also those unblimped Arriflexes sure played hell with the sound.

But generally, the Chinese cameramen were well-equipped, using mostly 35mm hand-held Arriflexes. They also shot side-by-side with 16mm. One was for theatre release, the other for state-



A crowd of Chinese and American cameramen gather on the steps at Hangchow airport to await the arrival of the President. TV newsreel cameramen assigned to the trip did a superhuman job of coverage.

owned television. All cameramen in China work for the propaganda wing of the State. And despite that sun gun problem I mentioned, their lighting equipment was good. They manufacture their own, which is similar to what we would call a Mini-Brute, only much smaller. Generally, their lights are a six-lamp device that puts out about 3000 watts per unit.

The lighting they accomplished in the Great Hall was superb. You cannot imagine the enormity of that building unless you have been there. They had two floors including the formal staircase completely lit. It was an incredible lighting job, using dozens of small Mini-Brute-type lights as their main source. Inside the banquet hall there must have been twenty-five of what looked like old-fashioned giant brutes which were built permanently into the walls. But those lights drew so much power that

they could never be left on for more than a couple of minutes.

A few other notes about the equipment I took to China: Before going on the trip I had planned to carry 7241 daylight film and shoot as much as possible with available light. In several cases I was able to do this, when I was shooting network features by myself. But in almost every instance when the Chinese cameramen were around, they would burn up our interiors with those Sun Guns, mixing 3200°k with daylight, so we almost had to standardize on 7242 tungsten and hope for the best.

It was estimated that each cameraman shot about 18,000 feet of film. This included the film that was used for sound tracks. All of the film was processed in a special Lab that was set up two weeks prior to our arrival. It was a pool arrangement by the three networks
Continued on Page 702

THE EXPLOITS OF PRESIDENT NIXON'S PERSONAL CAMERAMAN ON THE CHINA VISIT

On very special assignment, veteran newsreel cameraman utilizes light-weight gear to document a historic visit

By FRANK THORN

It was 2 a.m. on a February morning when the phone rang in the home of Bill Hartigan in snow-covered Schenectady, New York.

"Bill Hartigan, this is Mark Goode at the White House," came a crisp, clear voice.

"I've heard about you, Bill. Would you like to go to China to be the President's personal cameraman?"

Suddenly, without warning, another epic chapter began to unfold in the derring-do life of Bill Hartigan, one of the cleverest and fastest photo-journalists ever to film a story.



(ABOVE RIGHT) Bill Hartigan, on assignment as President's personal cameraman, shown with specially-modified Eclair ACL camera in the Forbidden City during a snowstorm. (BELOW LEFT) The Presidential party crosses a bridge on scenic West Lake in Hangchow. (CENTER) A crowd of Chinese and American cameramen wait in front of air terminal at Hangchow for arrival of Nixon's plane. (RIGHT) A huge portrait of Chairman Mao Tse-tung adorns the facade of Hangchow air terminal, as it does almost every public building in the Peoples Republic of China.



(LEFT) President and Mrs. Nixon, accompanied by Premier Chou En-lai, traverse bridge crossing West Lake in Hangchow. (CENTER) Chou points out to President scenic highpoints of West Lake, one of the most beautiful and historic areas in mainland China. (RIGHT) The President and Mrs. Nixon wave goodbye from top of ramp, as Air Force One prepares for final takeoff from China. (Photographs by DIRCK HALSTEAD.)



Hartigan, who had photographed every major war to scar the globe since 1941, learned two days after the phone call that this assignment wouldn't be ordinary. It would require special equipment, innovative techniques, ingenuity and a lot of fast work to produce the kind of sophisticated filming requested by the President of the United States.

In Washington, Hartigan met Mark Goode, special projects co-ordinator for the White House, and received terse instructions. What the President wanted was a historical record of what would be the most extraordinary foreign relations coup of the century—the Presidential trip to China. No President in U.S. history had ever documented on film an entire mission abroad from arrival to departure, from high-level conference meetings to informal meetings with the people on the street. Filming of great events in the past had been limited largely to friendly handshakes and the issuing of joint communiques. But what Nixon desired was a quality film record of every facet of the Presidential trip to become the property of the American people.

Discretion and national security were the only restrictions. The film was to open foreign diplomacy to public view and provide an informative and educational picture in sound and color to be loaned to schools and groups.

A great assignment, but there were hitches. Hartigan was assigned an assistant cameraman and a soundman—no other help. No other help to rig lights or clear through crowds pressing around the President, and worse, he would vie with Chinese photo-journalists and give them the advantage of up-front spots at the big events. His instructions were not to interfere in any way or block the lenses of still or television cameramen who were handling primary coverage.

As though by reflex, Hartigan understood he would be forced to travel fast and shoot fast; capture intimate details of the big moments, and cover the big scenes as well. He would record the flavor of Peking—the historic events involving the Chinese people, the scenic contrast of the old and new China. Americans, limited to brief glimpses of China during the past 19 years, at last would have an authentic view of the giant of the Orient seen through the medium of American film. The selection of equipment was vital to cinematographic success. He knew he needed a lightweight camera, one that would be dependable and quickly reloaded. He also required easily portable sound equipment, all-purpose lighting, and a very special zoom lens. No financial

restrictions were imposed—"just do the best possible job," he was told.

Hartigan was accustomed to tough assignments. Holder of distinguished photography awards, and a five-time Emmy nominee, he was one of the first photo-journalists to film a war with sound (the Korean War), and the first to work under extreme cold conditions (the first three Deep Freeze operations to the South Pole). He also prided himself on his close camaraderie with other top-flight professional cameramen.

"I pretty much knew what I required," recalled Bill. "But I'd need help. So I turned to friends in Local 644 and together we pooled our collective experience. The final selection of equip-

ment was the result of a team effort."

Hartigan decided he'd film the Peking diplomatic adventure using the new French-made Eclair ACL. The feature most valuable to Hartigan is the Eclair's pre-loaded and pre-threaded film magazine. The camera can be reloaded in five seconds, a factor which gave the speed needed to "photograph everything" as the President asked. Each magazine has 200 feet of film which allows five minutes of shooting time. In all, he took 100,000 feet of raw stock and shot 32,000 feet—30 per cent sync-sound.

Hartigan called on Urs Furrer who was in New York shooting the sequel to the feature film "SHAFT", ("SHAFT'S BIG SCORE"). Said Hartigan, "Urs was

Chinese and American cameramen mingle on steps of Hangchow air terminal while awaiting arrival of the President. In foreground, cameraman Fred Montague, NBC, looking exhausted, but hanging in there, holds on to his heavy "one-man-band" filming rig. By contrast, Bill Hartigan used light-weight Eclair ACL camera, miniature Nagra SN recorder and Vega wireless microphones. He was aided by assistant cameraman and soundman.



the only one I knew who was using the Eclair ACL in the East. He got four of them for my trip."

Besides the four cameras, Bill took 12 magazines, half of them loaded with high-speed color (7242) film and half with regular Ektachrome Commercial (7252) film. The Eclair ACL has a crystal control, weighs only 9 pounds, and does not require any cables to the recorder for double-system sound filming.

"I was trying a new method of shooting news events with speed and ease," he said. "I felt we achieved marked superiority over our counterparts, the TV newsreel cameramen, who staggered under 60-pound, hand-held cameras and had delays rethreading, plus the problems of cold affecting some of their motors at times. The cold in China never bothered us.

"We also brought a new pocket-size battery, easily warmed by the hands, self-recharging in 20 minutes, and with a capacity to roll 10 magazines," he observed.

Hartigan and his assistant cameraman, Bert Gold, and his audio mixer, David Ronny, and director Fritz Roland also brought along a new zoom lens, the Angenieux 9.5mm-to-57mm, F/1.6 lens, which is small, light in weight and one stop faster than the normal zooms. This was essential if the team were to get important close-ups and clear panoramic scenes. "It was a sophisticated piece of equipment," said Hartigan. "I used an F/1.6 stop with excellent results rather than the F/2.2 stop normally used for zooming." Working outdoors Bill filmed generally at F/11 and for interiors with difficult lighting he employed the Angenieux 9.5mm-57mm "baby" zoom lens wide open.

Working just as hard as the film-oriented newsreel cameramen on the trip were the video camera operators who did a superb job of providing live coverage of the events to the United States and other countries via satellite. Here unidentified video cameraman sets up his Norelco camera to shoot a scene.



Chinese cameramen, equipped primarily with Arriflex camera, film Nixon's departure. Out of courtesy to hosts, American cameramen characteristically deferred to their Chinese counterparts for choice photographic vantage points during the visit and held usual nudging for position to a minimum.

His larger zoom lens for use with the ACL was the Angenieux 25mm-to-250mm, but he felt that he might need an even more extended zoom range to capture both sweeping panoramic scenes and extreme telephoto shots on the trip—especially during the excursion to the Great Wall. For this reason, he decided to use an optical extender which would provide a 50mm-to-500mm zoom facility. This required building a mount to support the extremely long zoom and to insure that its weight would not damage the lens or the camera lens mount.

He turned to cameraman-equipment designer Ron Lautore.

"Ronny stayed up all night and

worked for two days on his lathe and bench constructing a special mount for the lens," said Hartigan. Lautore built a long arm and cradle to support the weight of the large zoom which was mounted into the camera lens mount.

"Working with this special zoom was just fantastic," said Hartigan. "I got big scenes and beautiful compression shots. When the President landed in Peking, I was able to close in on the faces of the People's Republic of China Honor Guard and then focus on the Presidential seal on Nixon's jetplane."

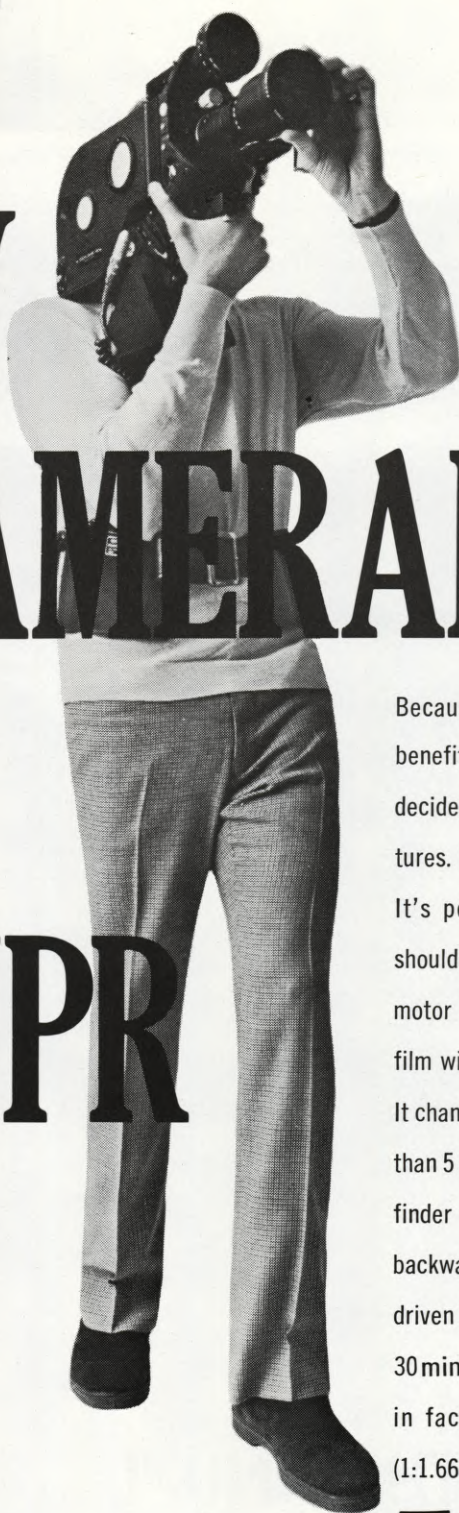
Hartigan always arrived one day ahead of the Presidential tour, leap-frogging via commercial plane to Hawaii, Guam, Shanghai and finally Peking.

The President's camera crew took along three basic audio systems in order to be prepared for all possible conditions. The crew knew purchasing parts or a new system in China would be impossible. Hartigan took the standard Nagra with a Sennheiser shotgun microphone which he used as the primary system. As the secondary system he brought the new Vega wireless mikes. In all he had three Vega units with three different frequencies. He had hoped Mrs. Nixon would be able to carry one of the Vega units but this wasn't feasible. The third system was composed of the ultra-sophisticated miniature Nagra SN recorder which fits into a suit pocket. Its crystal control puts it in perfect sync with the Eclair ACL. The mike attachment is a peanut-size Japanese Sony condenser unit which, accord-

Continued on Page 674



IN FRONT OF EVERY GREAT CAMERAMAN IS AN ECLAIR NPR

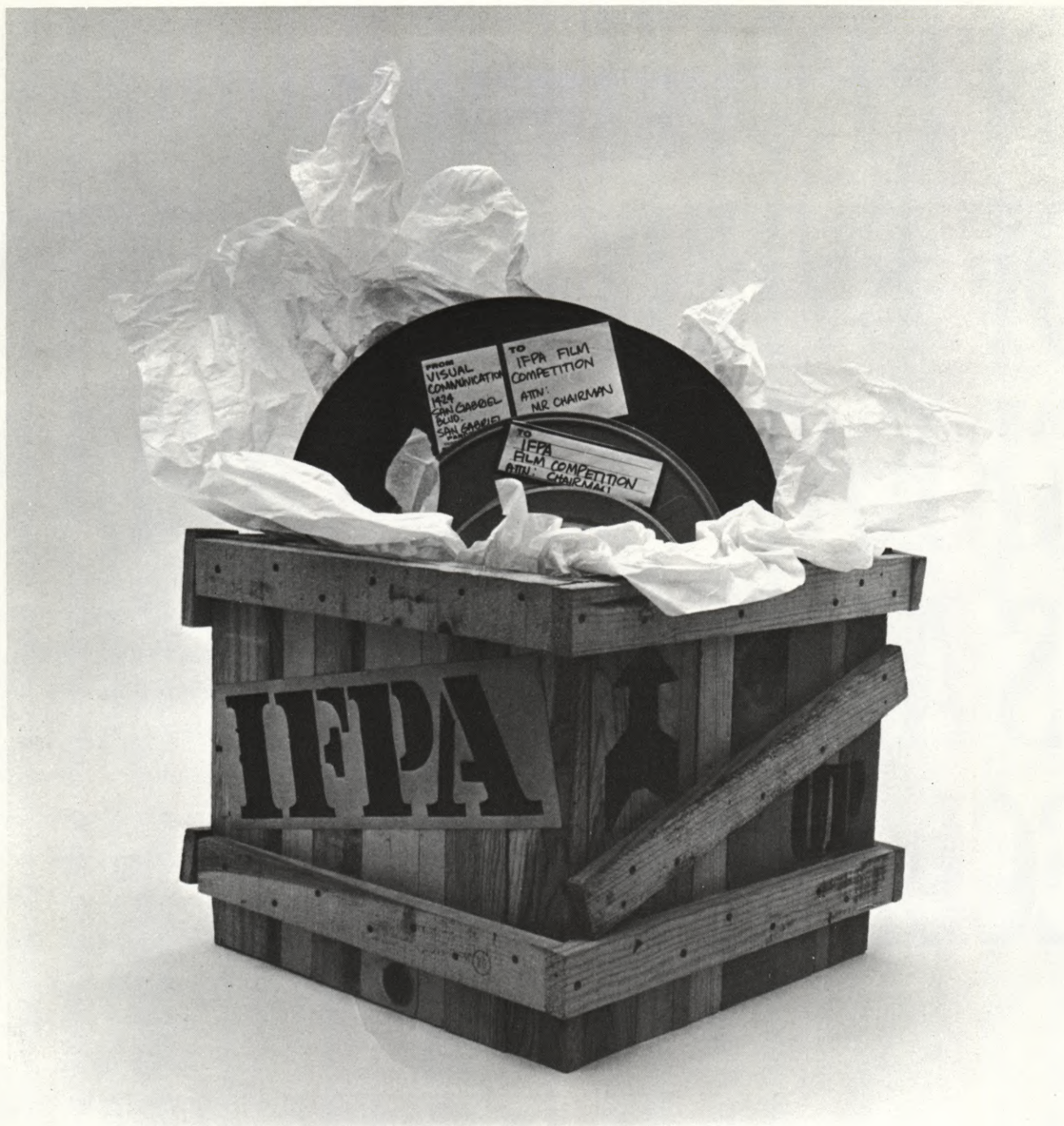


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INFORMATION FILM PRODUCERS OF AMERICA INC. proudly announces its call for entries in the country's leading non-entertainment film competition. Held in conjunction with IFFPA'S 13th annual conference and trade show. October 18-21 at the Universal City Sheraton Hotel in Hollywood.

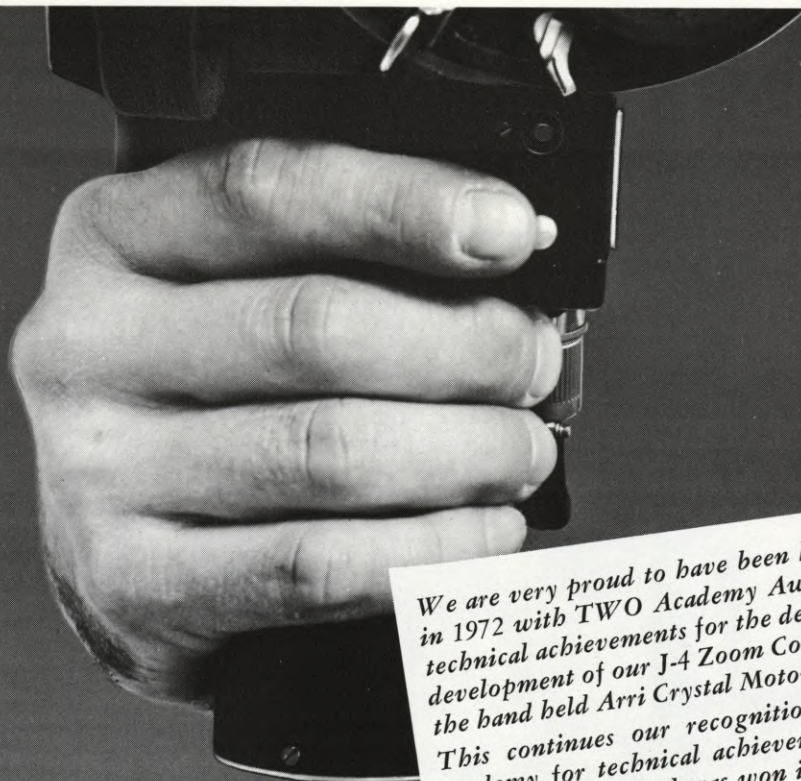
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THE FREZZI-CORDLESS CAMERA IN CHINA

Having proved out for over a year under all field conditions, this professional 16mm TV newsfilm single/double system sound camera came through with flying colors in China

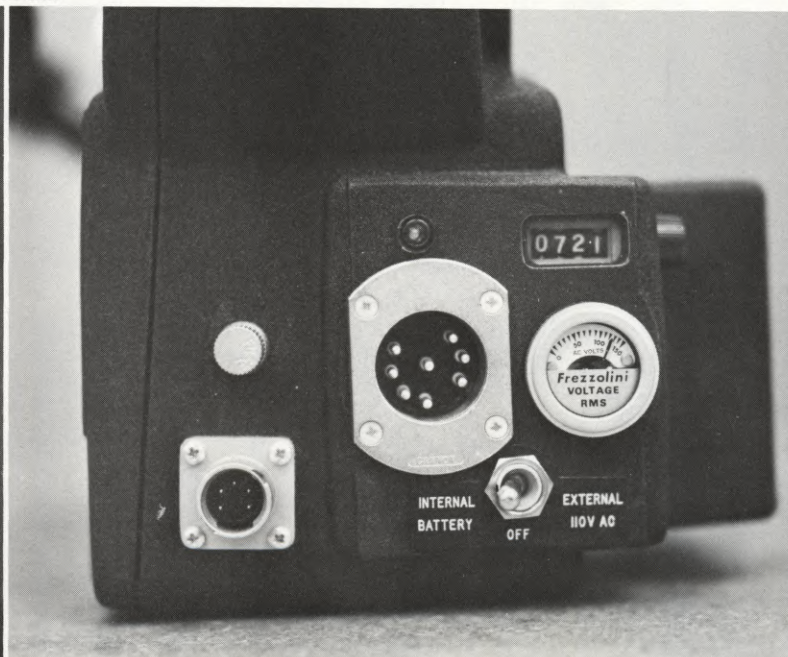
The nine newsreel cameramen hand-picked to represent the three major American television networks in filming President Nixon's recent trip to China utilized a wide variety of cameras to execute this important assignment. Among this equipment was the Frezzi-Cordless 16mm Sound Camera, with 400-foot magazine and single-system magnetic sound recording capability.

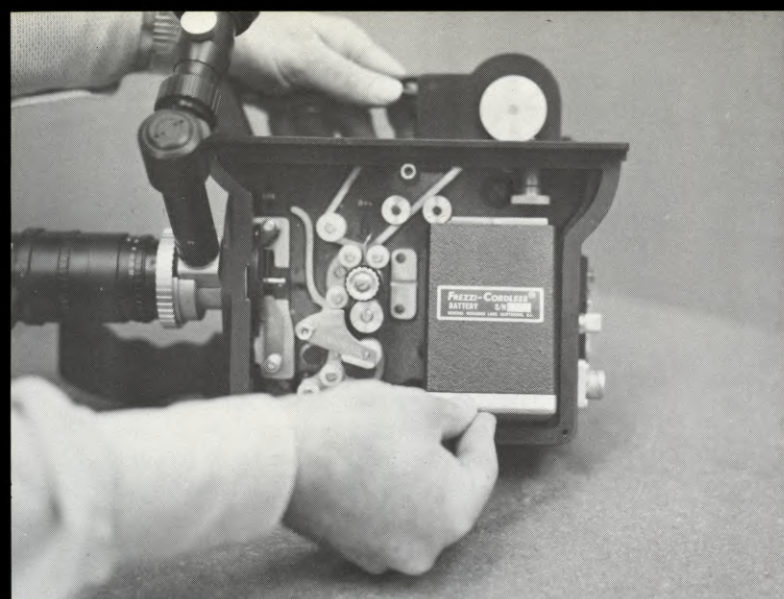
Requirements for maximum portability in TV newsfilm coverage during Nixon's China trip made the Frezzi-Cordless a natural camera selection. Field testing throughout the United States had proven its reliability for over one year under all working conditions. The camera was the result of two years of research and development to create a truly portable and reliable *standard TV newsfilm camera*. In standard operation, the camera is normally supported with a shoulder or body brace. In FIGURE 1 the camera is shown in a hand-held shoulder position. Due to this feature, rapid shooting can be accomplished as quickly as the camera can be positioned on the shoulder and the image lined up in the eyepiece.

The Frezzi-Cordless camera provides complete power-source operating com-

NBC's Fred Montague films a stand-up commentary by correspondent Herb Kaplow in front of the imposing Shanghai Industrial Hall, prior to President Nixon's arrival. Montague is using an Auricon camera with Frezzi-Cordless conversion. The Frezzi-Cordless camera provides complete power source operating compatibility. It can be powered directly from AC lines or any Frezzolini AC portable power inverter (as shown here). It can also be powered from an external plug adaptor.

(LEFT) FIGURE 1—General Research Laboratories' Crystal-controlled Frezzi-Cordless camera, shown in a hand-held shoulder position, operating in double-system synchronization. (RIGHT) FIGURE 2—Rear view of camera while in operation, showing AC voltmeter and standard amplifier connector. Camera is ready to roll with a variety of amplifier systems. Small connector on left can be used for AC line input, external battery input, or the camera can be operated from any power pack manufactured by Frezzolini.





(LEFT) FIGURE 3—Battery installation is both quick and simple. The door is removed and the battery inserted into the connector assembly. Correct polarity will always be observed, due to mechanical polarization of the battery cannister. (RIGHT) FIGURE 4—Left side view, showing easy accessibility of inverter module. The entire electronic circuitry is located within the cover to facilitate servicing. A simple disconnect makes possible quick check-out for periodic maintenance.

patibility. It can be powered directly from the AC lines or any Frezzolini AC portable power inverter. It can also be powered from an external plug adapter.

FIGURE 2 shows the rear view of the camera in operation with the AC voltmeter indicating power to the motor, the power selector switch set on internal battery, the location of the amplifier plug in the center of the camera back, the location of the all power compatible plug in the lower left corner and the main DC fuse just above it. The four-digit footage counter and line or power indicating light completes the instrumentation of the back of the camera. The camera features a quick change internal battery. This is shown in

FIGURE 3. It is easily inserted and removed with fingertip control. The arrangement of the mechanical plungers to accept the battery eliminates any possibility of improper battery insertion. Above the battery is a transport safety switch. When this switch is in the "off" position it is impossible to accidentally turn the camera on from the rear control or from the front push-switch "on" control if the optional pistol grip is on the camera.

The heart of the built-in power supply for the Frezzi-Cordless camera is a high efficiency, high-power, miniature inverter. It is located on the left side of the camera within the motor cover housing. Removing four mounting bolts

enables the cover to be removed to facilitate easy field servicing.

A quick disconnect plug enables the electronic package to be removed for complete access to the motor, wiring, and mechanical linkages on this side of the camera. When operating the camera from the line, AC power is fed directly to the motor. No black boxes or inline transformers are necessary to run the camera from the AC line. In the internal mode, running on internal DC batteries, or in the external mode operating from an external DC battery, the internal inverter is energized and provides crystal-controlled power to drive the AC synchronous motor. The electronic module assembly is unique in its operation

(LEFT) FIGURE 5—Each camera is given a final check for frequency and voltage after exposure to high and low temperatures. (RIGHT) FIGURE 6—The Model B-35 Power Inverter Belt for operating Auricon conversions. The belt supplies up to 35 watts of power at 120 volts AC, 50 or 60 Hz. It can be supplied with crystal-controlled output for double-system operation. A built-in charger is incorporated into the belt. Recharge time is 10 hours.



in that it is compensated to work with any voltage between 8 to 12 volts DC and maintain a proper AC voltage across the synchronous motor.

SPECIAL EQUIPMENT FOR THE NIXON CHINA TRIP

Beginning approximately two months prior to network departure for Nixon's China trip, a list of special requirements for 16mm sound cameras and associated equipment was submitted to Frezzolini Electronics. Foremost in these specifications was the need for seven Frezzi-Cordless cameras, various special AC inverters, and Frezzi DC power packs for portable light heads.

Within one month's time, after receiving the go-ahead, the following equipment was supplied: seven Frezzi-Cordless cameras equipped with both silver zinc and nickel cadmium batteries for all-weather operation of the type shown in FIGURE 1; three new types of AC belt inverters of the type shown in FIGURE 6. This new belt inverter delivers 35 watts of AC crystal-controlled power to run a minimum of 2400 feet of film through the Auricon 400-foot conversion cameras and SS III (General Camera). This unit is now designated as B-35; 12 Model 800-NC portable Frezzi Power Packs to operate 30-volt portable light heads. These were equipped with built-in recharge capability at 110 volts or 220 volts, 50 or 60 Hz, AC; five Model 3000 camera clip-on inverters, crystal controlled, with quick-change nickel-cadmium battery packs designed to plug into the side of General Camera's SSIII; an assortment of 1000-DX inverters.

A typical cameraman can be seen in

operation in FIGURES 7 and 8. The camera in these pictures was a 400-foot Auricon conversion which was converted to a Frezzi-Cordless camera. This particular camera was in operation for approximately one year before going to China, and it is still going strong.

All of the above equipment was laboratory tested and then put through complete environmental testing prior to acceptance and delivery. All of the equipment was well received and worked reliably throughout the trip.

Prior to shipping, each camera is tested mechanically and electrically. FIGURE 5 shows the electronic module undergoing final check-out, for frequency and power output.

At the present time, there are approximately 100 Frezzi-Cordless cameras in the TV newsfilm daily operations throughout the world. The reliability of this system has been proven over the past year. A recent variation has been the introduction of a magnesium body to satisfy those requirements for the standard camera, but lighter in weight. This is now available. For further information, call General Research Laboratories Division of Frezzolini Electronics, 7 Valley Street, Hawthorne, New Jersey 07506 Telephone: 201-427-1160.

TECHNICAL SPECIFICATIONS FOR THE FREZZI-CORDLESS CAMERA

Type

16mm single or double-system professional newsfilm camera with Bach-Auricon movement in original center plate mounted in either aluminum or magnesium body to accept standard 400' or 1200' Mitchell magnesium magazines.

Film Drive System

AC synchronous motor with built-in miniature high-efficiency crystal-controlled AC inverter. Quick-change batteries allow up to eight (8) 400' magazines per charge.

Lens

Accepts standard "C" mount 16mm lenses with a variety of finders.

Sound Recording

Use of the Bach-Auricon filmagnetic recording head provides for reliable single-system operation with a selection of recording amplifiers.

Battery

Choice of Silver-Zinc or Nickel Cadmium in 4 or 2 Ampere Hours.

Electronics

Plug-in circuit boards on a master board provide for quick check-out and servicing. Crystal-controlled for synchronous motor operation at either 50 or 60 Hz. A new type of high-power miniature lightweight conversion circuit with automatic compensation for voltage and temperature variations.

Weight

A fully-rigged camera (i.e., typical news operation) with 12-120mm Angenieux zoom lens and 400' magazine in aluminum body weighs 18 lbs; with magnesium body, 15 lbs.

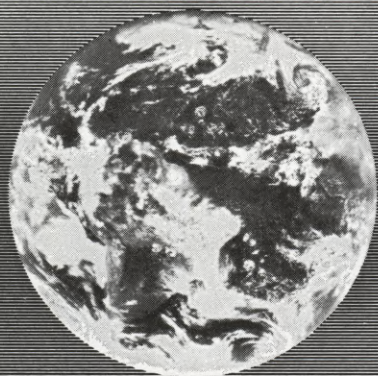
Standard Features

4-digit footage counter, filter slot, military type AC voltmeter, optional removable pistol grip, Ruggedized controls. The camera is normally supplied as a complete newsfilm package in a very durable custom carrying case ready for air or surface transportation by film crews to assignments. ■

(LEFT) FIGURE 7—Jim Kartes, free-lance cameraman for CBS News, is shown with Frezzi-Cordless camera atop the Great Wall during President Nixon's recent visit to the Peoples Republic of China. About the camera in this situation, Kartes observed: "The Frezzi-Cordless performed admirably, and the special Ni-Cad batteries for the cold weather were a great help." (RIGHT) FIGURE 8—Side view of the camera, supported by shoulder brace. For the China trip NBC purchased for use by its three cameramen five Frezzi-Cordless cameras, along with the new Transist-O-Sound amplifiers.



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CINEMA '72: A MATTER OF SURVIVAL

The Third Annual USC Film Conference meets to talk about the demise of the motion picture industry, and decides that the patient is pretty healthy after all

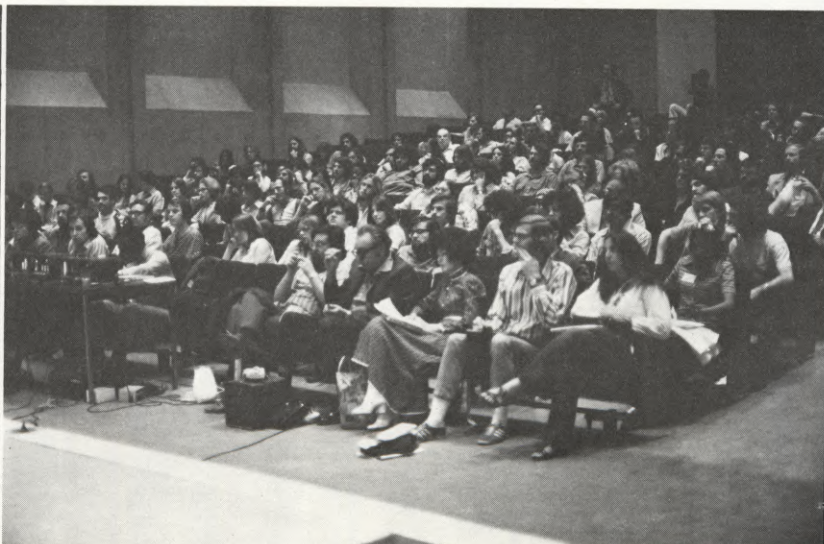
The theme of the Third Annual USC Film Conference, held recently on the campus of the University of Southern California, bore the realistically grim title: *CINEMA '72: A MATTER OF SURVIVAL*. The air of pessimism—even fear—was compounded by the printed program, shaped like a tombstone and bearing the epitaph: "Here Lies the Hollywood Film Industry, 1910-1970".

However, despite this doom-and-gloom lead-off, the large group of executives, technicians, bankers, critics, producers, directors, screenwriters and actors who served as panelists during the four-day conference almost unanimously expressed optimistic hopes for the future and repeatedly insisted that Hollywood, far from dead, was actually in transition toward a new Golden Age of activity and prosperity, despite the current slump. There was, nevertheless, a good deal of calling a spade a spade, condemnation of past and present idiotic practices (on the part of both labor and management), and the affirmation that some sweeping changes must be made if the patient is to recover and stay healthy.

The Conference was moderated by prominent critic-writer-professor Arthur

(LEFT) Students lounge on grass between classes at University of Southern California, where Film Conference was held. (RIGHT) Hoffman Hall, on the USC campus, where panel discussions took place. Films presented in Bovard Auditorium during course of the Conference included "THE GODFATHER", "FRITZ THE CAT" and "THE CULPEPPER CATTLE CO."

(LEFT) Panel assembled to discuss "The Young Film-maker and the Future" included Professor William Froug, Film-makers Tamara Assayev, Jonathon Axelrod, David Giler, Rick Vaughnes and Writer John Milius. It was the liveliest of all the panel discussions on the program. (RIGHT) All sessions of the Conference were well attended, primarily by USC Cinema students. Panels composed mainly of top figures from the professional motion picture industry gave the event considerable significance.





(LEFT) Producer/director Blake Edwards deplored the ego-trips of reigning studio executives who are not knowledgeable in the creative aspects of film production, but who, nevertheless, feel qualified to re-edit arbitrarily the work of professional film-makers. (CENTER) Director Sydney Pollack expressed grave doubts as to whether a computerized system could successfully predict the box-office success of a film, based mainly on inputs concerning the script. (RIGHT) Critic/writer/professor Arthur Knight acted as genial Moderator for the Conference Panel Discussions.

Knight who cited the fantastic grosses of such box-office blockbusters as "THE GODFATHER" and "THE FRENCH CONNECTION" as evidence that the theatrical film industry is basically healthy and on its way toward a resurgence of prosperity.

Those sentiments were affirmed in a later panel discussion, when USC professor and film producer William Froug said: "We're all in the same boat and the boat's leaking—but the end of the movies is nowhere in sight. The fact that there is little or no censorship today has opened up new horizons. We

needed the freedom to make and learn from the trash we have made. But the golden age of Hollywood is about to begin."

"Yes, we're in a state of extreme depression, yes, there is 80% unemployment overall, but your function as film makers is to fight the condition, the system, the business."

"A film is artistically successful if it's financially successful," said "French Connection" script writer Ernest Tidyman. "Don't you think the criterion for judging whether or not a picture is artistically successful is time?" asked

director Peter Bogdanovich, who also recommended that young film-makers see as many of the films of the past as possible to learn to make artistic films in the future.

The Conference was not without its gentle fireworks. The first blast came during the panel discussion entitled: "Critics and the Symbiosis of Survival" (whatever *that* means), when keynote speaker Beverly Walker levelled her guns at "the New York film critics, who use their power shamelessly, who use criticism to make themselves look good."

Continued on Page 689

Panel 1: WHO GOES TO THE MOVIES AND WHY?

Who comprises the film audience? What psychological urges bring people to the movies? Should films cater to fractional audiences? Is nostalgia what it used to be? What turns kids on? Does TV cater to the human needs for catharsis, as the movies do? Has TV eliminated the need for theater movies? Has "growing up" hurt the movies?

Topic Speaker: Robert Radnitz, producer

Panelists: Peter Bart, Paramount executive
Dr. Allan Casebier, USC Philosophy
Bruce Corwin, NATO executive
Doe Mayer, Student

Panel 2: THE ECONOMICS OF SURVIVAL

Where will the money come from? Should the artists have royalty interests in film? What significance will the studio-TV networks antitrust suit have? What will the future means and modes of production and distribution? What about cable TV? Does the individual entrepreneur have a future? What role will the banker play? How important is the selling of film, and should artists take part in that phase? Should films aim for home runs or base hits in their grosses?

Topic Speaker: Blake Edwards, Writer, Producer, Director

Panelists: William O. Brown, Writer, Producer, Director
Al Dorskind, Universal/MCA
Zane Lubin, United California Bank
Art Murphy, Variety
Aubrey Soloman, Student
Gordon Stulberg, 20th Century-Fox

Panel 3: THE ART OF SURVIVAL

What kinds of films do we need now? Who shall have the right to final cut? How important are the stars today? Who benefits from film festivals? What place will the new independents have? What answers do the student film makers have?

Topic Speaker: Rouben Mamoulian, Director

Panelists: Peter Bogdanovich, Director-Writer
Bruce Dern, Actor
Sidney Pollack, Producer-Director
Ernest Tidyman, Screenwriter
Bennett Tramer, Student

Panel 4: THE TECHNOLOGY OF SURVIVAL

What has happened to the cassette

boom? Cable TV: will it mean death to the theaters? How will cable affect the industry? Will Holography or other technical innovations bring back the audiences? Is Super-16 a viable tool for the future?

Topic Speaker: Melville Shavelson, Director-Writer

Panelists: John Alonzo, Cameraman
Wilton Holm, Motion Picture Research Council
Monroe Price, Writer, Law Professor
Fouad Said, Cinemobile
Sid Solow, CFI
Charles Woodard, Theta Cable
Mort Zarkoff, Producer, USC Professor

Panel 5: CRITICS AND THE SYMBIOSIS OF SURVIVAL

What affects has critical extremism had on film attendance? Has criticism become too esoteric? Is film essentially a popular art? Have critics' choices become too self-serving? Are critics interested in the survival of film as an industry? As an Art? What are the critics' responsibilities to the industry? What will be the future outlets for film criticism? Is there the possibility of an American art film?

Topic Speaker: Beverly Walker, Writer

Panelists: Charles Champlin, L.A. Times

Roger Ebert, Chicago Daily News
Nanny Farber, Critic
Steve Greenberg, Student
Art Murphy, Variety
Kevin Thomas, L. A. Times

Panel 6: THE YOUNG FILM MAKER AND THE FUTURE

How do young film makers view the role of the studio in the future? What, if any, compromises must the artist make in order to make films? Does the young director/producer have other alternatives to studios and the feature film? Are young film makers making an impact in changing film art and the industry for the better?

Topic Speaker: William Froug, Professor

Panelists: Tamara Assayev, Film Maker
Jonathon Axelrod, Film Maker
David Giler, Film Maker
John Milius, Writer
Rick Vaughnes, Film Maker

Panel 7: THE TECHNIQUES OF SURVIVAL

Panelists from earlier sessions will attempt to synthesize and summarize the proceedings of the Conference. Moderated by Arthur Knight.

Topic Speaker: Wilton Holm, Motion Picture Research Council

THE LOGIC OF SURVIVAL

Technical expert, in keynote speech at USC Film Conference, sounds warnings and offers some solutions for the problems confronting the theatrical motion picture industry world-wide

By WILTON R. HOLM

Chairman, AMPTP Research Center

The theme of this Conference—*Cinema 72: A Matter of Survival*—is timely, challenging and interesting. Topics such as the *Economics of Survival*, the *Technology of Survival* and the *Art of Survival* are interesting, not only for the analyses which they provide, but also for the synergy they involve. This afternoon I want to speak about that synergy. And in so doing, I introduce still another topic: *The Logic of Survival*.

The survival with which we are concerned is, of course, that of Hollywood—of our motion picture industry—at least as we know it. We are concerned with the frequently-stated economic fact that only two or three of every 10 motion pictures earn their cost. The rest, allegedly, lose money. We are concerned with the technological fact that the tools and materials and technology with which our motion pictures are fabricated are as good or better than ever—yet most of our movies lose money. We are confronted with the artistic fact that most of our motion pictures no longer please a major part of our potential audience. The decline in paid admissions over the last decade or two says this loud and clear. Yet we insist upon being mystic about this box-office disaster.

For us, the Age of Aquarius has

become the Age of Alibis. We hear excuses such as: "The public has become fickle"; or "Today we have a fractionated audience"; or "Only young people any longer go to movies." Yet for pictures such as *The Sound of Music*, *The Graduate*, *Airport*, *Love Story*, and *Fiddler On the Roof*, to name just a few, these fractionated audiences coalesce and people of all ages stand in long lines to get into the theatres. Why? When one picture succeeds beyond all expectations while others fail to earn their cost, there must be a reason. A logical reason. If we fail to find it, then our industry may indeed be doomed.

Basically, any industry—and ours is no exception—is an area of activity that defines direct or indirect human wants or needs, and then systematically sets out to produce a product or a service that satisfies those needs. It must be able to sell those products or services for more than they cost, or the industry is not viable. No industry can exist unless it produces a product or a service that people want or need.

A moment ago I used the word "systematically," because, technologically speaking, our motion picture industry is a system. When man first walked on the moon, the whole world suddenly became conscious of systems, and systems analysis; yet systems are as old as time. Just what, then, is a system?

A system is any group of interconnected parts that interact with each other and the environment that surrounds them. A patient lying in shock in a hospital is a system. So is the movement of traffic in a city, or the complex interplay of sun, air and ocean water that gives rise to weather. If man can understand such systems, he may be able to control them. From time immemorial, this has been the goal of man: To control systems. For almost all men in the past, and for many millions today, life has been a bitter struggle against chaos, against uncontrolled events—a struggle for water instead of drought, food rather than famine, health rather than disease, peace instead of war, prosperity in place of depression, domestic tranquillity rather than civil disorder.

To control any complex system re-

quires four things: sensing devices, decision makers, control devices, and, more and more often, computers. A prerequisite, of course, is that we understand the system we intend to control.

Sensing instruments and devices keep one informed of the state of a system and how it changes. This information is processed and analyzed by a computer if the system is complex, or its time constant very short, or both. The processed information is used to make decisions as to what to do next to the system to bring it or keep it under control. And finally, control devices are put in motion to bring about or maintain the desired control of the particular system.

MOTION PICTURE BUSINESS SYSTEM

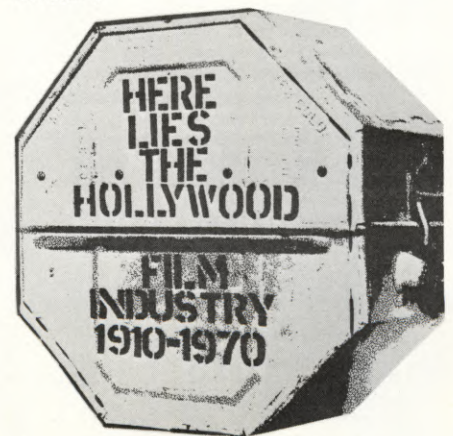
Systems that produce motion pictures, like all systems, accept inputs, process these inputs, and provide an output. Our inputs are people, stories, and physical materials—all of which are processed by tools and facilities. The processing of these inputs, we call "production," including pre- and post-production. The output is the motion picture product, in the form of sound films or tapes. Our markets are theatres, and to some extent TV. Our customers whose wants and needs must be satisfied are the people who patronize those theatres, or tune in to see our pictures on TV.

Continued on Page 695

Wilton R. Holm, Head of AMPTP Research Center and President of SMPTE, startled attendees with suggestion for computerized prediction of feature film box-office success.



Grim epitaph served as official symbol for USC Film Conference dedicated to theme: "CINEMA '72—A MATTER OF SURVIVAL".



What we mean at MPL when we say "personalized service"

(Reprint of an editorial from *The MPL Recorder*)

Statements made by people about the work they do are often mere statements far removed from the fact. That is why **MPL** once again brings to our readers' attention the matter of "personalized service" so important to every film producer.

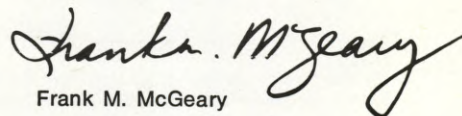
What we mean at **MPL** when we speak of "personalized service" is this: we keep making it emphatically clear to everyone working in our laboratory that each

customer's film is of the greatest importance to him, and for that reason is of the greatest importance to us. We adhere to the principle that there is no such thing as a film of secondary importance, and that *each film deserves and must receive our closest personal attention.*

The highest goals we set for ourselves sometimes fall short of achievement. But at **MPL** we go out of our way to see to it that when we speak of giving

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SMPTE TECHNICAL CONFERENCE AND EQUIPMENT EXHIBIT

Society's semi-annual get-together in New York draws record crowds—pleases some, disappoints others

By HERB A. LIGHTMAN

In several ways the SMPTE Technical Conference and Equipment Exhibit held at the New York Hilton Hotel, April 30 through May 5, was one of the best the Society has ever sponsored—but in at least one other important respect, it was quite disappointing.

First—on the plus side, it must be noted that the Equipment Exhibit introduced quite a few interesting new items. The Exhibit was very well-attended—not only by sightseers, but by film technicians and production personnel, the very people who utilize the equipment. They came early and stayed late and the booths were crowded right up until closing time each day.

Secondly, a very full program of papers and presentations was offered—so full, in fact, that on several days as many as three concurrent sessions were scheduled in separate conference rooms of the hotel. It was a veritable bonanza for those interested in the more rarified aspects of motion picture and television engineering.

Which brings up the one disappointing aspect previously mentioned. The theme of this particular conference had been loudly announced and widely heralded as being "*The Young Film-*

maker", and one might reasonably have expected a substantial number of papers and/or presentations to be devoted to that theme. In fact, it was the prospect of a full exercise of such an important subject which brought many of us all the way across the country to brave the rigors of Fun City. It also brought a lot of young film-makers into the hectic precincts of the Hilton—and many of them went away expressing disappointment and feeling, in a certain way cheated. For, as it turned out, there was very little in the Conference that was by, for or about "*The Young Film-maker*".

Even the few bones thrown in that direction were, for the most part poorly prepared (if at all) and haphazardly presented. Several of the speakers talked off the tops of their respective heads, as if they had suddenly remembered a commitment to the Conference while on their way to a luncheon date elsewhere.

Several topics which might have been of interest to active young film-makers were presented in terms of academic theory. For example a panel discussion devoted to "*Current Trends in Editing*" featured a panel composed *entirely* of

college professors. They were charming gentlemen all and, no doubt, excellent educators—but there was not one real live young film-maker on the panel, nor even a single professional film technician working in the real world of film production.

The same ivory tower approach was used in presenting other "tutorial" papers on topics which could have (and *should* have) been made very kinetic and pertinent to serve the interests of active film-makers, young and otherwise.

As one who is solidly behind the aims of SMPTE and who has, in fact participated in several of its seminars at the University of Southern California, I offer this criticism constructively and hope it will be accepted in the same spirit.

Another source of embarrassment to the Society had to be the "less than adequate" projection facilities offered in the conference rooms. In all fairness, it must be noted that the low-ceilinged rooms made it impractical to use anything but small screens, and the total effect was not at all enhanced by the use of rear projection—hardly the opti-

(LEFT) In the Sutton Ballroom of the New York Hilton Hotel, attendees of SMPTE 111th Technical Conference and Equipment Exhibit gather for one of three concurrent conferences on film and television technology. (RIGHT) The Equipment Exhibit featured many interesting new items. It was very well-attended—not only by sightseers, but by film technicians and production personnel, the very people who utilize such equipment. They came early and stayed late, crowding the booths up until closing time each night.



mum method for displaying the quality of films.

Several of the speakers let fly with scathing remarks on the subject. Daan Zwick, of Eastman Kodak, pointedly deplored the fact that the SMPTE, which sets standards of excellence in projection for the entire motion picture industry, should offer such miserable projection facilities at its own Conference—an observation which left room for little rebuttal.

Edward Reichard, of Consolidated Film Industries, who presented Sid Solow's paper on "35mm Blow-up Negatives from 16mm Originals", refused to allow his film demonstrations to be projected on the resident equipment. Instead, he had brought in a portable 35mm front projector and beaded screen.

There were several papers on the program presenting material of interest to practicing film-makers and these deserve mention.

"Technical Aspects of Producing Location Sports Films for Television", by Larry Lindberg of Lindberg Productions Inc., offered some tips on the making of action films for TV and was well-illustrated by clips from various surfing, rodeo and skiing films made by the speaker's organization.

"Exposure Determination With a Spotmeter", by Leslie H. Holmes, of the Canadian Broadcasting Corp., cleared up a lot of points relative to the practical application of this sophisticated light-measuring instrument.

"Production Techniques in the Scientific Documentary", by Roy Zeper, of Wyeth Laboratories, was illustrated by some fascinating footage from a film on vampire bats made by the author.

"Computer Animation", by Dr. Alfred I. Thumin, of New York University, detailed some exciting automated animation techniques made possible by the latest highly-sophisticated Oxberry equipment.

Two papers, "Preparing for the Sound Mix" and "The Sound Mix", by James Townsend, of Townsend Production Service, got down to cases on this all-important phase of post-production.

"The Editing of Motion Picture Film: Some Notes for Young Film-makers", by Dr. John H. Tyo, of Syracuse University, made a neat leap from the ivory tower into the cutting room and was one of the few presentations that bore any relevance to the Conference's announced theme.

The Equipment Exhibit featured some interesting new items, the most provocative of which seemed to be the handsome new Beaulieu "NEWS 16" Professional Single/Double System

16mm Sound Camera (See page 666), which had everybody talking and trying it on for size.

The Mitchell Camera Corporation, recently somewhat dormant in the proliferation of new equipment, came up with several interesting new items. Foremost among these is its Sportster 164 16mm camera (in bright red and several other wild colors), which has a range from 5 to 500 frames per second and was especially designed for the sports photographer.

The other surprise from Mitchell was its new Mitchell Mark III, hand-held 35mm "silent" camera, designed for

and the Universal Crystal Sync Motor Control, one unit that seems to be compatible with just about every camera.

These and several other interesting items spotted at the Exhibit will be given individual product reports in upcoming issues of *American Cinematographer*.

On the social side, the SMPTE 111th Technical Conference could hardly be faulted. It kicked off with a Wine and Cheese Party, courtesy of the Eastman Kodak Co., which was held on the F & B Ceco Sound Stage.

The Get-Together Luncheon held the



Get-together luncheon in the Grand Ballroom of the Hilton featured as Guest Speaker Dr. Peter Goldmark (inventor of the long-play record and the EVR Cassette System), who gave a fascinating (and frightening) talk on the threat to world ecology—and what those in the communications media can do about it. Wine parties and Banquet-dance made Conference a smashing social success.

usage similar to that of the Arriflex 35 BL. On display was only a prototype which had been cobbled together feverishly to meet the Conference deadline, but it looks promising.

Also shown in prototype form was the new Showchron "American Expandable Editing System", a horizontal console with a seemingly endless variety of picture and sound editing options.

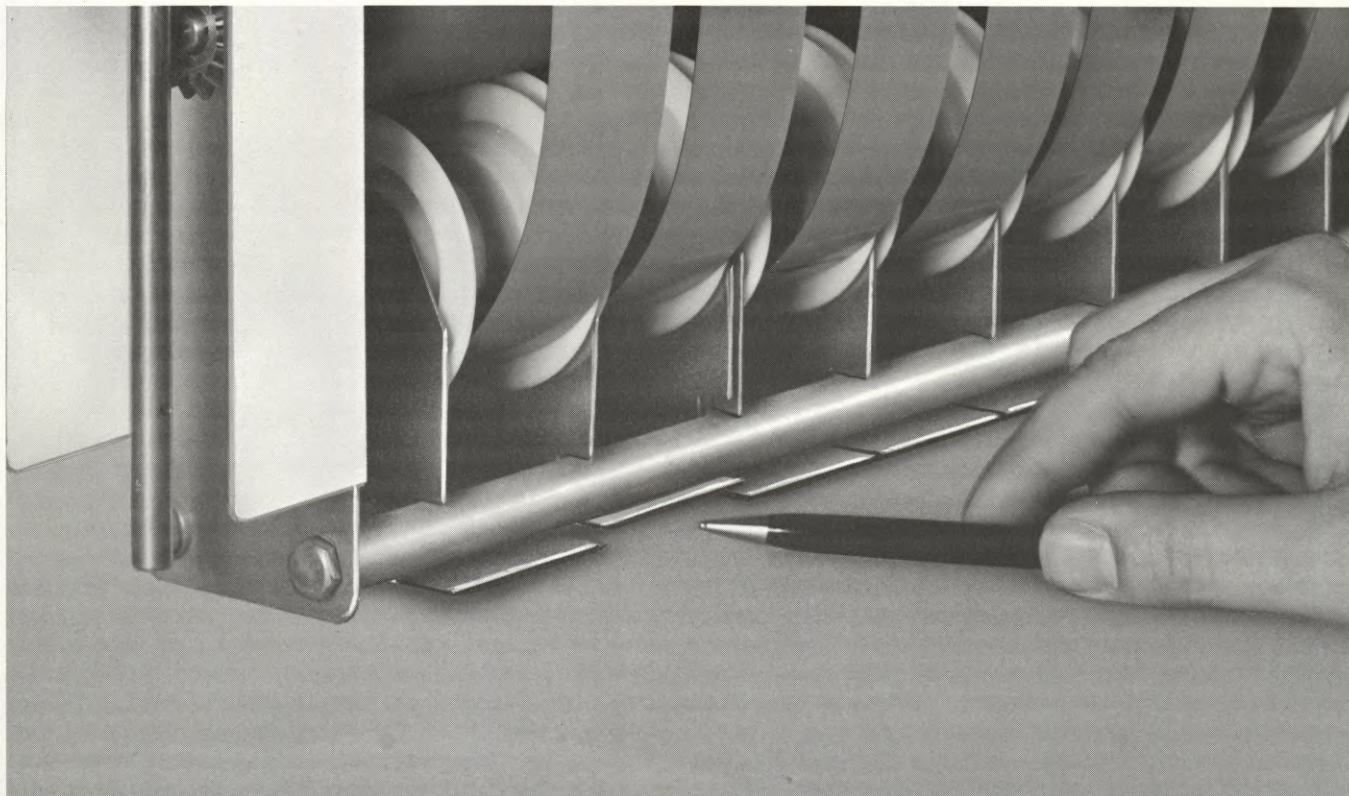
Among the smaller items of interest were Sylvania's spookily fascinating Night Viewing Device, for filming in the dark; Anton Bauer's Modular Quick-change Battery System, a completely new concept in portable power supplies;

next day in the Grand Ballroom of the Hilton, featured as guest speaker Dr. Peter Goldmark (inventor of the long-play record and the EVR System), who gave a fascinating (and frightening) talk on the threat to world ecology.

The next evening there was another rollicking Wine and Cheese Party, jointly hosted by Camera Mart, Angenieux Corp. and Berkey-Colortran.

The climactic social event was the formal Cocktail Party (courtesy of Glen Glenn Sound Co.), Banquet and Dance in the Hilton's Grand Ballroom.

As the saying goes, "A good time was had by all." ■

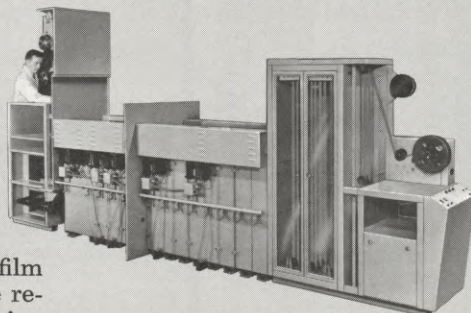


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The Beaulieu "NEWS 16" is an *absolutely* new and unique 16mm camera system specifically designed to meet the demanding filming requirements of documentary motion picture and television newsfilm cameramen.

The Beaulieu "NEWS 16" is a remarkably *silent* running camera. The cameraman has available six different and interchangeable synchronous sound options: single system (magnetic) module...to be used with the light weight and compact Beaulieu miniaturized amplifier; a 24 or 25 f.p.s. crystal-sync module; and three different synchro-pilot generator modules (50 cps, 60 cps, and 100 cps).

The Beaulieu "NEWS 16" camera is designed to be operated with one hand — leaving the other hand free to ward off crowds, or rioters, or to protect the cameraman himself in some other way. (Of course, the cameraman's free hand can also be used to follow focus while power zooming.) The low camera profile permits the cameraman to see directly across the entire camera body — again, providing an additional protection to the cameraman in difficult filming situations.



The "NEWS 16" camera weighs approximately 16 lbs. (together with interchangeable Angenieux "Auto" 12-120mm zoom lens and interchangeable crystal-sync module). The weight is distributed so that this compact camera is balanced comfortably on the cameraman's shoulder. The co-axial film chamber accepts 100' and 200' daylight-load film spools, with fully automatic (and extremely fast) *self-threading*.

The mirrored shutter always stops in the viewing position. The thru-the-lens viewfinder swivels 180° for front, rear and top viewing, with 22X magnification, etched TV frame, and choice of left or right eye viewfinders. A signal light inside the viewfinder warns the cameraman that only 15 feet of film is left. At the same time, the external camera on-light switches off automatically.

Some additional technical features include: built-in variable power zoom (3 to 25 seconds) and fully automatic exposure system (both with manual override); interchangeable variable speed motor (12-40 f.p.s.), and lens interchangeability (C-mount). Also available is an Angenieux "Auto" 9.5-57mm, f1.6 zoom lens.

Hundreds of thousands of feet of sound film were used to test the Beaulieu "NEWS 16" in all parts of the world — from the heated riot scenes in Belfast — to extensive and diversified filming situations across the continent of Europe — and even to Peking for test filming coverage during the recent Nixon visit.

Production model Beaulieu "NEWS 16" cameras have now been formally introduced at the SMPTE Show (May 1972) in New York City. This exciting new single/double system professional 16mm sound camera has already been demonstrated to many hundreds of professional cameramen. Before you decide to purchase any other camera system, write us today to arrange for your own personal demonstration of the Beaulieu "NEWS 16" camera.

Amplifier Measurements:
5" High x 3" Wide
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Camera Measurements (Body ONLY):
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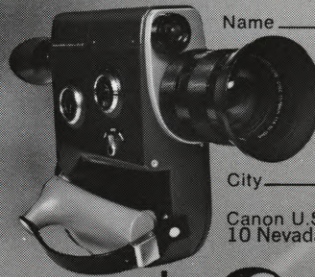
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FILMING IN FREE-FALL

Engineer-turned-skydiving cinematographer discusses various methods and equipment used in making his award-winning films

By CARL R. BOENISH

THE "GUN CAMERA"

Probably the most popular 16mm motion picture camera used in skydiving today is the Bell & Howell military surplus N-6 GSAP gun camera. This camera is extremely rugged, compact, battery-operated, and weighs less than 3 lbs. C-mount lenses may be used on the B&H gun camera by obtaining a commercially available C-mount face plate (Gordon Enterprises, Hollywood, Calif.) The gun camera accepts 50' magazines. The prime advantage of the 50' magazines is ease and speed of film changing. The disadvantages of the magazine include limited availability of film stocks loaded in magazines, small film capacity (50' vs. 100' rolls), twice the film cost (so as to include the price of the

magazine), jeopardy of soft focus (caused by inconsistent magazine manufacturing quality) and sometimes a variation of frame-lines (caused by inconsistent seating of the magazine in the camera.)

New 50' film magazines are stamped out in large quantities out of soft metal (being worth less than \$1 each) rather than being machined to an accurate tolerance, as in the case of an N-9 magazine. Hence, the lens-to-film-plane distance is a function of the position of the magazine in the camera, sometimes causing soft focus. After considerable use, the magazines tend to wear down the camera film guides, changing the seating of the magazine in the camera, which causes the frame line of the picture to be inaccurately positioned.

This sometimes can be alleviated if the magazine is shimmed with tape before exposing the film. The only way to eliminate an inaccurate frame line on exposed film is to make a slightly enlarged optical master of the scene, wasting money and quality.

Kodak distributes 16mm magazines loaded with Kodachrome II for amateur use, but any other types of film—ECO, EF, etc.—must be special-ordered in a minimum quantity of 50 magazines. Bob Gamble Photo Supply (Hollywood, Ca.) sells ECO and EF in 50' magazines. One can also bulk-load his own magazines. Unless he is extremely meticulous, however, factory-loaded new magazines cause less emulsion scratching than hand-loaded used magazines.

Despite the shortcomings of the mili-

tary gun camera, its dependability, ruggedness, light weight and compactness nevertheless make it the most popular movie camera for skydiving use.

POWERING THE GUN CAMERA

The gun camera typically draws about 1 amp. A 1.2 amp-hour NiCad battery pack can be used to expose 10 to 15 magazines before it should be recharged. The size of this battery pack is small and weighs only about 2½ lbs. The battery pack is normally worn on the chest reserve parachute of the jumper. Wires are run underneath the jumpsuit, connecting the battery to the camera via an on-off toggle switch, usually routed to the cameraman's left hand, thereby leaving his right hand free for safety purposes (pulling the rip-cord, etc.).

HELMET-MOUNTED CAMERAS

Hand-held cameras have always proved to be unsatisfactory for skydiving use. The basic reason for this is that the jumper's hands are needed constantly to maneuver himself in free-fall. Steadiness of a helmet-mounted camera is far superior to that of a hand-held camera in free-fall. With his arms free, the skydiving cameraman has much more freedom to concentrate on his

relative work (free-fall maneuvering).

The side-mounted helmet camera is far more popular than the top-mounted camera. Its advantages include a lower center-of-gravity for easier opening shocks (of the parachute), less parallax between the eye and the camera lens, and less unwieldiness in moving about in the plane and climbing out onto the strut. Disadvantages of the side-mounted camera include unsymmetrical weight distribution and poor parachute riser clearance.

Aluminum brackets provide the easiest method of mounting various cameras to helmets for free-fall use. I have experienced excellent results using Bell Helmets, which give me maximum comfort and safety as well as a rigid camera platform. These helmets normally last five years and longer.

SIGHTING THE FREE-FALL CAMERA

The method of sighting a free-fall camera setup is frequently debated among skydiving cameramen. Several advocate using a reflex camera and sighting through the lens. I adhere rather to using an external "Newton Ring Sight" (C&H Sales, Pasadena, Calif.). These sights are accurate, simple and safe. (It seems almost hypocritical to

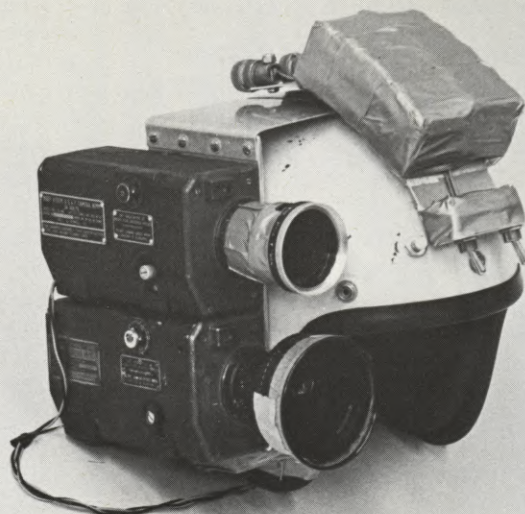
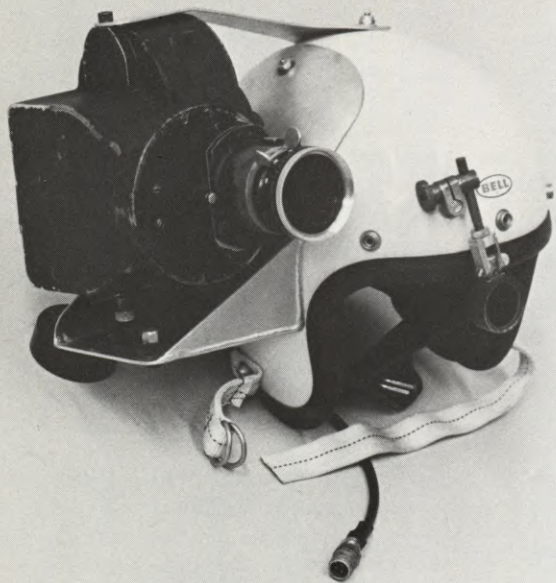
demand a reflex camera for free-fall use when the skydiving cameraman has so little control in maintaining constant free-fall headings, sun angles, camera-to-subject distances, all within a maximum of one minute of working time. Furthermore, it is necessary to pre-set the shutter speed, f-stop and focus prior to the jump.)

The Newton Ring Sight establishes only the center line of the frame, and experience can be used in determining how much space a particular lens takes in, as well as determining the composition within the frame. The Newton Ring Sight is fastened onto a stud mounted to the front of the helmet, using an "indicator adjustor" sleeve fitting available from large hardware stores. This method of mounting the sight provides four degrees of freedom to adjust the sight: up and down, back and forth, twisting, and in and out (between the fork holding the sight). The camera is aligned parallel to the sight on the ground with the help of a friend prior to the jump. The parallax is set on an object "at infinity" (farther than 100 feet away).

FOCUS AND EXPOSURE

The focus and f-stop are pre-set for





(LEFT) Helmet-mounted 35mm Eyemo free-fall camera (weight: 10 lbs). (RIGHT) Dual 16mm Bell & Howell GSAP gun cameras (weight: 10 lbs), equipped with lenses of differing focal lengths, make possible simultaneous filming of long shot and close shot of action. Battery pack, normally worn on chest reserve parachute of the jumper, is mounted on top of the helmet in this case. The side-mounted helmet camera is far more popular than the top-mounted camera. Its advantages include a lower center-of-gravity, less parallax between the eye and the camera lens and less unwieldiness in moving about in the plane and climbing out onto the strut. Disadvantages include unsymmetrical weight distribution and poor parachute riser clearance.

The author's cutting room, showing equipment used to edit his free-fall films, including the stunning, much-honored "MASTERS OF THE SKY". The latter film was cut precisely to the beat of its musical score, which had been recorded on 8-track, 1-inch tape. Since the picture portion could be expanded or contracted only to a slight degree without changing its visual content, it was sometimes necessary to expand or contract the pre-recorded track by adding or deleting selected measures of music.



any particular jump. The focus is usually pre-set to carry from between 5-20 feet and infinity. It is then up to the free-fall cameraman to "fly" the proper distance away from his subject matter as best he can.

Eastman 5254 color negative is chiefly used for 35mm filming; Eastman 7252 Ektachrome Commercial is used chiefly for 16mm filming. Lighting conditions found in free-fall are very constant and offer an abundance of light. As a rule of thumb, nearly all of my free-fall footage is exposed identically: ASA 16, 1/75th of a second (24 fps using 120° shutter), F/10. As the light starts to diminish (either due to an overcast, or two hours immediately after sunrise or two hours prior to sunset), the lens is opened up by a proportionate amount (typically up to two f-stops and, rarely, to wide open for extreme conditions).

To improve the apparent sharpness and quality of free-fall photography, it is necessary to use a smaller-than-normal shutter opening, especially while shooting at 24 fps. At 24 fps, free-fall footage taken using 180° shutter is not nearly as crisp and sharp as that taken using a 90° or 60° shutter. (Hollywood has always advocated using as wide a shutter as possible, but in free-fall, there just aren't any tripods, nor are there any wagon wheels!) About one frame of movie film in every three or four will

appear to be sharp if it is shot at 24 fps with 180° shutter, whereas every other one or better will be sharp using a faster shutter. For still photography, a 500th of a second is very satisfactory, 250th of a second is adequate if the camera is helmet-mounted, and any shutter speeds less than this are unsatisfactory.

LENS CHOICES

For 35mm motion picture free-fall photography, the 18, 28, 35, and 50mm lenses make a useful and adequate collection of fixed focal-length lenses. Any lens narrower than 50mm becomes objectionably unsteady on the screen—especially at 24 fps—and very difficult to aim in free-fall. The 18mm lens is super wide angle and ideal for POV's such as leaving the plane, or being inside a star. The 28 and 35mm lenses are good general-purpose wide-angle lenses, ideal for documenting large stars from the outside and smaller free-fall formations. The 50mm lens is good for tight framing of smaller formations and for filming individual jumpers "turning style" (a set of free-fall maneuvers).

For 16mm work, the following lenses make up a similar useful collection of free-fall lenses: Angenieux 5.9mm, Angenieux 9.5mm, Kern-Paillard 10mm, Schneider 11.5mm, Kern-Paillard 16mm, and the Cook 25mm. Gordon Enterprises makes a conical Arri-to-C-mount adapter that can be mated to their C-mount face-plate for the B&H



The author, Carl Boenish, photographed in free-fall by R. Cottingham, is shown using a 35mm helmet-mounted Eyemo camera with "Newton Ring Sight". A graduate engineer, Boenish decided several years ago that free-fall filming was more fun and has made it his full-time profession ever since. "MASTERS OF THE SKY" has been tendered many awards, including the Silver Phoenix for Best Documentary Film at last year's Atlanta Film Festival.

gun camera, thereby permitting any Arri-mounted lens to be used on the gun camera. The quality of this combination is excellent.

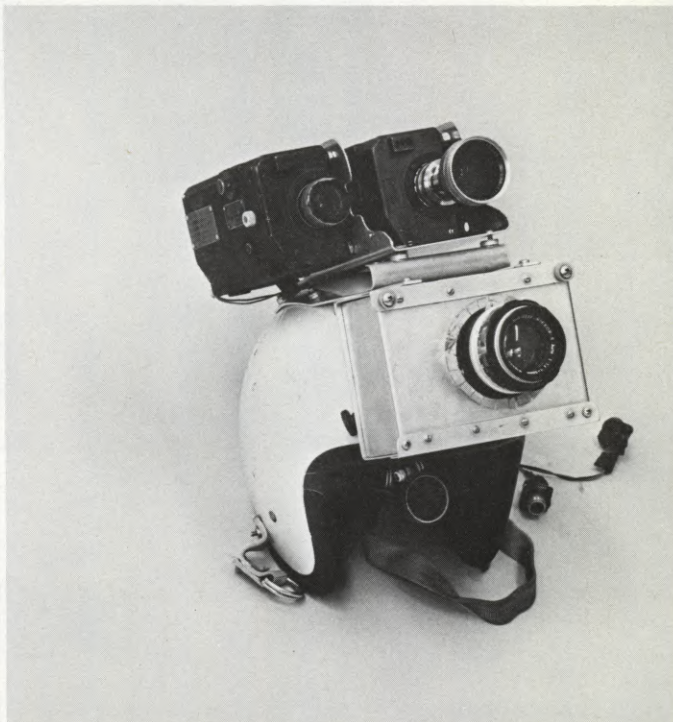
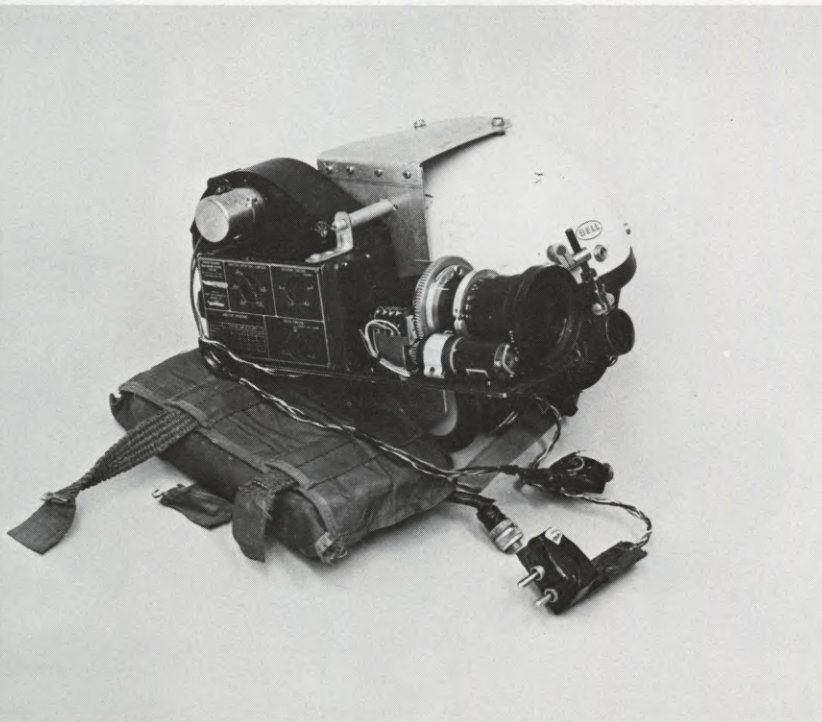
HELMET-MOUNTED MULTIPLE CAMERA SYSTEMS

The need to use more than one

camera at a time on a helmet in free-fall initially arose in documenting "world records." A high quality still photograph of a potential world record free-fall formation can be as desirable for certain purposes as movie film data can be for others. The true dilemma is that

Continued on Page 659

(LEFT) Helmet-mounted N-9 gun camera with 2017 200-foot daylight-load magazine, manufactured by Precision Instruments of Tarzana, Calif. Magazine is a precision-machined casing and provides almost six minutes of film per roll change. Lens shown is a 12.5mm-75mm Angenieux zoom, custom-mounted to camera by Herman Galli Camera Service. Micro-switch permits zooming to any of four pre-set focal lengths during free-fall. (RIGHT) Complex "tri-camera" configuration, with Nikon 35mm still camera on front of helmet and dual 16mm GSAP gun cameras above. This set-up is rarely used because of risk of rough shock when parachute opens.



ARRIFLEX 16S/B

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

ARRIFLEX 16M/B

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

ARRIFLEX 16BL

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

ARRIFLEX 35 2C/B

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

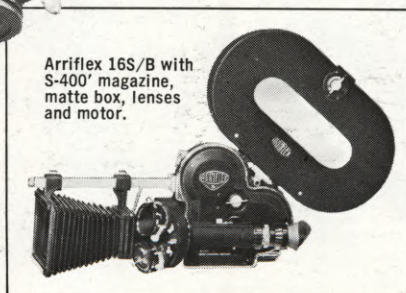
Arriflex has all the

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

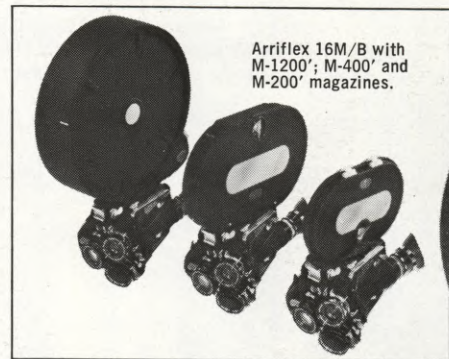
Arriflex has all the 'answers' for theatrical, TV, sports, news, documentary and research filming. There's no question about it. That's why Arriflex is the preferred motion picture equipment with professionals all over the world. Join the ranks.



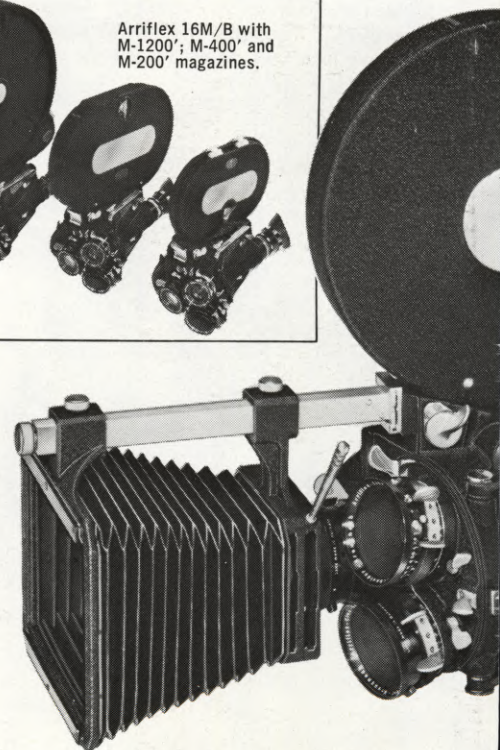
ARRIFLEX 16S/B



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



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



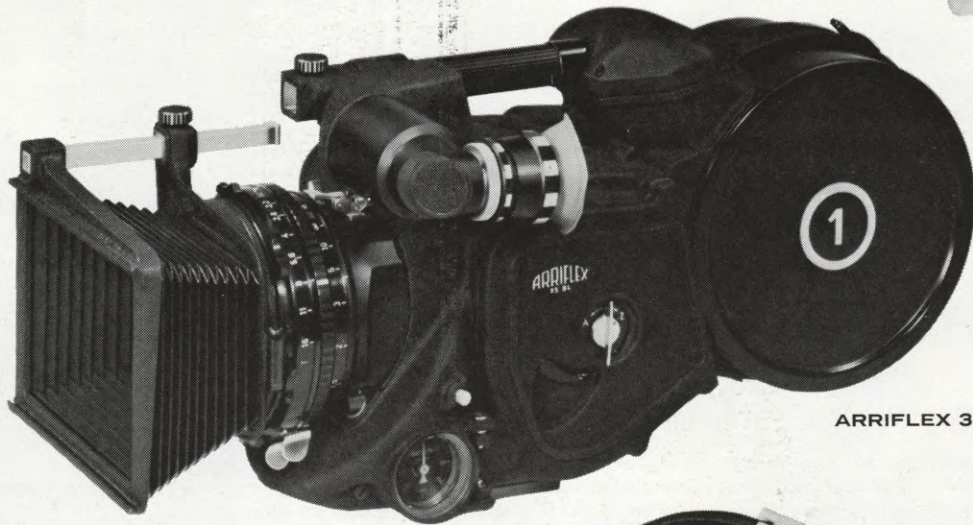
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This new, SILENT, hand-held light-weight 35mm represent a major technological achievement in motion picture camera design. As an all-purpose production camera, the 35BL provides the filmmaker with new efficiency, mobility and creative freedom. It is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

ARRIFLEX 35 2C/B

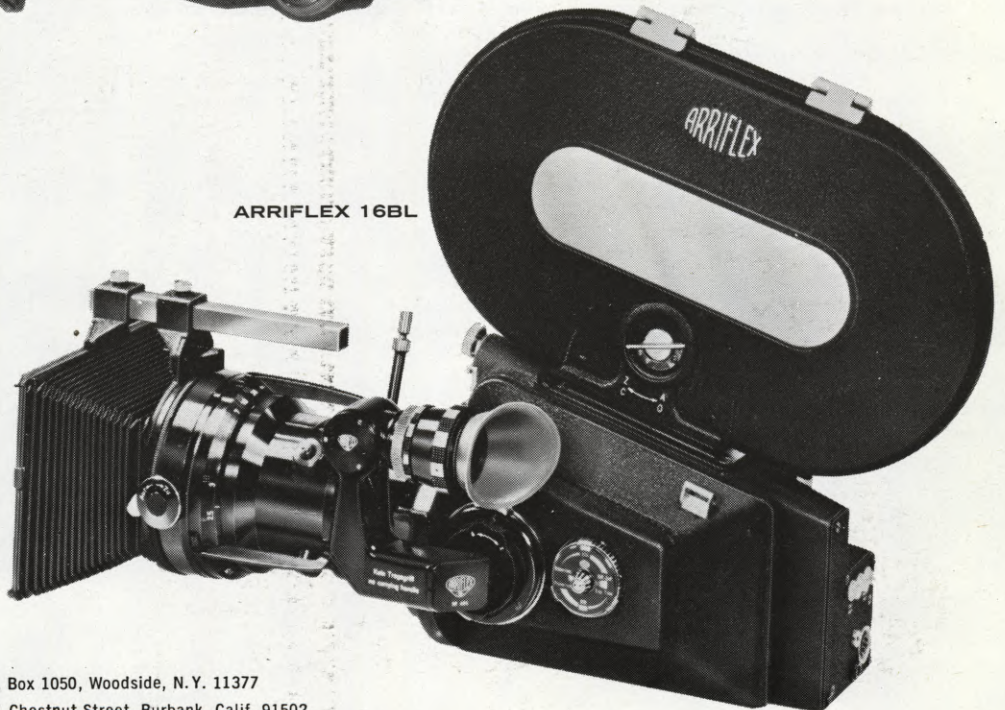


answers!



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THE FILMING OF



Director tells of feature that called for out-of-season wheat, 80 acres of sunflowers, and a reaper that chews up Cadillacs

By MICHAEL RITCHIE

Director

CBS always intended to make "PRIME CUT" on location because, for one reason, there is no way you can put a slaughterhouse on a sound stage, and the opening sequence takes place in a slaughterhouse. There is also nowhere that you can find in California the extensive wheat fields that were called for in the script, to say nothing of the enormous barn complex. As it was, we had to build many of the farm buildings because in all our searching through Kansas and Canada we couldn't find a spread opulent enough to match what the story called for. Most farmers do not live in high style, surprisingly enough. A man may have a farm worth a million dollars and be living in a house that would be considered barely adequate in West Covina.

We had originally planned to shoot the picture in Kansas, the locale of the story, but it turned out that Lee Marvin was finishing another picture and wouldn't be available until August. Also, I didn't come onto the picture until May and I needed sufficient time to prepare, because it was an enormously complicated picture to lay out.

When we found that we couldn't get geared up to start before August, a major problem became evident. We had to abandon Kansas as a location because all the wheat there is harvested in June—so we found ourselves going farther and farther North in search of a location. In Nebraska the wheat is har-

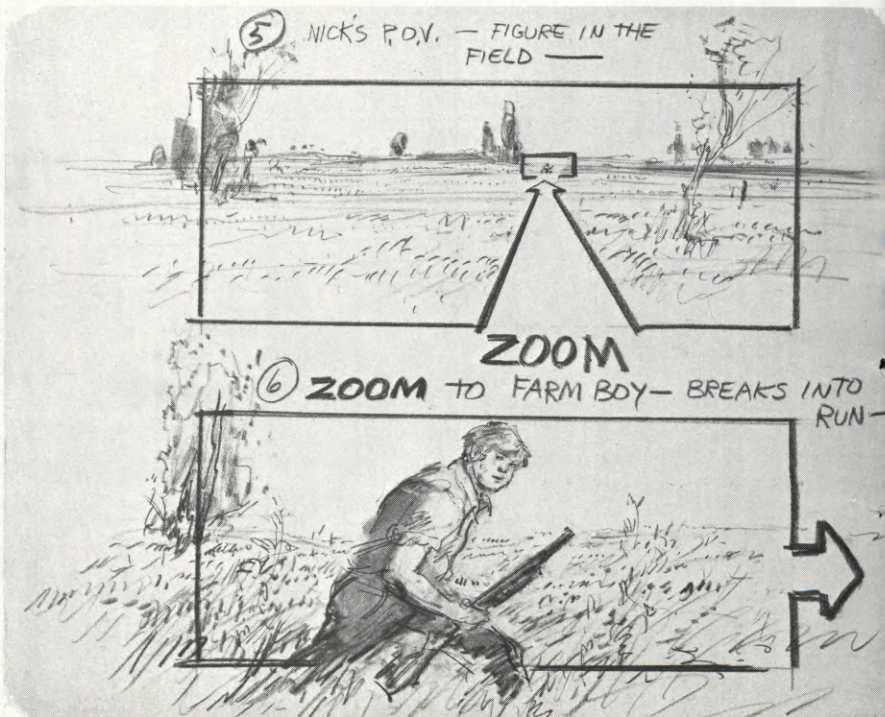
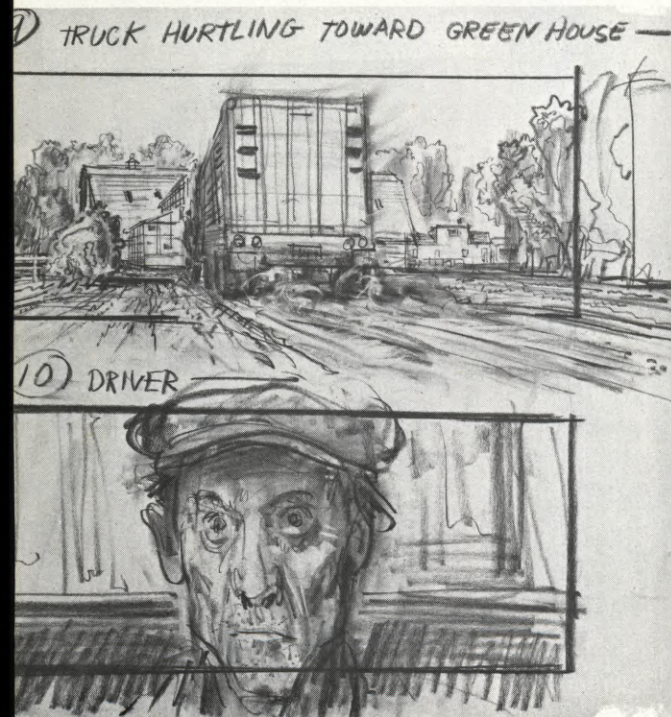
vested at the end of June; in South Dakota it's harvested early in July; in North Dakota, at the end of July. We finally hit the jackpot with Calgary, Canada, where the wheat isn't harvested until August.

Also, Calgary is an area that looks very American, possibly because so many Americans have migrated there. In fact, the barns and silos look even more American than the ones in Kansas. They're still made of wood, whereas those in Kansas, because of the tornadoes, are now made of more durable materials. The area around Calgary looks pretty much like the Kansas of "THE WIZARD OF OZ", which is what I wanted. Also, we found that there is a local pool of actors for supporting roles who have genuine mid-western accents—so going to Canada didn't seem quite as outlandish on second thought as it had on the first thought.

Cinema Center had had experience in Calgary making "LITTLE BIG MAN", and at least knew what sort of weather problems we were likely to encounter on a schedule that ranged from August to October. Little did we know that it is possible for it to snow there in September—which it did. We had a summer fair sequence to shoot and it got snowed out three days in a row.

As I've said, we couldn't find a farm as lavish as the one we needed, but we found half a farm and had to build the rest of the spread around it. We had to

Samples of storyboard sketches used to plot filming of sequences for "PRIME CUT". (LEFT) Truck roaring into greenhouse, along with shot of its driver's face. (RIGHT) Sketch of neck-snapping zoom shot, showing farm boy running through field. The author feels strongly that all intricate action sequences should be fully storyboarded to insure most efficient filming and smooth editing.





(LEFT) Director stands atop giant reaper which, in an action highpoint of "PRIME CUT", chews through an entire Cadillac and spits out the pieces—a masterpiece of visual special effects. (RIGHT) Panavision camera on crane moves through wheat field to get into position for filming of highly stylized chase sequence. August start of picture forced company to abandon original Kansas location and move far north to Calgary, Canada, where the wheat is harvested much later.

build the silo, the barn and the greenhouse. We had to build a new kitchen onto the farmhouse to make it look more lavish. We had to build fencing all the way around the farm. So, going on location meant spending more than \$150,000 on set construction—and yet, we couldn't have done it on the backlot or anywhere in California because we didn't have the wheat fields. The wheat fields had to absolutely surround the farm buildings, and the enormous cattle herd that belonged to the farm we couldn't possibly have wrangled in without spending a lot more money. So, these were the principal reasons for going to Canada to make the picture.

We certainly didn't go there with the idea of saving money. Anybody who thinks you can do that in Canada the way you can save money in Spain or Mexico is wrong. Canada is completely covered by American IATSE contracts, and you don't get any concessions. On the contrary, you have to appease Canadian Immigration by putting on a lot of Canadian help in addition to your Hollywood crew. That means that in many departments you have a lot of doubling up and duplication that's not really necessary for the production of the picture. Also, there are no really decent location caterers in Canada and the Canadian government wouldn't let us bring one in from the States. We had Rolly Harper from Hollywood practically camping on the border for three weeks because we had fired all three local caterers.

Continued on Page 675

Michael Ritchie scans a possible set-up through viewfinder of Panavision-blipped 35mm Arriflex camera. Highly stylized visual treatment of "PRIME CUT" allowed for relatively little hand-held camerawork, as compared to other Ritchie features shot in semi-documentary style, such as "DOWNHILL RACER" and "THE CANDIDATE".



PHOTOGRAPHING "PRIME CUT"

By GENE POLITO

Director of Photography

In retrospect, there were many times during the filming of PRIME CUT when I found myself musingly asking this question: "What if this happened to be my maiden voyage as a Director of Photography?" The answer was always the same: I would have bombed out for sure, because the range of photography on PRIME CUT was just about as broad as one could imagine; it involved more than the usual share of intricate lighting situations. One thing was certain from the beginning: PRIME CUT was the

kind of assignment that ruled out a mere pedestrian knowledge of photography. Perhaps a review of some of the highlights of this flick will illustrate what I mean.

To begin with, let's start where I did—with a script, a director, and some pre-production planning. Robert Dillon's script offered tremendous possibilities in terms of photographic scope. The story straddles Kansas City and Chicago. (Actually, it was shot entirely on location in Calgary, Canada with the

A saga of Wheat, Meat, Bullets, and Broads—2000-watt "broads", that is . . .

exception of a few shots we made in Kansas City and Chicago proper.)

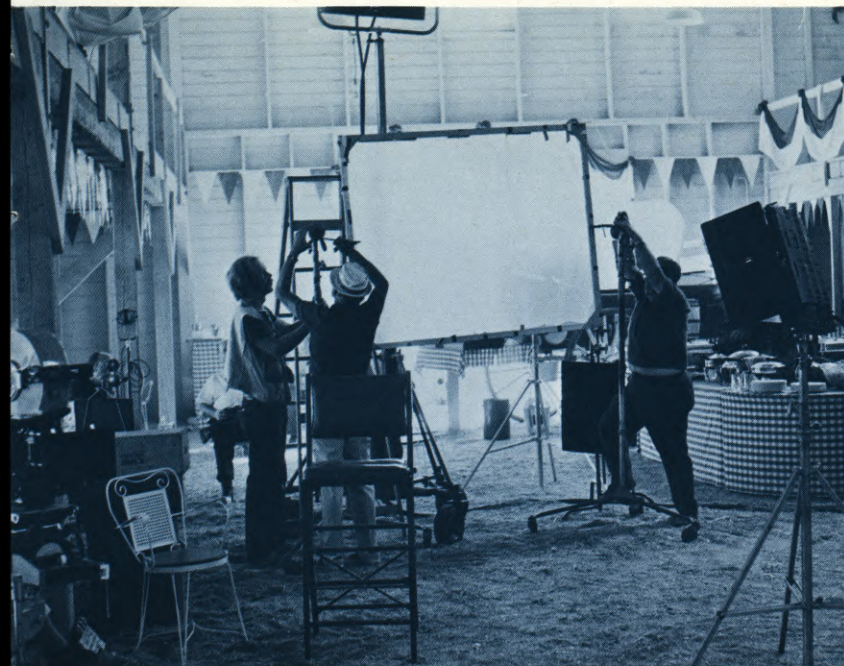
THE SCRIPT

Perhaps a kaleidoscopic rundown on a few of the settings in PRIME CUT will convey to the reader some measure of its visual magnitude. For example, imagine beautiful panoramic vistas of rolling wheat fields stretching out as far as the eye can see (picture postcard stuff—especially in Panavision's 2.33:1 screen ratio). Contrast this with some scenes in a depressing area known as "the leans" reflecting the drab, murky, and chilly tones one finds in a skidrow district (a real rat-infested flop-house!). Then swing through the revolving doors of the stately old PALLISER HOTEL leading into its huge lobby which, in turn, takes you into an immense dining room. For diversion, put on your old clothes for an excursion through the stockyards of the Burns Meat Packing Plant and into the stench and roaring din of the slaughterhouse and packaging plant (where they process about a million pounds of meat per day!). To brighten things up a bit (?), enter a huge barn complex where nude young gals, doped and glassy-eyed, are being displayed in stalls and peddled like cattle. Witness a heavy cattle truck crash through a glass greenhouse and demolish it—along with the \$60,000 it took to construct it! Then follow a giant reaper chasing our hero (Lee Marvin) and a gal (Sissy Spacek) through the wheat fields (doesn't every picture have a chase these days?). See a brand new Cadillac limousine literally devoured by the whirling blades of the



(ABOVE) A cameraman's life has its bright spots. Director of Photography Gene Polito reads one of them with his exposure meter while preparing to photograph Angel Tompkins in lush houseboat sequence of Cinema Center's "PRIME CUT". (BELOW LEFT) Panavision camera is set up to shoot bizarre chase sequence in wheat field. (CENTER) The "grim reaper"—in this case a juggernauting cultivator with giant steel teeth—bears down upon Lee Marvin and Sissy Spacek, as they flee for their lives. (RIGHT) Seemingly simple sequence inside dining room of Calgary's Palliser Hotel turned out to be an enormous lighting problem.





(LEFT) Inside barn grips rig large sheets of tracing paper on frames to provide soft diffusion for "9-lite" quartz lamps and help them blend with available light filtering into the structure. The effect is not quite as soft as bounce light, but is reasonably close and a whole lot faster to achieve. (RIGHT) A natural source of daylight inside the barn came from skylights on either side of the roof. To avoid a mismatch of light as sun moved from East to West during the day, skylights facing sun were covered with tracing paper. A Chapman crane was pressed into service to do the job.

reaper. Next, drive out to the country fairgrounds completely dressed with all sorts of old fashioned jams and jellies and a crowd of about 1000 extras who watch in disbelief as the "heavies" chase our hero and the gal under the grandstands and out into the middle of a turkey shoot. For relaxation drop into *BALLANTINE'S BAR* which is so jammed with humanity it resembles a squirming mass of sardines. Visit Weenie (Greg Walcott) in the sanctity of his dumpy and lonely pad as he watches his favorite TV show—only to have our hero bust in and kick hell out of him and his TV set. Witness a few exciting shoot-outs—one that takes place inside the barn and the other in a field of tall sunflowers (overcast and rain). Now slip into a Cadillac limo with our hero and his sidekicks for a change of scenery (day scenes). Follow this with some night shots as the limo pulls into Chica-

go's South Side residential district (staged in Calgary but looks like Chicago). For a boat ride, meet Clarabelle (Angel Tompkins) in her plush houseboat late at night while our hero builds her up to a big letdown; he cuts the houseboat loose and sends it drifting aimlessly down the Missouri River—leaving Clarabelle framed in the doorway, half nude, screaming obscenities at our smiling hero. All of which adds up to scope (and a lot of action) in terms of cinematography.

THE DIRECTOR

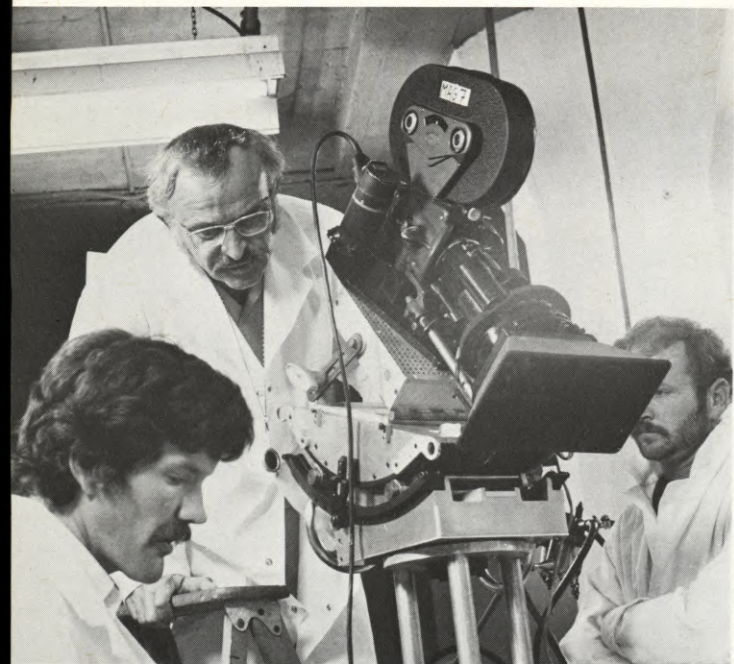
PRIME CUT was directed by Michael Ritchie. As every cinematographer knows, the director-cameraman relationship is an extremely important one. A number of directors have a better-than-average knowledge of the tools of our trade, namely lenses, composition, lighting, film development techniques, etc.

More often than not these are the directors who exhibit an empathy for the problems facing the cameraman. When this happens *both* men enjoy a distinct advantage over the workaday director-cameraman relationship. I think it is fair to say that the "workaday" category does not apply to Ritchie! (The December 25, 1971 issue of *SATURDAY REVIEW* carried an interview with Stanley Kubrick in conjunction with his filming of *A CLOCKWORK ORANGE* which serves to illustrate my point more objectively.)

As a prelude to *PRIME CUT*, Michael and I had worked together many times before; it dates back to his very first directorial assignment. At that time, I believe he was the youngest director in Hollywood, at age 23! That particular assignment was a segment of the TV series *PROFILES IN COURAGE*. Following this we worked together on a

(LEFT) A director's dream: A giant greenhouse to be demolished before the cameras in one fell swoop. (CENTER) To foil the "bad guys", a huge cattle truck is driven at full speed to smash the supports of the greenhouse. (RIGHT) As the truck charges forward like a battering ram, the entire glass structure comes crashing down around it. The greenhouse was constructed especially for the film at a cost of \$60,000. Since this scene was obviously a "one-take" situation, it was filmed from many angles simultaneously with multiple cameras.





(LEFT) Setting up in the slaughterhouse, the author (behind camera) discussed a point with Director Micheal Ritchie (foreground). (RIGHT) Lighting for the slaughterhouse sequence made extensive use of "9-lites" diffused with "paper combos" (a sheet of Cine Booster Blue, plus a sheet of white tracing paper). The object was to achieve a high-key sterile quality in the lighting. The stench, noise and buckets of blood all around made the shooting of this sequence a nightmare for the crew.

number of things: NBC's CHRYSLER THEATER, THE OUTSIDER—then a two-hour WORLD PREMIERE movie which later sold as a TV series, THE BOLD ONES (The Lawyers); and more recently the U.S. portion of DOWN-HILL RACER. During this long association Michael and I did many innovative things together.

For example, the one that stands out in my mind happened back in 1968 on a TV show, TWENTY THOUSAND DOLLAR CARROT (a one-hour TV flick

starring Darren McGavin). Michael wanted to shoot this particular show *all on actual locations, in six days—using no lights!* At first Universal turned thumbs down on the idea; studio custom-and-practice dictated "two days out" (location) and "four days in" (on the stage or back lot).

Ritchie came to me and explained what he wanted to do. Then he asked me if I thought it could be done. I replied, "Tell me exactly what you plan to shoot and *maybe—just maybe* we can

pull it off . . . but it will depend on a number of factors." And indeed it did. Luckily we received the first bit of encouraging news. It came from Eastman Kodak. Their (then new) Type 5254 Eastman Color Negative would be available in limited quantities. Ritchie immediately locked up about 50,000 feet—that's all they would give us. Next we began scouting "practical" interiors which would lend themselves to shooting in available light utilizing the new Type 5254 film. We experimented. We shot some footage with an Arriflex and some with a still camera. Exposures were made and the information was logged accordingly, i.e. T/2.0 "normal" development, "force develop one stop", "force develop two stops", etc.

All this information was put into a book and labeled according to scene number. Later on this little book became our bible during the actual shooting. I had experimented previously with the "extended development technique" using the old stock, Type 5251; it was reasonably good at "one-stop-push" but not so good at "two-stop push". By testing this new film (Type 5254) in both the "one-stop" and "two-stop" ranges we discovered that we could capture scenes that heretofore were unheard of! Thus a whole new world of photography opened up for us.

The advent of Eastman Color Negative Type 5254 (currently in use today) was a giant-sized achievement for the Kodak people to be sure. Moreover, it marked the beginning of what has become the vogue to shoot everything "on

(LEFT) In flight from pursuing gunman, Lee Marvin and breathless heroine flee beneath grandstand of fair grounds. (RIGHT) To film this 180-foot run underneath stands, an overhead monorail was rigged, with Operator, hand-holding Arriflex camera, pulled rapidly backwards. The problem was to achieve a soft stop at the end and to avoid dumping the whole rig—Operator and all—onto the ground.



location" instead of the sound stage. And finally, as a direct result of this major breakthrough, Michael and I got Universal's approval to shoot that TV film entirely on location. Working out of a station wagon, we did it in six days, on schedule, on budget—with no lights!

Consequently on PRIME CUT, a discussion with Ritchie concerning such things as a "T/1.4 55mm Ultra-Speed Panavision lens" became a purely academic matter. Moreover, on all of our interiors we would discuss—ahead of time—any cuts which involved the use of the zoom lens primarily because of the "beefed up" lighting requirements for this lens. If we had to use the zoom lens for certain reasons Michael would give me the time to pump in the additional light necessary; or conversely, if it meant too much time lightingwise, he would compromise for a conventional lens—or even the ultra-speed lens—in order to get the necessary cut without sacrificing the overall coverage. This kind of director-cameraman rapport can

be a fulfilling experience . . . for both men involved.

PRE-PRODUCTION

When it comes to pre-production planning, the type of director described above can be very helpful to the cinematographer. On PRIME CUT—mainly through the efforts of the director—I was given a reasonable amount of time ahead of our start date to scout all the locations with my key men: Cliff Hutchinson, gaffer, and Chuck Renault, key grip. We made a special trip to Canada to check out all the electrical and grip requirements. Needless to say, a lot of equipment was involved because we were faced with some *huge sets*.

For example, the PALLISER HOTEL lobby measured roughly 60 by 150 feet with a 22-foot ceiling; the dining room measured 40 by 140 feet with an 18-foot ceiling; the barn interior was roughly 40 by 140 feet and about 28 feet to the rafters.

These three huge interiors involved 3200° Kelvin light as well as 5000° Kelvin light. Moreover, these three big sets defined our generator capacity for peak load conditions. It required two Cinemobile Mark VI units to get the job done. But as soon as these three huge sets were out of the way we could send one of the Mark VI units back to Hollywood—along with the excess lighting equipment. All of this called for very careful planning because we were a long way from home and Canadian and U.S. Customs were involved. It meant that we had to establish exactly what electrical equipment would remain with us to complete the balance of the picture.

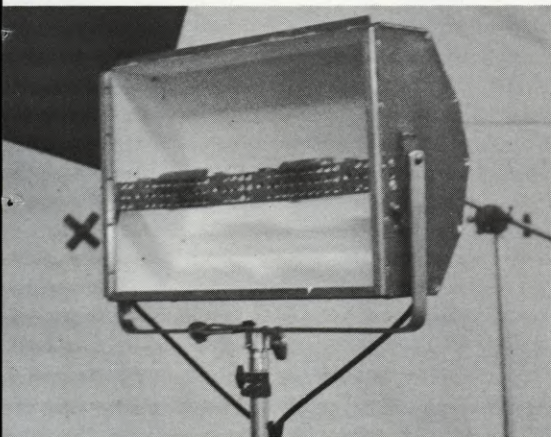
During this stage of the pre-production planning the question of camera equipment and personnel came up. Since nearly everything was to be shot

in Canada, the Canadian Manpower Commission insisted that we staff ourselves heavily with Canadians. I believe we ended up with a company of 80 or 90 people (including cast) which finally broke down to about 60% Canadians and 40% Americans.

I must say here that the Canadian contingent worked out extremely well. Part of this was due to the fact that the Canadian government allowed us to bring in our key people which, in turn, created a smooth-running Canadian-American unit in all departments. I was allowed to take one key assistant cameraman from Hollywood, Ray Del a Motte along with one key operator, Roger Shearman, Jr. (Eventually we used three extra camera operators from Hollywood for the reaper chase and the greenhouse crash; these extra cameras were then manned entirely by Canadian assistant cameramen.)

Our pre-production list of Panavision camera equipment included seven cameras: one PSR sound camera, two Arriflexes, one blimped Arriflex, one Mark II high-speed camera, one Bell & Howell "Special" (for photographing a TV receiver without the usual "roll bars"), and one 100-foot load Eyemo. To economize in the way of lenses, we ordered *only one set* of Panavision lenses as follows: 30mm, 35mm, 40mm, 50mm, 75mm and 100mm. We planned to "swap" lenses between the cameras. Extra lenses included: one T/1.4 55mm Ultra-Speed, an additional 30mm, one short zoom (45/90mm) and one long zoom (50/500mm), one 150mm, and one 1000mm.

Special equipment items included such things as a Chapman Titan camera crane, a Panavision rain-deflector (the one designed for RYAN'S DAUGHTER), a knock-down plastic rain house
Continued on Page 672



The so-called "Willis-lite", a 2000-watt tungsten halogen soft-light broad designed by Cinematographer Gordon Willis. Polito found it invaluable.

(LEFT) Shooting inside an actual living room suite on the 11th floor of the Calgary Inn. To provide diffused booster illumination for available light filtering through curtains, light from lamps was bounced off of large sheets of styrofoam (about 3/4-inch thick). The material is extremely light-weight and has a finely diffused surface. It is rigid, but can be easily broken by hand to fit odd spaces. (RIGHT) Marvin hedge-hops through stalls in the barn. Day sequences inside this structure were lighted for daylight balance and shot with 85 filter to take advantage of considerable ambient daylight from outside.





(LEFT) Photographed by the author from above, three skydivers "fly in" to join what will become the world's record 24-man star formation. (RIGHT) The completed 24-man star, achieved recently at skydiving center near Lake Elsinore, California. The world-record star was formed completely within 70 seconds—just 15 seconds longer than the time required to form the original 10-man stable circular linkup achieved in 1967. Ability of skydivers to maneuver precisely in free-fall has improved greatly since it was first tried in 1958.



(RIGHT) Shot from below of the 11-man star, with smoke, of the Farkle Skydiving Team. This shot was photographed using a unique camera mount—the "reverse camera"—which is mounted 90° to the horizon, pointing straight up, and framed blindly by Boenish who couldn't see what he was framing! (LEFT) Boenish in free-fall with helmet-mounted Nikon still camera and 16mm GSAP gun camera, photographed just as his parachute is beginning to open.

(LEFT) Carl Boenish filming Roger Kersey with special Vaught high-speed light-weight camera running at 200 frames per second. Most of his free-fall footage is photographed in "real time" at 24 fps. (RIGHT) A fisheye view of Boenish leaving strut of carrier aircraft and dropping into space for free-fall. He has made more than 1,000 camera jumps (out of a total of 1,300). Among many assignments, he spent four months filming spectacular free-fall footage for John Frankenheimer's M-G-M production of "THE GYPSY MOTHS".



FILMING IN FREE-FALL

Continued from Page 649

high-quality still blow-ups are not obtainable even from 35mm movie frames. Over the 35mm movie cameras, the 35mm still camera has twice the surface area (full-frame vs. half-frame), higher shutter speed capability (500th sec. vs. 50th sec.), and the choice of finer grain films (Kodachrome II vs. color negative 5254). Putting these factors together makes for orders of magnitude in difference of quality. Hence, the best way to solve the dilemma is to film the event using both a still camera and a movie camera.

For ruggedness, compactness, dependability and quality, the motorized Nikon F can't be surpassed for skydiving use. It is a sequence camera capable of exposing up to 4 frames per second. (Incidentally, when I shoot stills, I invariably use up an entire 36-exposure roll of film, since it isn't worth the labor to make the jump and not have available the maximum amount of film. In addition, it would be unwise to make a subsequent jump having only half a roll left in the camera, in case something really exciting happened.)

Some free-fall photographers helmet-mount their Nikons using "open mounts." An enclosed mount, however, protects against mechanical shocks, vibration, temperature gradients, dirt, dust, and the electrical wiring getting damaged. Since all camera settings must be pre-set and taped in place prior to free-fall use, it should be unnecessary to make last minute changes before a jump.

On all important jumps and world-record attempts, I mount either one and sometimes two gun cameras on the top of my Nikon still camera mount. Independent batteries are used to power the still camera and the movie camera(s) for maximum reliability. The dual or tri-camera setup is not used for most jumps, not so much due to the extra film costs, but rather due to the extra risk of a hard opening shock when the chute opens with the additional weight on the helmet. If a specific scene is desired, it usually can be approximately duplicated several times for each various type of format desired.

DUAL 16mm GUN CAMERAS

Mounting two 16mm gun cameras on a single helmet is not a new idea. Doing so provides double reliability, twice the film capacity, and the ability to shoot simultaneously with different lenses and/or different frame rates—ideal for identical intercutability. Conventional-

ly, these two cameras are mounted on opposite sides of the helmet, but that causes considerable problems with parallax alignment. By mounting the two cameras on the same side and also on the same mutual bracket, parallax adjustments with respect to each camera are non-existent, and also parachute riser interference is minimized. These factors outweigh the disadvantage of having all the bulk and weight on one side of the helmet.

35mm FREE-FALL CAMERA

Some time ago MGM modified three 35mm battery-operated 100'-roll Eyemo cameras for me to accept the standard Arri-mount lenses. The Eyemo is ideal for free-fall use. It is compact and weighs only 10 lbs. Gears were made to realize 40 fps. Faster frame-rates proved difficult to achieve due to the film floating in the gate. A 2.3 amp-hour NiCad battery weighing 5½ lbs. is used with this camera, good for about 10 rolls of film per charging. All 16mm and 35mm switches were constructed to be interchangeable.

ZOOM LENS FOR FREE-FALL USE

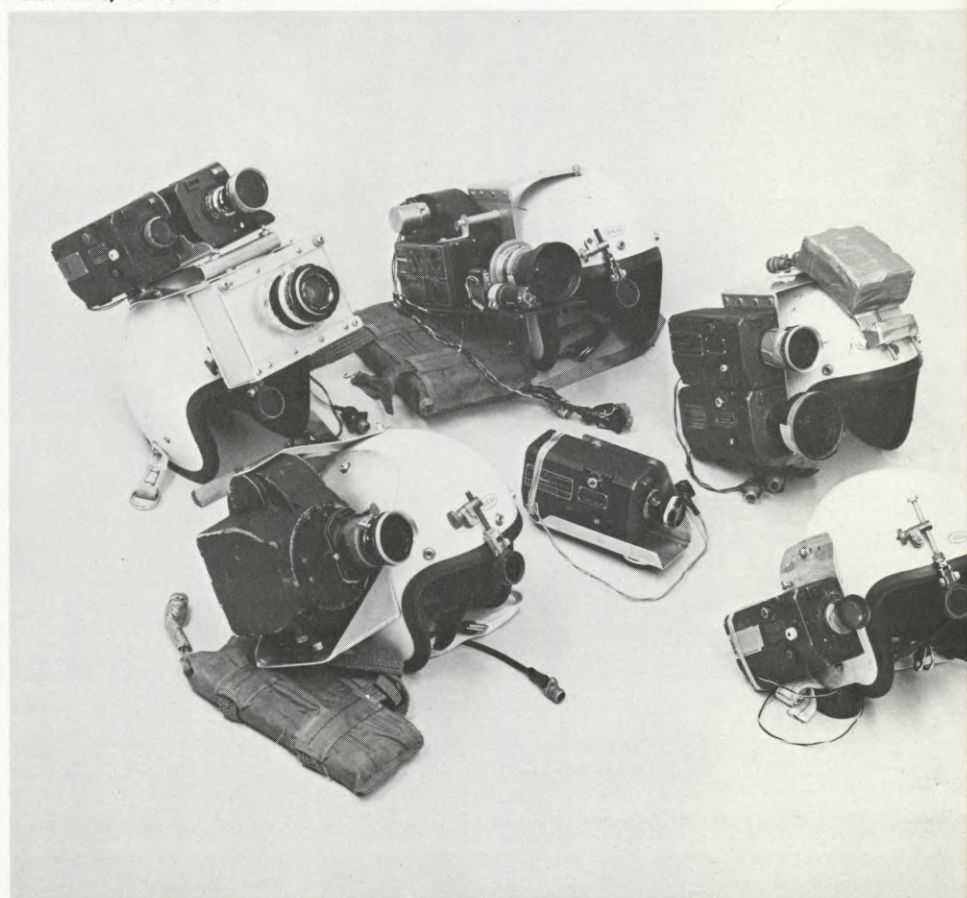
An accompanying photograph shows

an N-9 gun camera set up for free-fall use. The camera uses a 2017 200' daylight-load magazine manufactured by Precision Instruments of Tarzana, Ca. This magazine is a highly precisioned, machined casting and provides 6 minutes of film per roll change. The lens is a 12.5mm-75mm Angenieux zoom. Herman Galli of Herman Galli Camera Service custom-machined the mount to implement zooming the lens in free-fall. A gear-toothed collar fits around the lens with microswitch stops at 17, 25, 40, and 75mm. Hence, it can be zoomed in and out between 12.5mm and any one of the other pre-set stops. The zoom control also has an override button which can be activated in free-fall to extend past the pre-set range if so desired. A toggle switch is used to turn the camera on and off. All three switches are mounted on a "T" handle which is held in the left hand only, keeping the right hand free for safety. Bill Butler designed and built the electrical portion of the zoom.

The free-fall zoom lens can be used to film the close-up of a jumper's face while he is inside of a star, and then to pull back wide-angle to reveal the entire

Continued on Page 712

Several of the many helmet-mounted camera configurations used by Carl Boenish in his free-fall filming work. He prefers Bell helmets for this purpose and they last an average of five years. Boenish operates his own production company, Photo-Chuting Enterprises, which is located in Hawthorne, California.



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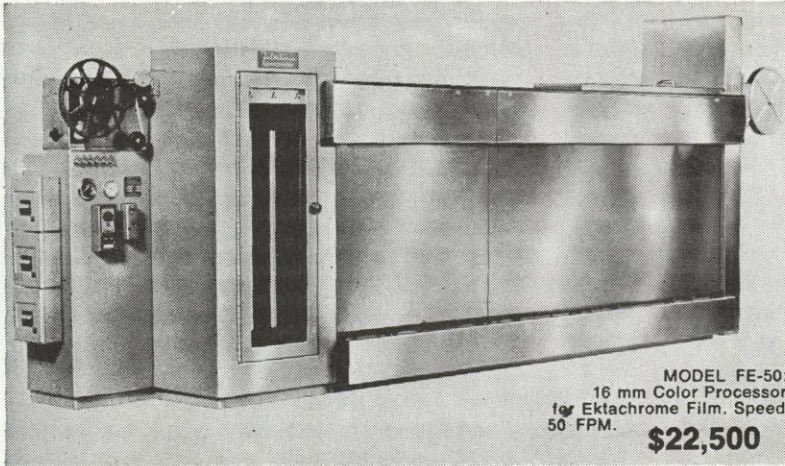
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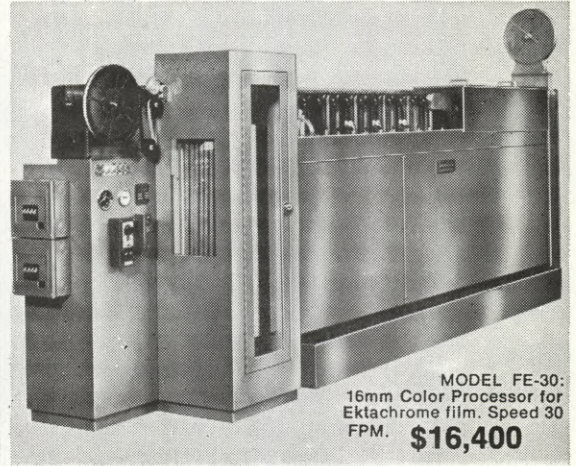
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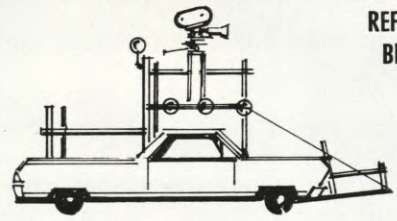
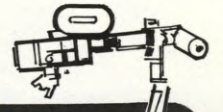
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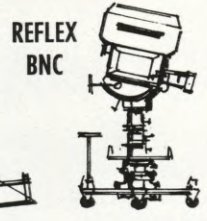
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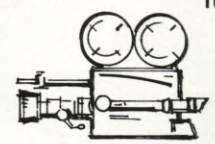
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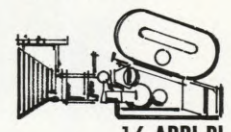


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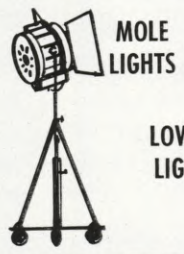
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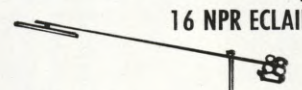
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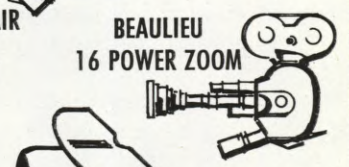
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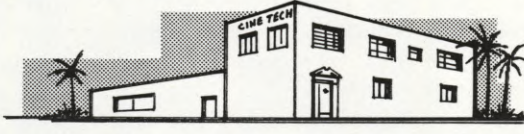
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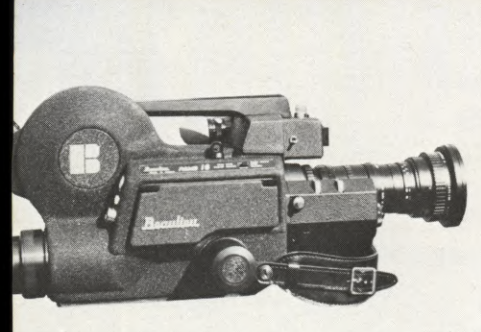
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Designed from the ground up as a fresh concept—and definitely not a modification of previous Beaulieu models—the handsome, low-profile instrument is described by its manufacturer as "an *absolutely* new and unique 16mm camera system specifically designed to meet the demanding filming requirements of documentary motion picture

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It would appear to be all of that and, if its performance in the field lives up to the claims made for it, the BEAULIEU "NEWS 16" should prove to be a boon to long-suffering news and documentary cameramen currently lugging around clumsy shoulder-braced "one-man-band" conversions weighing 40 pounds and more.

Despite its light weight and extremely compact silhouette, the new camera is an incredibly sophisticated instrument, its modular design offering a wide range of options for single or double-system filming.

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"NEWS 16" is a *silent* running camera. The cameraman has available six different and interchangeable synchronous sound options: single system (magnetic) module . . . to be used with the light weight and compact Beaulieu miniaturized amplifier; a 24 or 25 f.p.s crystal-sync module; and three different synchropilot generator modules (50 cps, 60 cps, and 100 cps).

The BEAULIEU "NEWS 16" camera is designed to be operated with one hand—leaving the other hand free to ward off crowds, or rioters, or to protect the cameraman himself in some other way. (Of course, the cameraman's free hand can also be used to follow focus while power zooming.) The low camera profile permits the cameraman to see directly across the entire camera body—again providing an additional protection to the cameraman in difficult filming situations.

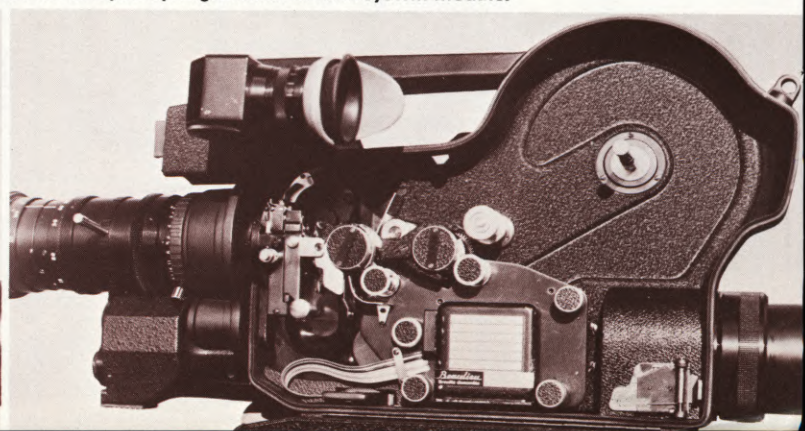
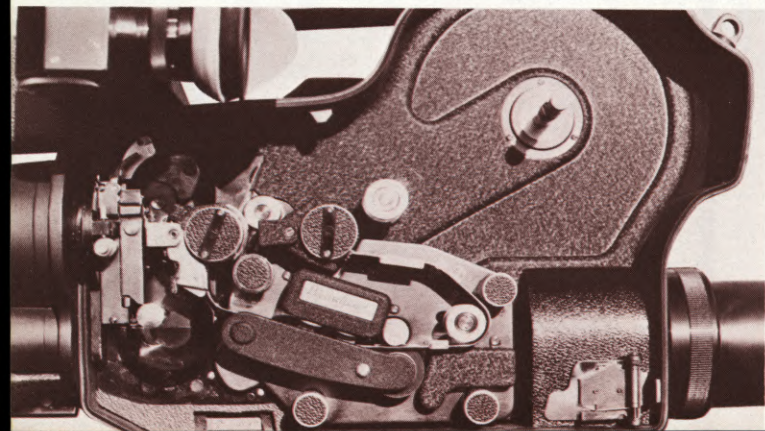
The "NEWS 16" camera weighs approximately 16 lbs. (including interchangeable Angenieux "Auto" 12-120mm zoom lens and interchangeable crystal-sync module). The weight is distributed so that this compact camera is balanced comfortably on the cameraman's shoulder, eliminating the need for a shoulder-brace. The co-axial film chamber accepts 100' and 200' daylight-load film spools, with fully automatic (and extremely fast) *self-threading*.

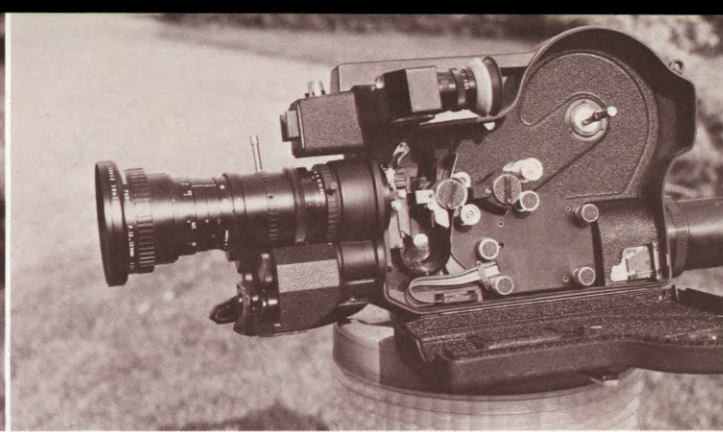
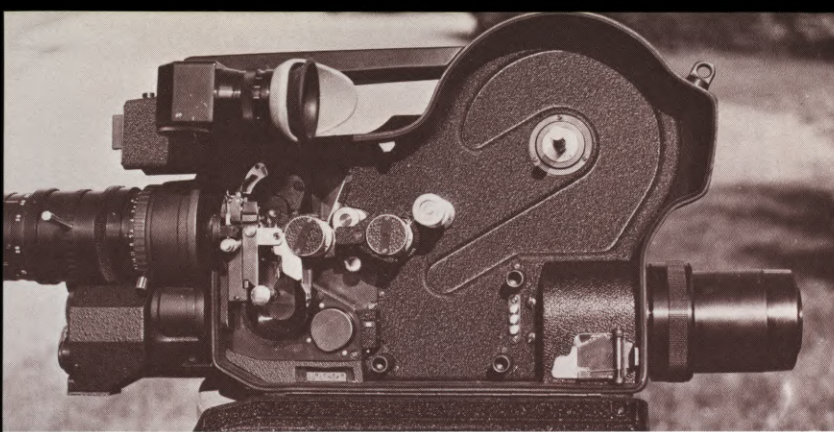
The mirrored shutter always stops in the viewing position. The thru-the-lens viewfinder swivels 180° for front, rear and top viewing, with 22X magnification, etched TV frame, and choice of left or right eye viewfinders. A signal



Marcel Beaulieu, designer and manufacturer of the proud line of cameras that bear his name, shown in his office with the first 16mm camera in the Beaulieu line (left) and his latest and proudest 16mm camera creation, the completely new, ultra-sophisticated BEAULIEU "NEWS 16" camera (right).

(LEFT) A detailed view of the "NEWS 16" camera, showing the SINGLE SYSTEM MAGNETIC SOUND MODULE in position. The module can be removed in seconds. (RIGHT) The "NEWS 16", showing Crystal-Sync Module for crystal controlled double-system sound in position. This module is easily removable and interchangeable with the single-system sound module and the 60-cycle sync generator double-system module.





(LEFT) The BEAULIEU "NEWS 16" camera shown without any optional sound module in position. (RIGHT) The camera with interchangeable 60-cycle synchro-pilot generator module in place. Though very compact, the new camera is an incredibly sophisticated instrument, its modular design offering a wide range of options for single and double-system filming.

light inside the viewfinder warns the cameraman that only 15 feet of film is left. At the same time, the external camera on-light switches off automatically.

Some additional technical features include: built-in variable power zoom (3 to 25 seconds) and fully automatic exposure system (both with manual override); interchangeable variable speed motor (12-40 f.p.s.), and lens interchangeability (C-mount). Also available is an Angenieux "Auto" 9.5-57mm, F/1.6 zoom lens.

Hundreds of thousands of feet of sound film were used to test the BEAULIEU "NEWS 16" in all parts of the world—from the heated riot scenes in Belfast—to extensive and diversified filming situations across the continent of Europe—and even to Peking for test filming coverage during the recent Nixon visit.

TECHNICAL CHARACTERISTICS OF THE BEAULIEU "NEWS 16" PROFESSIONAL SINGLE/DOUBLE SYSTEM 16mm SOUND CAMERA

GENERAL:

- The brand new BEAULIEU "NEWS 16" is a sound synchronized professional type camera.
- Compactness and lightness make it particularly portable.
- Its construction is modular. It provides a choice of six sound assemblies. Motors, power supplies and lenses are interchangeable.
- Well balanced on the shoulder when in shooting position, it is designed for one-handed operation.
- Running is extremely silent.

SPECIFICATIONS:

FORMAT: 16mm
 FILM: 200' or 100' daylight-load rolls "B" winding

SOUND SYNCHRONIZATION:

single-system: 1 assembly
 pilotone: 3 assemblies available (60, 50 or 100 cycles-per-second)

crystal control: 2 assemblies available (24 or 25 fps)

A "silent assembly" comes as standard equipment with the camera.

CAMERA DIMENSIONS:

overall height: 8½ inches
 overall width: 8½ inches
 overall length: (1) 19-3/8 inches

*WEIGHT (1) and (2): 16 lbs (including zoom lens and crystal module)

* (1): with a 12mm-to-120mm Angenieux Power Zoom lens, mounted

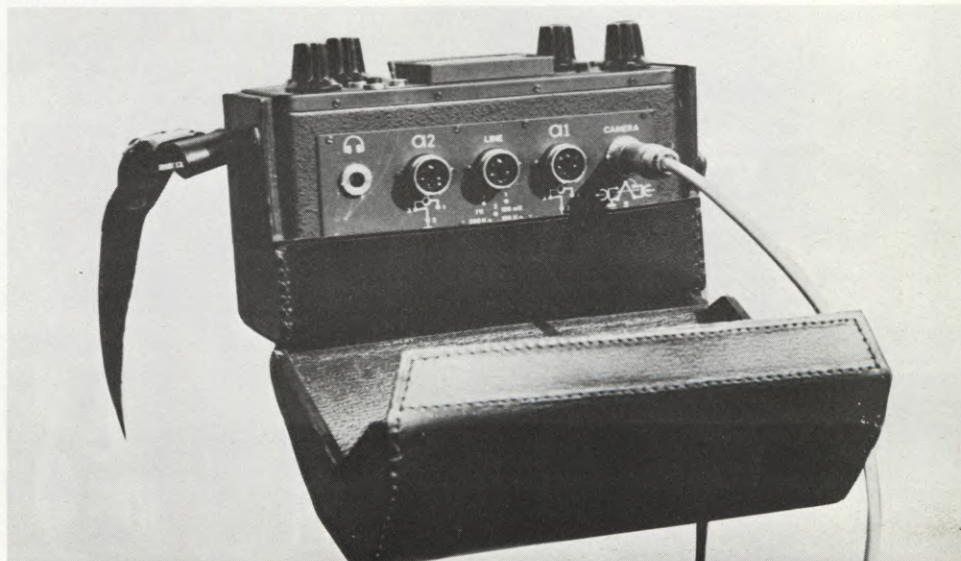
onto the camera—PLUS *(2): with a crystal control assembly

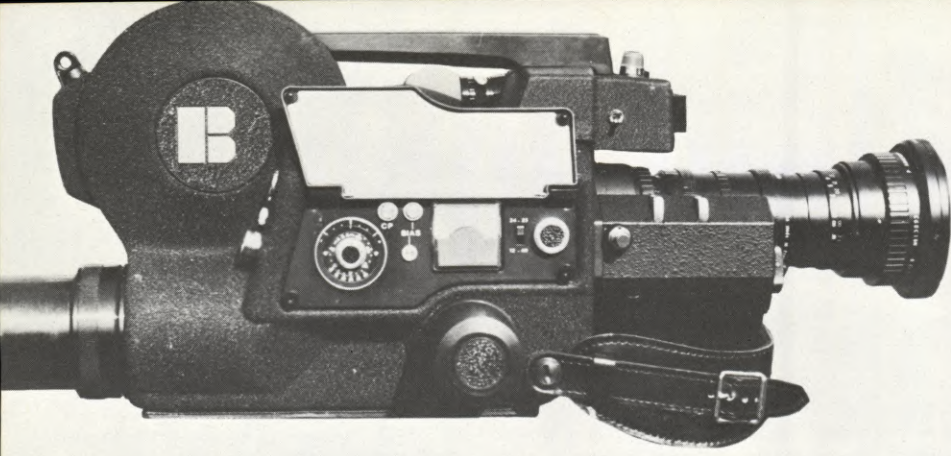
TECHNICAL DATA:

Lens: Interchangeable. "C" mount
 Diaphragm: fully automatic settings provided by a servo-motor (REGLOMATIC—Beaulieu patent)
 correct exposure check by means of the meter needle in the viewfinder.
 this automatic device is disengageable.

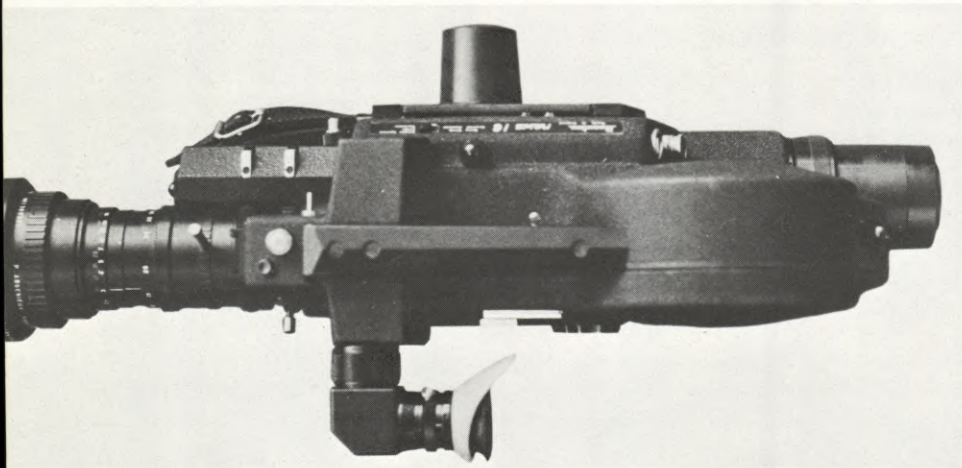


(ABOVE) Top view of the compact and extremely lightweight amplifier for the BEAULIEU "NEWS 16" camera. Amplifier is 5" high, 3" wide and 8" long. It weighs 3¼ pounds (which includes nine 1.5-volt batteries). (BELOW) Side view of amplifier, showing various inputs and connectors.





(ABOVE) Side view of "NEWS 16", showing tachometer and knob control, variable speed (12-40 fps) motor option and 24-25 fps sync-sound motor position—plus battery tester, ASA setting dial for automatic exposure control, and forced stop compensation. Lid covering controls accepts grease pencil markings. (BELOW) Top view of the camera.



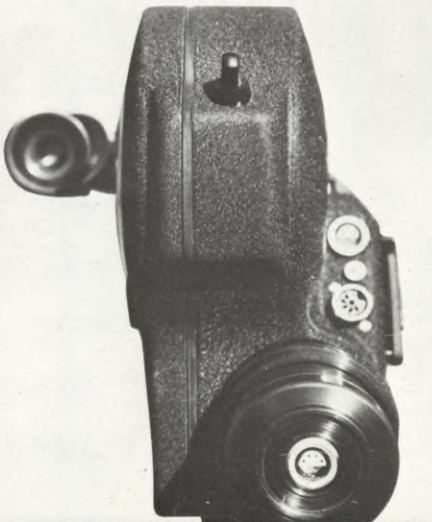
Zooming: Electric Power Zoom
 Lens-Zooming variation times:
 variable from 3 to 25 sec. (with
 12mm-to-120mm Power Zoom).
 Instant start/stop.

Automatic pre-focus control:
 automatically sets the diaphragm to its
 full aperture and the lens to its tele-
 photo-position.

VIEWFINDER:
 Reflex

Optical construction: 14 elements and
 4 prisms
 22x magnification
 "divided grain" focusing screen
 TV frame etched onto the focusing
 screen
 Eyepiece: swivelling (180° for viewing
 from above and rear)
 eyesight correction: ± 5 diopters
 2 rubber eyecups
 A left eye viewfinder is available.

(LEFT) Front view of camera, showing power zoom and auto-exposure on-off button controls. Manual over-ride is available on both exposure and zoom controls. (RIGHT) Rear view, showing 9.6-volt rechargeable battery at rear. Battery is interchangeable in seconds.



SHUTTER:

Guillotine type
 Always stops in viewing position
 frame exposure time at 25 fps: 1/60
 sec.

ELECTRONIC SLATING:

Frame-flash and beep for double-
 system filming

SPEEDS:

fixed by means of an electronic gov-
 ernor
 tachometer provides speed check
 2 positions speed-range converter:
 —A 24 or 25 fps position (stead-
 iness variations: ± .05% max.)
 —A 12-40 fps position (for vari-
 able speeds)

EXPOSURE METER:

Cds photo cell
 ASA sensitivity setting: 12-400
 Setting correction: ± 1f/Stop

CAMERA LOADING:

Coaxially mounted reels
 fully automatic self-threading (includ-
 ing sound module)
 Built-in film cutter

FILM TRANSPORT:

Electrical. Motor is interchangeable

FILM GUIDE:

made of chromium-plated brass
 stainless steel removable pressure plate
 "Sapphire" corundum edge guides

FOOTAGE COUNTER:

graduated both in feet (200 ft) and in
 meters (60m)
 indicates the footage still available
 automatically resets when loading the
 camera
 a signal light glows inside the view-

Continued on Page 710

Camera in "normal" filming position on
 cameraman's shoulder, with lightweight am-
 plifier hanging over shoulder for single-system
 sound operation.



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The Table of Contents includes: (1) Formats, (2) The Film, (3) The Camera, (4) The Lens, (5) Shooting, (6) Splicing and Editing, (7) Sound and Magnetic Recording, (8) Preparing the Sound Track (9) The Laboratory's Role, (10) Mixed Bag (budgets, taxes, distribution, publications, copyright, reprography, coloring and drawing, projection, and a special section on "Innovations"). Index and List of Illustrations.

*“ . . . I am almost sorry that two weeks ago I listed here a few technical books on filmmaking. Those books, they were fine. The only thing is, the other day I received Lenny Lipton's book, **Independent Filmmaking**, which is not only much better but also

much much cheaper. I recommend it fullheartedly and fullmindedly to all film students, beginners and advanced. Lenny Lipton is a very capable filmmaker himself. . . . He knows all the practical questions and answers.”—Jonas Mekas in the *Village Voice*

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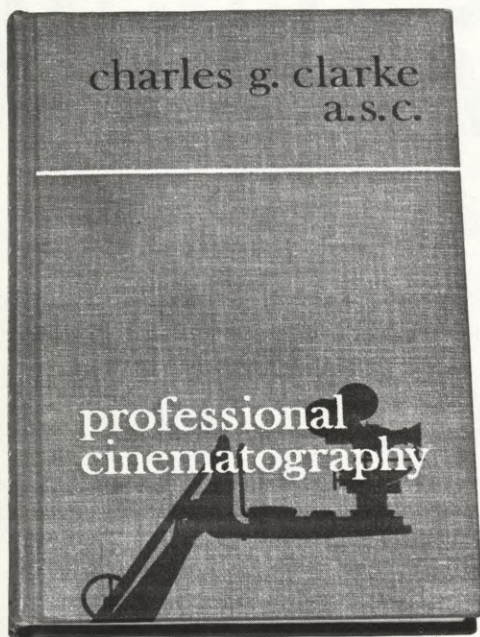
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ABOUT THE AUTHOR: Charles G. Clarke, ASC, a top Director of Photography at 20th Century-Fox for many years, and an ASC member, taught Advanced Cinematography at the University of California at Los Angeles, where he recognized a need for practical,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

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COOL BREEZE

title design by perri and smith

PHOTOGRAPHING "PRIME CUT"

Continued from Page 657

for the cameras, a Concord TV receiver complete with tape deck and playback, and various automobile mounts for the limousines.

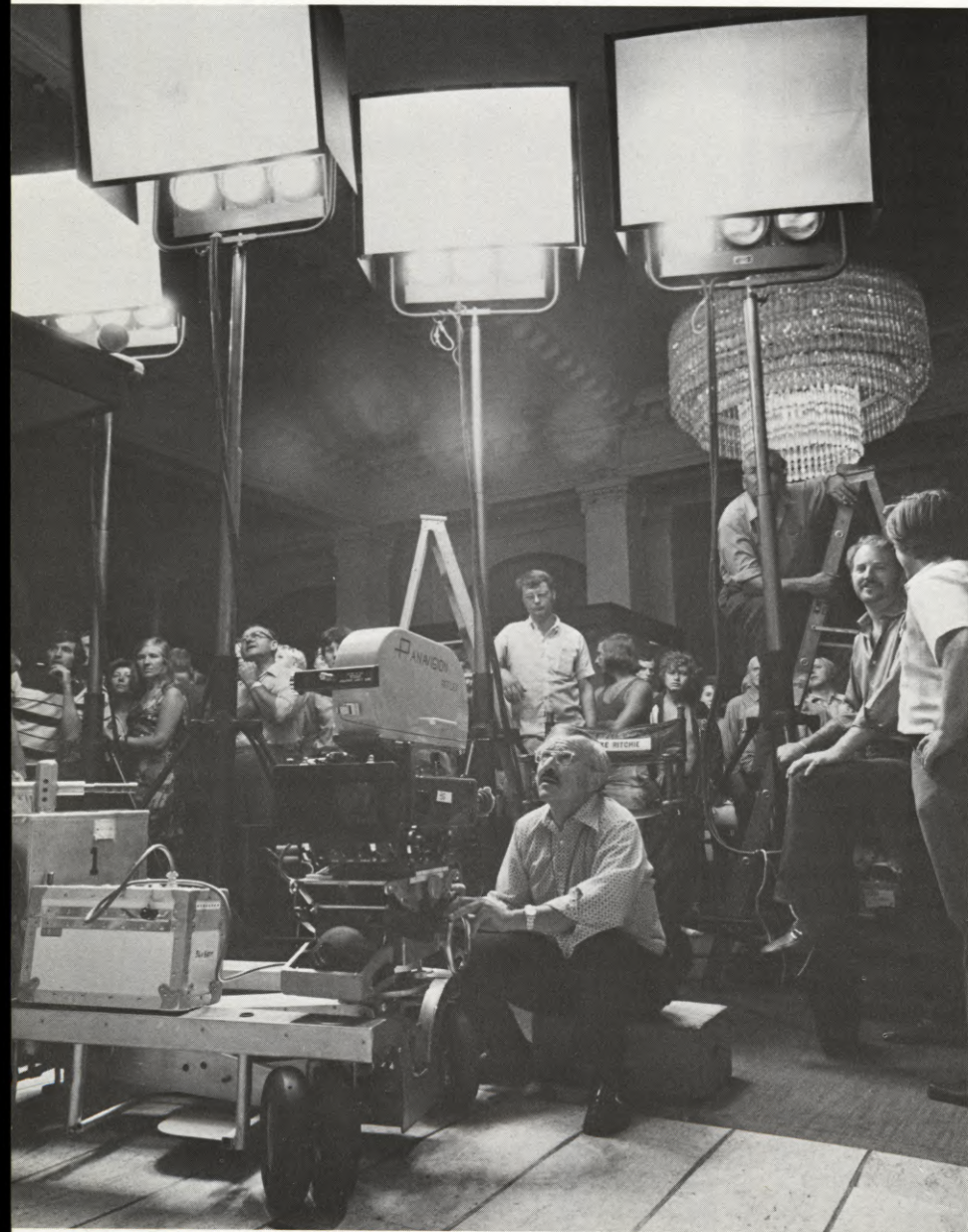
BLUEPRINT FOR LIGHTING

It is interesting to note how today's cinematic "look" has changed in terms of lighting. I prefer not to use the term "documentary look", simply because it leads into all sorts of strange ambiguities. I have always felt that a director who wants a "documentary look" really means that he does not want the "slick look" commonly associated with movies from another era. Paradoxically, today's cinematic "look" was dictated more by

necessity than by design; the "slick look" was pre-empted the moment we began to shoot everything on location. "Practical" interiors demand improvisation in lighting which in turn has brought about a whole new array of lighting equipment, i.e. the "9-lites" and the "Par64 Maxi-Brutes" to name a few. Thus the combination of these two factors *vis-à-vis* "practical" interiors and a new breed of lighting equipment has given us "the new look".

The new breed of location lighting equipment has also demanded a whole new set of techniques regarding their application. For example, on PRIME CUT I wanted a soft, non-directional type of light throughout all my interiors. A "9-lite" is anything but a soft light when used without any diffusion

Interior of the vast Palliser Hotel dining room was lighted with "9-lites" (PAR-64, 1000-watt), diffused with "paper combos" and using dichroic globes. Additional illumination was provided by 25 RFL500 flood "gator-grip" lamps mounted on a 2 x 4 stringer which crew got permission to fasten to overhead concrete beams.



in front of it; it's hot, harsh, and will produce multiple shadows. Therefore, I had three types of diffusion made up for these lamps; (a) CLEAR—a sheet of Cine Booster Blue (Roscolene) with nothing else, (b) SPUN COMBO—a sheet of Cine Booster Blue PLUS a sheet of spun glass, and (c) PAPER COMBO—a sheet of Cine Booster Blue PLUS a sheet of white tracing paper (Trojan #5 100% rag content. Anything less than 100% rag will prove disappointing.).

We used two types of "9-lites"; the small version and the big version. The small "9-lite" used the 650-watt dichroic FAY globes and the big "9-lite" used the Par64 1000-watt dichroic Medium Beam globes. (Some people refer to the big "9-lite" as a "Maxi-Brute".)

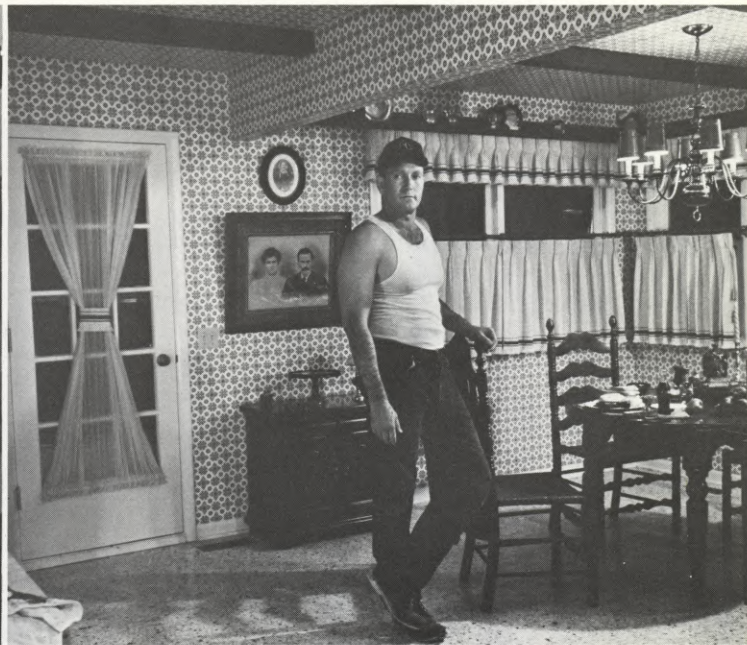
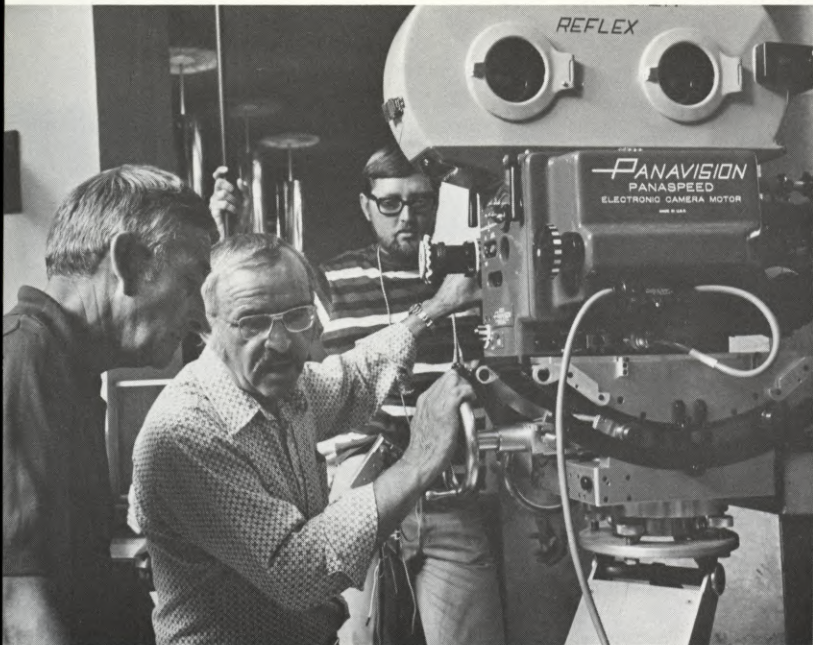
I used the CLEAR Cine Booster Blue in front of ALL dichroic globes because I have found that the dichroic globes have a tendency to run "under 5000° Kelvin" after just a few hours—producing skin tones that are too red.

I rarely used arcs on my exteriors. I found that the small "9-lites" or the big "9-lites" were much easier to handle and control thus saving us a lot of time *without sacrificing quality*.

For example, on a day where the sun is "in and out" due to clouds the "9-lites" are terrific. Each lamp has nine switches. Therefore, if the sun ducks behind a cloud just when you are ready to shoot, you can re-balance quickly by flicking off some switches. On the other hand, using arcs under the same set of circumstances becomes a painfully slow process of changing diffusion or stopping completely to trim the arc. This is not to say that we never used any arcs. Once or twice I was forced to use them to match a sunlight effect—which had been established—after we had lost the sun itself.

Another utilization of the "9-lites" on PRIME CUT was to "bounce the light" off a white surface. I have found that white styrofoam sheets (about ¾-inch thick) work very well and have a lot of advantages. Styrofoam is an extremely light-weight material (almost featherweight); it has a finely diffused surface (like the surface of a cube of sugar); it is rigid and yet can be broken quite easily by hand to fit into a certain space. When used in this manner, the only diffusion on the "9-lite" would be the CLEAR Cine Booster Blue gel.

The PAPER COMBO described earlier has the effect of making a "soft-lite" out of a "9-lite". The effect is not quite as soft as "bounce light" but it is reasonably close and a whole lot faster to achieve. One drawback is intensity; the paper obviously cuts down on the output. Therefore, whenever I needed



(LEFT) Polito gives instructions to assistant while setting Panavision Silent Reflex camera for a sequence. (RIGHT) Gregory Walcott, playing one of the villains of the piece, stands in the combination kitchen-dining nook set constructed on location for the film. It was a practical set in every way, built like the real thing, with full ceilings and no wild walls or other concessions to filming. The objective was to have everything look as real as possible, including those few sets which had to be built.

more output I would simply switch to the SPUN COMBO.

This same procedure described above was carried out on all our "single dichroic globes" also (clamp-on units like the 650-watt FAY or the Par64 1000-watt Medium Beam). On the Colortran single FAY lamp I found that aluminum foil saved a lot of time; instead of a "gobo" to kill the leak light we would wrap a hunk of foil around the lamp. Working on "practical" interiors sometimes it is difficult to keep a "gobo" out of the shot—especially when shooting in cramped quarters. The aluminum foil often will do the trick and in a lot less time.

A word about our "tungsten balance" lighting equipment, namely lamps in the 3200° Kelvin range. Now this may sound like a play on words but I fell in love with a "broad"—designed by cinematographer Gordon Willis. I took along eight of them (that's all I could get at the time). They became known on our show as "Willis-lites"—an extremely lightweight, compact, double-switch, 2000-watt quartz "soft-lite broad". The reason for my enthusiasm for this lamp is simple: Aside from all the features I just enumerated, the OUTPUT is a lot more than that of some of the other 2K so-called *soft-light* broads. However, for certain shots, Gordon's lamp was not quite as soft as I wanted it. Therefore I had diffusion holders incorporated on his lamps so that I could use either spun glass or Trojan #5 paper diffusion. This particular lamp was used extensively on all my night interiors—and on some day interi-

ors where I was able to put 85 gels on the windows. Terrific broad!

THE PALLISER HOTEL.

When we finally got into the actual filming of PRIME CUT the biggest challenge—in terms of lighting problems—occurred at the PALLISER HOTEL. The size of the lobby is enormous. Adjoining the lobby is an immense dining room which is also used for conventions because of its sheer size.

Put another way, it would be a tight squeeze to fit these two "sets" onto Stages 29 and 30 at MGM (both huge sound stages). Naturally, we wanted to capture both the size and stately charm of this old hotel with its gorgeous crystal chandeliers and other trappings. To do this we used Panavision's Wide Angle 30mm lens. This lens takes in the whole world!

The shot called for Lee Marvin and
Continued on Page 705

The "Leans", a rat-infested flophouse, where unfortunates paid a pittance to fall asleep leaning on a horizontal post. About 35 foot-candles of soft daylight filtering into the room created an excellent "low-key" mood with built-in contrast. Most of the sequence was shot with the Panavision Ultra-Speed T/1.4 55mm lens.



EXPLOITS OF PRESIDENT'S PERSONAL CAMERAMAN

Continued from Page 628

ing to Hartigan, veteran cameraman of many wars, "was the best unit ever fielded anywhere."

Lighting also posed special techniques and again Hartigan was assisted by Furrer who pulled two 750-watt and two 2,000-watt lamps off of the feature film he was shooting and loaned them to Hartigan. The lamps were the new Mole-Richardson quartz "Baby babies." The 750's had fresnel lenses and weighed about half as much as their

normal counterparts.

They are perfect for fast and light traveling, when the cameraman can't just yell out: "Hold it, Mr. President. I didn't get the handshaking. Can you do it again?"

The combination of special and unusual equipment got the precise film coverage that Hartigan wanted. He was constantly with the President, a fact that was duly noted by Chinese Premier Chou En-lai who spoke once to Hartigan saying "Oh it's that red-faced Irishman again." Hartigan recalled that the Premier remembered him from the "Bandung conference in 1958."

The China trip wasn't the first time Hartigan employed unusual camera techniques. At the start of the Korean War, he obtained from Jim Frezzolini the first two Auricon Cine-Voice cameras with chopped-off tops. By using a 400-foot Bell and Howell magazine, Hartigan got 11 minutes of shooting instead of the usual 2¾ minutes. This modification of the Auricon with optical sound track resulted in what became known as the "Frezzolini conversion" and signaled the end of the very heavy and complicated 35mm sound newsreel cameras. Hartigan bought two cameras which cleaned him out financially. He landed in Tokyo with \$6 and 22,000 feet of raw stock and began filming the war.

Hartigan was on the third day of his honeymoon when the war broke out. But, he just picked up and left, a fact of life his wife, Eleanor, has long since grown accustomed to. A hard-nosed, tough cameraman, he filmed the first Israeli War, the Civil War in Greece, the Partition of India, the French Indo-China War and the American engagement in Viet Nam. During the Second World War, as a U.S. infantry cameraman, he received a Bronze Star and a Purple Heart during action in Tunisia. Between wars, Hartigan went to the South Pole for NBC on Expedition Deep Freeze I and II and for the National Academy of Science for Deep Freeze III during the geophysical year.

His first documentary, "WALK IN MY SHOES", produced by John Secundari about the meaning of being a Negro in the North was nominated for an Emmy Award. Four others of his works also received Emmy nominations. In addition, he received the National Cowboy Hall of Fame Award in 1965 and two Overseas Press Club Awards in 1961 and 1962.

His first big filming assignment in Washington came in 1965 when he spent six months photographing Lady Bird Johnson's film entitled "A VISIT TO WASHINGTON WITH MRS. LYNDON B. JOHNSON ON BEHALF OF A MORE BEAUTIFUL AMERICA". This film won the George Foster Peabody Award.

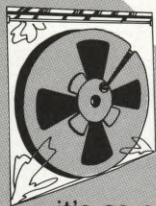
How did he get the Nixon assignment? Hartigan isn't sure. He says "I've met a lot of prominent people. It could have been Jim Haggerty, President Eisenhower's press secretary, Lady Bird, Liz Carpenter, John Scali, some of the Secret Service men, just about anyone."

What's next for Hartigan? By the time you read this he will probably be filming inside the wall of the Kremlin, as President Nixon makes another historic journey. ■

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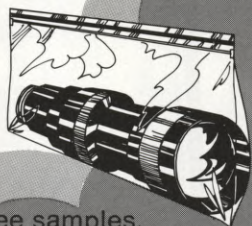
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FILMING "PRIME CUT"

Continued from Page 653

People who are thinking of doing a production in Canada have to take all these things into consideration—that is, if they're planning to do an *American* production there. However, it's perfectly possible to make inexpensive films in Canada if you're a *Canadian* company. As for "PRIME CUT"—it was a three million-plus picture and it would have cost three million-plus if we'd made it in Kansas or anywhere else. What we were looking for was a certain atmosphere and specific production values. We found them in Calgary.

A lot of people think that when you go on location you can take advantage of the natural lighting conditions, but we had very large sets to light—like those in the Palliser Hotel. Gene Polito had to dolly from the lobby, which was enormous, into the dining room, which was as big as the one in the Palace Hotel in San Francisco—and both rooms had to be lighted for the one shot. Then there was the barn itself, which had to be lighted with arc lights to maintain a constant sunlight source whatever happened. We couldn't count on consistent sunshine during the four days it would take to film a continuous sequence that would run eight or nine minutes on the screen.

For all of this we had to have enough lighting units and enough generator power. Our original plan had been to truck in a very large generator and a variety of lighting equipment, but Fouad Said happened to have a Cinemobile in Canada under some kind of impound, so we ended up with two Mark V Cinemobiles, which turned out to be more economical than our original plan. However, we certainly weren't using the Cinemobiles in the way the vehicle is intended to be used. It is a mobile unit that is invaluable when you have a lot of moving around to do. However, we didn't have to move from place to place in Canada. We stayed on that one farm, which was our principal location, for four and a half weeks—so the mobility of the Cinemobile really became irrelevant.

What made "PRIME CUT" a complex picture to prepare was the requirement for extensive special effects and unusual set-ups. When the script says that you've got to have a reaper eat a Cadillac, you don't just say: "Oh, fine—we'll do it in miniature." Then there was the big shoot-out at the end of the picture that takes place in a full 80-acre field of sunflowers. There were no sunflowers in Canada. It isn't a cash crop, so they don't plant them. How-

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ever, because the picture verges on black comedy, I wanted that true Kansas "WIZARD OF OZ" look—so sunflowers were a must. I wanted guys running around in those five-foot-high silly plants and shooting at each other, so we arranged on the first of June to have 80 acres planted on this farm, in an otherwise bare field that was kept fallow for crop rotation. When we arrived there around the first of August the sunflowers hadn't yet grown high enough. We shot the reaper sequence first and then other sequences. When they had finally grown to the right height, we still had to wait, because the sequence could only be shot in overcast weather. By the time everything was right, the frost had moved in and started killing the sunflowers. We ended up shooting when

90% of the sunflowers had died and there were grips running around the field planting sunflowers in whatever area we needed them.

There is a lengthy fairground sequence in the picture and my original plan was to take the company to an actual fair in Lawrence, Kansas and photograph our action right in the midst of the real thing. However, Cinema Center didn't agree that this was a viable way of shooting the sequence. They felt that we didn't have enough control factors and they couldn't see how it would cut together. I had to keep diminishing my request until I had to settle for a minimal second unit to shoot atmosphere scenes. However, I came back with some really sensational footage, which is heavily used in the

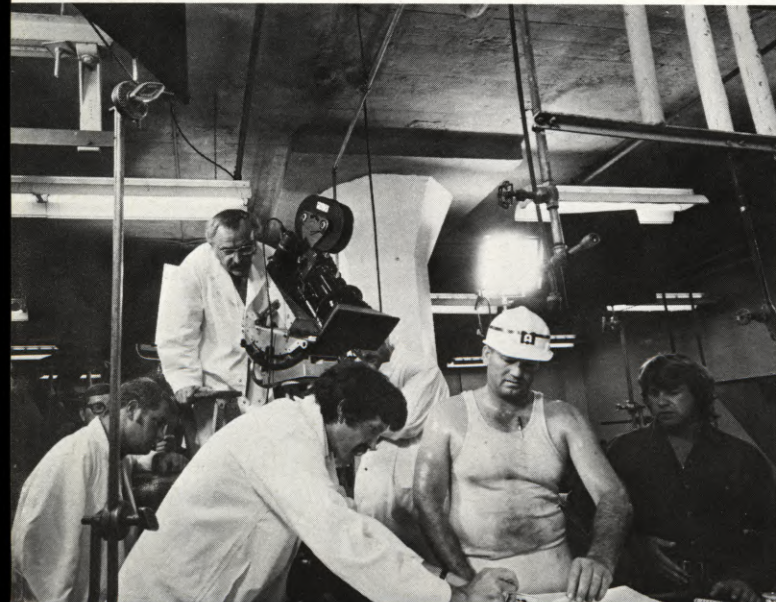
picture, plus some incredible summer lightning storms of the type that you can get only in Kansas. The point being that whenever you have a real event (such as the skiing races in "DOWN-HILL RACER"), I feel that it's better to try to incorporate your action within it. I think that if we had been able to take Lee Marvin and the whole first unit to the actual fair, we would have saved the company anywhere from \$50,000 to \$80,000. However, I was overruled on that and we had to recreate a major part of the fair in Canada.

I've mentioned the fact that our fair sequence in Canada was interrupted by snow and we had a few other problems with the weather. We had a sequence that was supposed to take place along a
Continued on Page 679



(LEFT) Huge cattle truck roars at full speed toward vast greenhouse, built for film at a cost of \$60,000, only to be demolished. (RIGHT) Truck plows through greenhouse structure, as framework and glass come crashing down. Because it was impossible to find a farm as lavish as the one called for in the script, there was much set construction, including barn, silos, the greenhouse, fencing and a fancy farmhouse kitchen.

(LEFT) Director Ritchie blocks action for Greg Walcott inside actual Calgary slaughterhouse which served as gory locale for opening sequence of the picture, while Director of Photography Gene Polito watches from behind the camera. (RIGHT) Between set-ups, Ritchie discusses upcoming scene with star Lee Marvin who delivers an intense, hard-hitting performance.



CINEMA WORKSHOP

Continued from Page 602

where the microdensitometer can distinguish no pattern at all, but only a middle gray (extreme right).

The results of FIGURE C are used to plot the Modulation Transfer Curve that is found on most film data sheets. The curve is merely a plot of the response of the microdensitometer as a function of the spatial frequency of the pattern. FIGURES D and E are the actual Modulation Transfer Function (MTF) curves from the data sheets of two different raw stocks. The curve in FIGURE D shows that response begins to drop out only 10 cycles/mm and dives to a response of only 10% at 50 cycles/mm. The film represented in FIGURE E, on the other hand, shows a much smoother response with a more gradual roll-off. At 50 cycles/mm it still shows a response of 60%. One can predict that the film stock represented in FIGURE E will visually appear to record finer details of the image than the film represented in FIGURE D.

Moreover, for a given printing system, the film in FIGURE E will maintain its superior MTF characteristics through to the release print. One can actually predict the image-detail characteristics of a print by the multiplication of ordinates of MTF curves for each film and optical system used to make the final print.

Next month we will take a look at some of the other aspects of raw stock, such as: resolution, granularity, exposure index, etc. ■

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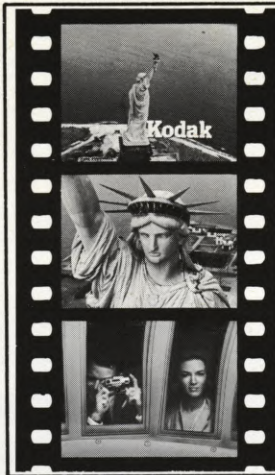
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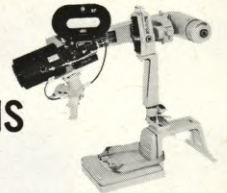
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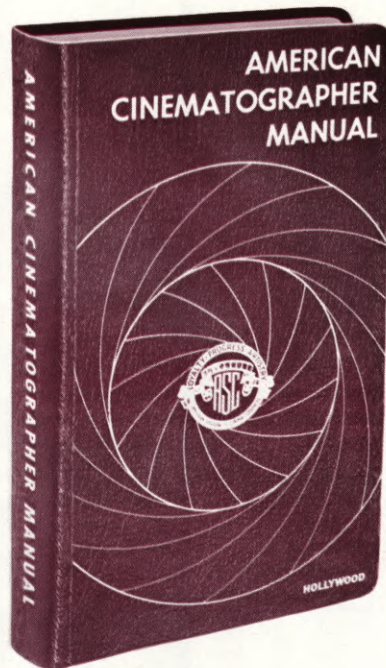
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FILMING "PRIME CUT"

Continued from Page 676

river on a hot summer night. When we shot it the temperature was twenty below and our actress had to appear half naked on the deck of a houseboat. With Calgary as close to the mountains of Banff as it is, the weather becomes problematical. It can be one way in the morning and then do a complete change in the afternoon. For this reason, just as in "DOWNHILL RACER", we had to have two sets of call sheets, so that we could be prepared to shift from shooting one sequence to another, depending upon the weather conditions. Weather is not the reason you go to Canada to shoot pictures, by any means.

It was fortunate that Gene Polito was available as Director of Photography on "PRIME CUT", because I wanted him on the picture from the very first. Generally the director and the cinematographer can talk about a visual approach and look at other movies and still photographs to arrive at a meeting of minds on the photographic style for a particular picture, but the best communication you have develops when you look at the actual sets. Then it becomes very concrete and when you see an actual bathroom that you're going to be shooting in, you can immediately discuss what the visual style for that sequence is going to be. Shooting in actual locations leaves you very few ways you can do it, since you can't tear out a wall or pull off the roof. Therefore, you get into areas of art direction that you might not normally be concerned with—such as getting things repainted if you're going to use bounce light, for example—dealing with low-key, and so forth.

These things are all factors that affect photographic style, and they almost predominate. The big difference between studio shooting and location shooting is that the sets often dictate the set-ups. In the studio you can pull out a wall anywhere and put the crane just where you want it, but the rigidity of shooting on location actually gives you a more natural photographic style. It generally means that you cut more, since you can't combine everything into one luxurious dolly move, but it helps maintain a certain pace and energy.

In contrast to some other pictures I've made, like "DOWNHILL RACER" and "THE CANDIDATE", both of which have certain semi-documentary elements, the visual approach to "PRIME CUT" was almost stylized, in the sense that there was a good deal of preliminary storyboarding for camera
Continued on Page 682

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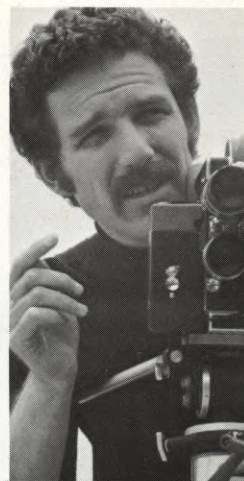
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PHOTOKINA '72 WILL BE WORLD'S LARGEST PHOTO TRADE FAIR

The 12th *photokina*—World Fair of Photography—will be held in Cologne from Saturday, September 23 to Sunday, October 1, 1972. Some 700 exhibitors from all countries of the world manufacturing photographic equipment and supplies will be taking part in it. By the beginning of May firm applications for stand space had already been received by the organizers, the Cologne Fair Authorities and the Association for the Photographic Industry (Photoindustrieverband), Frankfurt, from 626 enterprises in 22 countries. This total is made up from 316 exhibitors from the Federal Republic of Germany, 3 exhibitors from the Democratic Republic of Germany and 295 exhibitors and 12 represented firms from abroad. This means that foreign firms constitute 49 percent of all exhibitors.

As far as the numbers of firms taking part are concerned, Great Britain has so far mustered the biggest group of foreign firms with 58 exhibitors, followed by Japan with 48 exhibitors, France with 46 exhibitors and 1 represented firm, the U.S.A. (34 + 11), Italy (32), Switzerland (21) and Holland with 20 exhibitors.

One remarkable aspect is the growing participation of *Japanese* manufacturers at *photokina '72*; already, nearly four months before the fair opens, their numbers have passed the final total for the previous fair. There has also been a further increase in the number of firms from the U.S.A. compared with applications at the same time prior to *photokina '70*. In addition to new exhibitors, major firms from the American photographic industry will again be participating for the first time at *photokina* in 1972 after a long break. There are also signs of more exhibitors from *Denmark*, *Holland* and *Belgium*.

Of the British firms, who represent the biggest group from abroad in Cologne, 42 are sponsored by the British Photographic Export Group and the Department of Trade and Industry, London. Further group exhibits are expected from *France* and *Spain*.

photokina Cologne 1972 will cover a gross floor space of 1,076,000 sq. ft. in 12 halls of the Cologne exhibition buildings. Of this total, the commercial section with industrial exhibits accounts for 944,630 sq. ft. and the cultural section with its photographic exhibitions, displays and demonstrations for 127,495 sq. ft.

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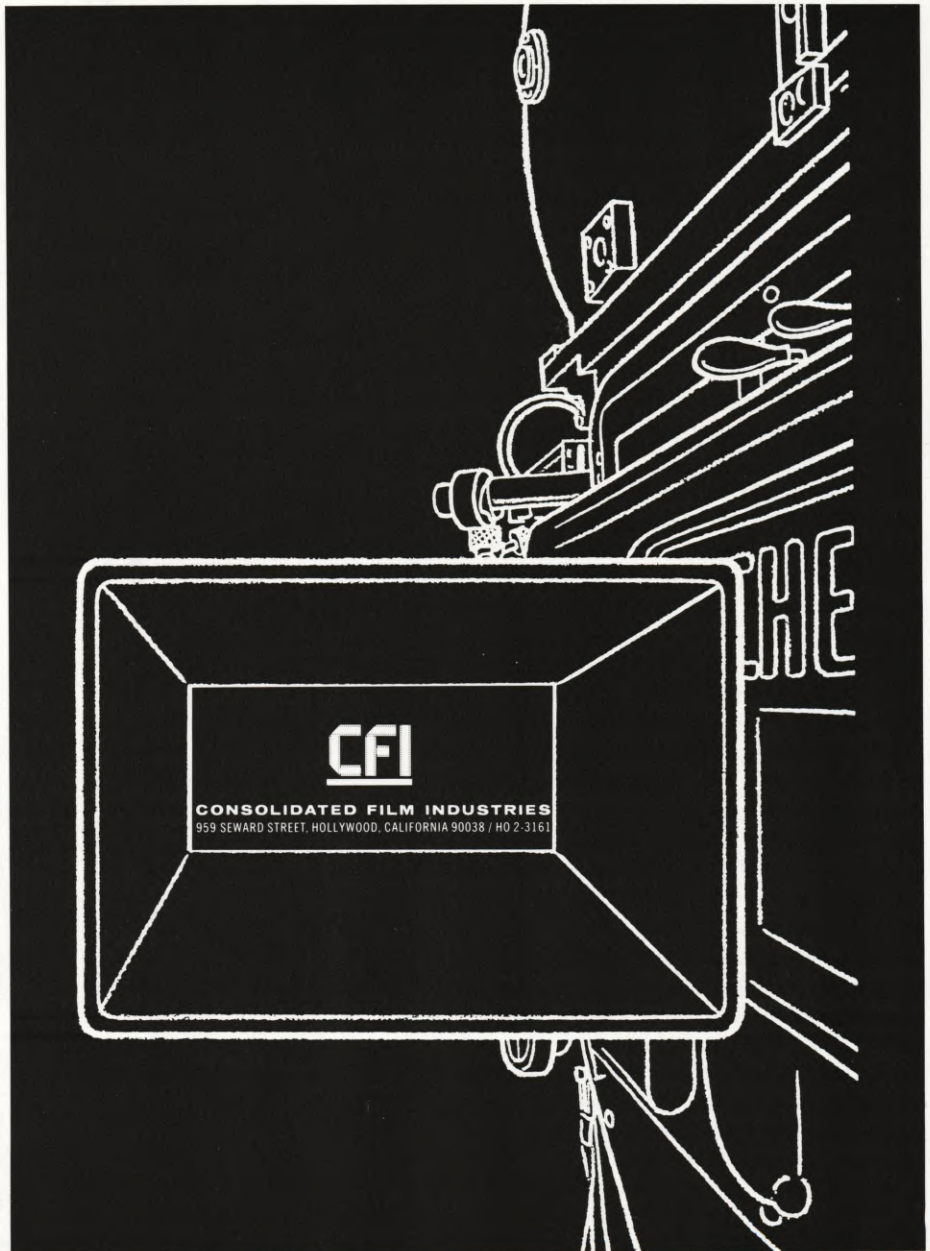
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There will be a considerable *expansion* of the sectors reserved for Cinema, television and studio equipment, also laboratory systems and enlarging equipment.

Thanks to public and official recognition given to youth photography in West Germany as a result of photographic achievement and cultural impact, *photokina Cologne '72* will present a varied youth programme of photographs, films and discussions. The main theme chosen for these activities is "*Youth behind the still and cine camera—society '72*".

The youth photo contest organized under this slogan has attracted unusual interest. The best results from this contest will be shown in an exhibition and prize-winners will be presented with cash prizes to the value of 6,000. DM by the Minister for Labour, Health and Social Affairs in the North Rhine/Westphalian Regional Government. The best films on the subject will be shown at the same time with the result of a second contest "*Festival of young movie-makers*" in a special *photokina* youth cinema.

To provide the general public with an uncensored picture of the young generation's attitude to its environment, all photos submitted will be shown in a special two-day event entitled "*Youth meeting*" during which young people, politicians, sociologists and teachers will speak at symposia. The young movie-makers will be given the opportunity to discuss their 8 and 16mm films with each other and with the general public at a "*Meeting of young movie-makers*".

The programme of exhibits has acquired great importance in the audio-visual field; all systems developed to the production stage are to be shown at *photokina*.

The other fields will be represented in the usual scope and variety: Still and cine cameras, optical equipment and optical components, artificial light sources, slide and cine projectors and viewers, equipment for adding sound, film processing equipment, photochemicals, films, plates and papers, printing and reproduction establishments, photo laboratories, cinema fittings and photo and cine accessories.

The commercial section of *photokina* serves the primary aim of providing a trade and informative setting for manufacturers and buyers from all parts of the world. At the same time it provides technicians and scientists with an interesting insight into new development trends. For amateur photographers the articles offered by the photographic industry furnish a wealth of new knowl-

Continued on Page 683

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FILMING PRIME CUT

Continued from Page 679

angles and so forth. For example, the sequence in the wheat field where the reaper starts chasing them was highly stylized and very fully storyboarded beforehand. Oh, for the good old days when it was common practice to storyboard a film completely in advance—have a sketch artist draw it all out. I went through a big fight to get the studio to agree to a sketch artist on "PRIME CUT" and, as it was, they cut him off after four weeks. So I had only two of the four sequences I wanted storyboarded. It would have been tremendously helpful in the sunflower field sequence, which was enormously complex and which nobody understood except me.

I was carrying it all around in my head, because it wasn't in the script and I had originally intended to have it very precisely storyboarded. Because nobody knew what was going on, they all panicked and the studio started sending up executives because they were worried that it wasn't going to edit together. Without telling me, they hired a special editor just to cut that sequence. They had to reprint seven days of dailies for him to work on and ended up having to scrap everything he had cut, because it was such a disaster. What they did turned out to be much more expensive than the cost of a sketch artist for another week—which would have proved to them that the whole thing was going to work.

That's why, in future, for any kind of an action picture, I would absolutely insist on a sketch artist going in—because, while it is possible for a director to carry all this detail around in his head, it's very hard to communicate it to the people who have to execute it. If you storyboard it, you can sit down in a production meeting with your key people—your cameraman, your special effects man, your art director—and lay out your sketches and say: "This is how we'll do this. Does anybody have any questions about how we'll do it? This is possible, isn't it?"

Then everybody can see what you have in mind. You may very well make changes, but at least everybody will know how you're changing it. Also, they'll have an opportunity to ask questions and perhaps come up with suggestions that are better than what you had visualized in the storyboard. It's quite right for them to do this—because making films is a team effort, and the better the communication with your team, the better chance you stand of making a good picture. ■

PHOTOKINA '72

Continued from Page 681

edge and give an incentive to put this knowledge to practical use.

Package trips to assist visitors

To make it easier for trade visitors from Europe and from overseas countries to visit *photokina* the organizers are arranging package tours in conjunction with the airline companies and travel agents.

These arrangements cover the return trip and accommodation, transportation to and from the airport or railway station to the hotel or exhibition grounds, an entrance ticket with catalogue and information on *photokina* and special services such as sightseeing trips in the Rhineland, the rest of Germany or short visits to other countries. Information can be obtained from the official representatives for the Cologne Trade Fairs in foreign countries.

USC SCHEDULES GRADUATE FILM SEMINAR IN EDINBURGH AND PARIS

Applications are being accepted for a graduate seminar in Films and Filming, which will be offered by the University of Southern California's Division of Cinema at the Edinburgh, Scotland, Film Festival and in the Paris, France Cinematheque at the French Film Museum. The class is scheduled from Aug. 13-Sept. 2.

Offered as a feature of USC's 66th annual Summer Session, the seminar will be open to all graduate students. There are no prerequisites and no film experience is necessary. Those completing the program may earn four degrees of graduate credit.

Activities of the class will include film screenings, and other festival events, informal seminars, and some 8mm film production, according to Dr. Bernard Kantor, Chairman of USC's Cinema Division.

Students will spend 16 days at Edinburgh and five days in Paris.

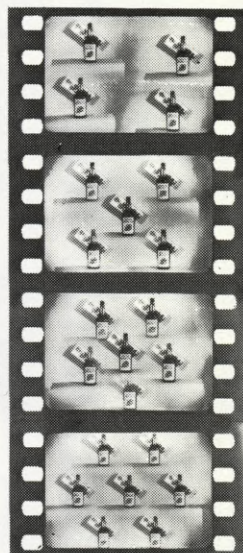
Each student may complete an 8mm film during the seminar, explains Dr. Russell McGregor of Pasadena, who teaches film and instructional media at USC and who will be the instructor for the seminar.

Tuition will be \$328. Transportation and living expenses will be the individual responsibility of each student.

Requests for applications should be addressed to Dr. Russell McGregor, USC Overseas Cinema Program, Division of Cinema, University of Southern California, University Park, Los Angeles, Calif., 90007.

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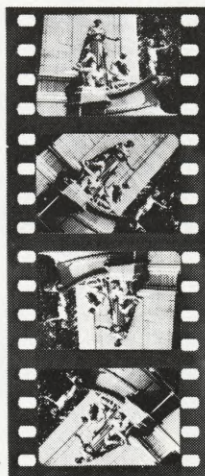
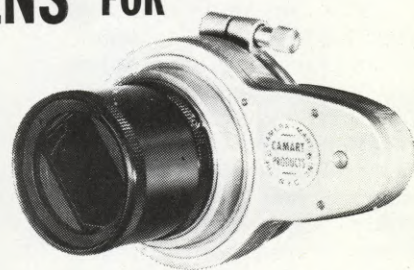
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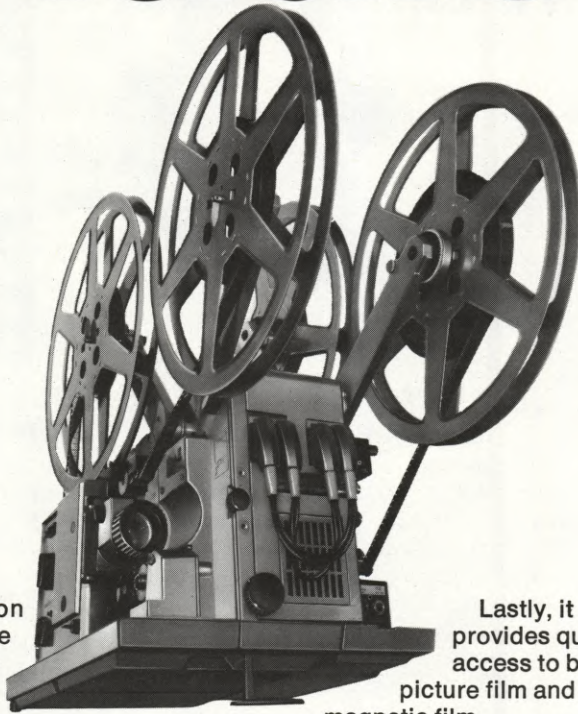
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HOW TO MAKE HOLOGRAMS IN 10 INTENSIVE SESSIONS OFFERED AT LAKE FOREST COLLEGE

Lake Forest College will offer in August six short "hands-on" workshops in the technique of making holograms with laser light. Similar to courses in photography, the emphasis is on "how-to-do-it" rather than physical theory.

No scientific background is required of the participants, according to the director of the workshops, Dr. Tung Hon Jeong, associate professor of physics at the college and internationally known authority in the field of laser photography. In fact, the sessions will be oriented towards artists and photographers (rather than scientists) who have discovered holography as an exciting new medium of expression. It is the first time such workshops have been offered nationwide with emphasis on the artistic properties of three-dimensional laser photography, Dr. Jeong said.

Six workshops have been scheduled to assure an optimum staff-student ratio in each. Four daytime courses, consisting of 10 three-hour sessions each, will meet from 8:30 to 11:30 a.m. and from 1:30 to 4:30 p.m. on the following dates: July 31-August 4; August 7-11; August 14-18; and August 21-25. Two evening workshops will meet for 10 consecutive weekday evenings from 6:30 to 9:30 on July 31 through August 11 and August 14 through 25.

Movie strips and color slides, rather than mathematics, will be used to explain the theory behind the process. Lasers and various types of holograms will be demonstrated, as will each piece of equipment used in hologram-making and each component of a holographic system.

Seven sessions are devoted to actual practice in the lab where students, working in small groups, will construct holograms under supervision of Dr. Jeong and his staff.

Tuition is \$250; a limited number of student scholarships are available.

Dr. Jeong is a pioneer and recognized authority in the art/science of holography, or lensless, laser-produced photography which has wide application in medical research, data processing and engineering as well as in the arts. He holds a B.S. degree from Yale University and a Ph.D. from the University of Minnesota, and has received grants to conduct holography studies from Re-

ACTIVITIES

search Corporation, the National Science Foundation, the Veterans Administration, and the Sonntag Foundation for Cancer Research.

Applicants should reply by letter prior to June 15 to Hologram Workshop, Lake Forest College, Lake Forest, Illinois, 60045.

SUMMER COURSES IN SUPER-8 AND 16mm FILMMAKING OFFERED

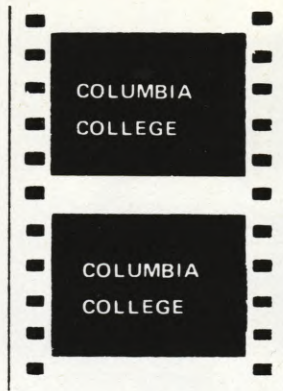
THE FILM SCHOOL at the Orson Welles Center in Cambridge, Mass. is offering Summer courses in Super-8 Filmmaking, 16mm Filmmaking, a Video Workshop, and a selection of Film Seminars. Study may be arranged on a full or part-time basis.

Intensive *SUPER-8* and *16mm FILMMAKING COURSES* have been designed to provide a solid background in film history and style, as well as all technical aspects of filmmaking. Students will work in production crews on class filmmaking projects, and will be provided with full facilities and guidance for work on their own film projects. Advanced students in the Super-8 course will be expected to have completed up to 5 short sound films by the end of term; in the 16mm workshop, the objective is to have each student complete one major film project.

The *VIDEO WORKSHOP* presumes no previous video experience, and will familiarize the student with the complete range of television and video equipment, with special emphasis placed upon operation of the equipment by the student. The course will acquaint students with both cable and broadcasting facilities, and will result in the production of two studio tapes, one in high-band color for commercial distribution. Equipment will be available for experimentation outside of classroom time.

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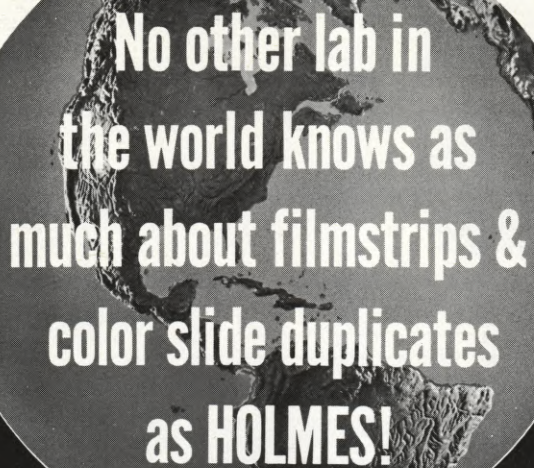
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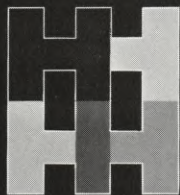
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Complete information and a catalog may be obtained by writing to THE FILM SCHOOL, Box PR1, 1001 Mass. Ave., Cambridge, Mass. 02138

8 HOLLYWOOD COMPOSERS TO LECTURE AT CAL STATE L.A.

Eight noted Hollywood composers will examine the art of composing music for the film medium during an eight-week Summer illustrated lecture series open to the public without charge at California State College, Los Angeles.

The series, sponsored by the Cal State L.A. Music Department, is expected to attract large numbers of serious students of film as well as general motion picture fans. Each lecture will be at 1:30 p.m. in the Cal State Theater, and each composer will illustrate his talk with recordings, tapes and excerpts from a film for which he has written the score.

Participants and the films they have selected include Ernest Gold, "Exodus" (June 28), Marvin Hamlisch, "Kotch" (July 5), Herschel Gilbert, "Carmen Jones" (July 12), Elmer Bernstein, "Ten Commandments" (July 19), Maurice Jarre, "Doctor Zhivago" (July 26), David Raskin, "Laura" (August 2), John Green, "Oliver" (August 9) and Jerry Fielding, "Straw Dogs" (August 16).

Dr. Robert Strassburg, Cal State L.A. music professor who organized the series, said the lectures will deal with the effect of transformation through music of the visual image, the creative use of rhythm, melody and orchestration, the art and agony of music editing, synchronizing music with the visual, cine-esthetic music and poetic values, and avant-garde techniques in film scoring.

The overall series is themed "Encounters with Hollywood Composers" and is part of a continuing series sponsored by the Cal State L.A. Music Department. A recently-concluded series, "Encounters with Men of American Music", featured illustrated lectures by Lalo Schifrin, Shelly Manne, Leonard Feather, Buddy Collette, Roy Harris, Ernest Fleischmann, Martin Bernheimer and others.

COLLEGE STUDENTS TO MAKE PROFESSIONAL FILMS

Film students from across the United States and from other parts of the world will converge on the quiet crossroads village of Chester Springs, Pennsylvania to engage in the production of six films this summer as part of a highly unusual school called Cinema Institute. This will be the third season for the month-long film course, which features the production of professional contract films commissioned by various service organizations, foundations, religious groups and businesses.

Director Irvin S. Yeaworth, Jr., whose own films have been released by major studios, started the course in an attempt to help graduates of film schools gain the professional experience necessary for them to find positions in filmmaking.

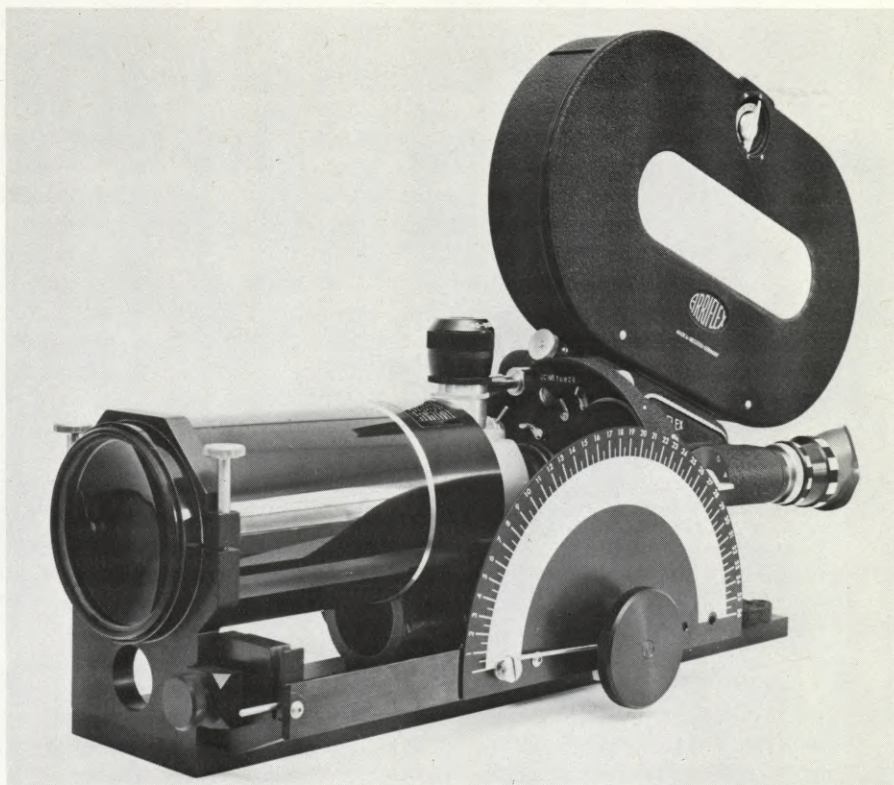
Most college film students work singly and face problems adjusting to the group process required to make films professionally. Cinema Institute assigns students to a crew to work on projects with budgets of from \$5,000 to \$10,000 each, with a professional filmmaker-consultant on each crew. Students receive professional screen credit for this work, reflecting Cinema Institute's intention to help provide a bridge between the academic study of film and the professional industry.

Part of the Institute's practical training focuses on how a young filmmaker can create a new job for himself in the film industry which is already overpopulated with highly talented but out-of-work professionals.

Yeaworth feels that there are countless organizations that need films but don't know it yet, and the enthusiastic young people to make these films have not yet found a way to connect themselves with those who need their services. Students are encouraged to explore filmmaking assignments in hospitals, high schools, colleges, social agencies, churches, libraries, small town advertising agencies and television stations, and in developing nations overseas.

Other practical aspects of the course include examination of various ways of financing independent productions of features, shorts, documentaries and animated films. More than half of the students in past Cinema Institutes have since made films on their own, or have landed free lance work in film and television, or have found full time jobs in this field.

Cinema Institute is sponsored by Expression Foundation in association with the American Film Institute and uses the production facilities of Valley



THE QUESTAR CINEMA MODEL

One of the most exciting things we have seen recently is a test film shot by David Quaid with our new Questar Cinema Model attached to the Arriflex 35. It begins with the motion of the moon drifting slowly across the field of view, follows a train along the bank of the Hudson river, three-quarters of a mile away, pans the New York skyline and climbs the Pan Am and Chrysler buildings three miles away, inspects the Statue of Liberty from five miles, observes a grazing cow with its accompanying cattle egret at two hundred yards, rises to a mocking bird singing on a branch at three hundred feet, follows a vapor trail until it catches up with its jet at ten miles, and watches a plane take off at Newark Airport and approach the camera, finally passing overhead. The sequence ends with the sun setting behind some fishermen in a boat three and a half miles at sea.

And all this with no lens change—just the Questar which, as David Quaid says, can focus from the eye of a fly to the craters of the moon . . . instantly!

Quaid's film was taken on 35 mm. Ektachrome 5254 ASA 64 rated ASA 125, with a #85 filter, and at 24 f.p.s. with the exception of the sun and moon shots which were intended as 'atmosphere' and purposely overexposed.

The Questar Cinema Model and its special accessories can be used not only with the Arri 35 but with other 35 mm. and 16 mm. reflex cameras as well. It gives the cinematographer something he has never had before—the ability to adjust his focus from an extreme telephoto situation to a macro-closeup within the same film take.

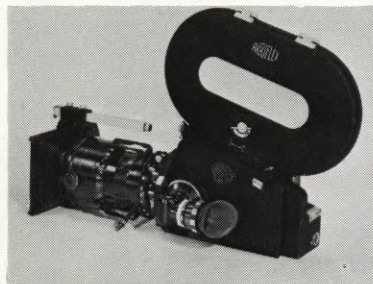
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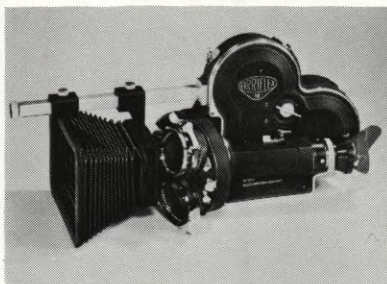
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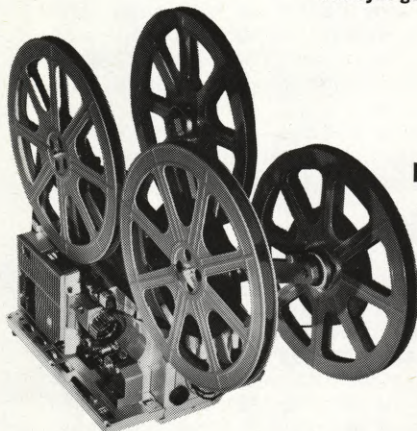
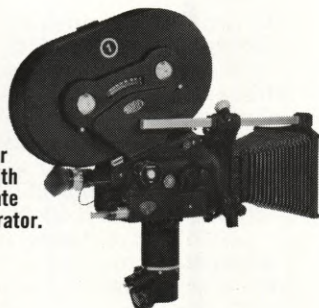
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Forge Films which is located in Chester County's rolling hills, one hour west of Philadelphia. Students are housed there in the campus-like surroundings of what was once the summer school of the Pennsylvania Academy of Fine Arts, oldest art school in the United States.

Pennsylvania State University grants six hours of graduate credit for students with proper prerequisites and performance, and three hours of credit for beginning students and undergraduates. Credit may also be earned through a student's own college.

Among those who have made up the Institute teaching team are: from Hollywood: actor-director Don Murray; production manager Bill Scott; producer-distributor David Adams of Pyramid Film Producers; Academy Award special effects designer Tim Baar; editor-film-maker Ron Plant. From the east coast: writer Jack Hunter ("THE BLUE MAX"); documentary director Bill Jersey; film educator Ron Sutton of National Association of Media Educators; director of education Joe Dispenza of American Film Institute; cameraman-location specialist Tom Spalding and others. But the key to the effectiveness of the Institute, according to Yeaworth, is the film professional who stays with his crew on its production from start to finish.

A new feature of this year's session is the addition of a two-week script writing sequence which will be held prior to the regular four-week Institute. During this writing course, June 4-16, students will create the scripts which will be produced during the Institute which runs from June 18 through July 14. The script seminar is limited to 10 students, the production course is limited to 40 students.

Students at the first two sessions represented schools from a broad section of the United States and overseas, including Hong Kong, England, Taiwan and South Africa.

B & S OFFERS NEW PRICE LIST

Birns & Sawyer, Inc., pioneer manufacturer and distributor of motion picture equipment, announces publication of a new 1972 Price List. The new 24-page list covers a full range of equipment and accessories available from the Hollywood-based company, including lenses, power supplies, tripods, grip equipment, barneys, editing equipment, camera modifications and accessories. This list may be obtained free by writing Birns & Sawyer, Inc., 1026 North Highland Avenue, Los Angeles, California 90038.



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USC FILM CONFERENCE

Continued from Page 637

There were no New York film critics present because, it seems, they had all declined invitations to attend. The critics on hand from local and other publications were a sweet-natured group and didn't seem offended when somebody raised the question as to whether critics really do exert any influence on the box-office.

"Critics do have an effect on the box-office," insisted Miss Walker. "Critics can make or break an artistic career. Critics can be lethal."

London Times critic John Russell Taylor said that this wasn't true in his country. "In England the critic has no influence at all on the success or failure of the great majority of English language films," he said. "And that's comfortable for me. The reader shouldn't regard the critic as an oracle or superstar."

He could certainly get an argument on that point from Bosley Crowther.

The real bombshell of the Conference was dropped by Wilton Holm, Executive Director of the AMPTP Research Center, when he revealed that his organization was researching and developing a computerized system for predicting the box-office success of feature films, based on an analysis of their shooting scripts, prior to production (see Page 638).

To many present this triggered off unpleasant Orwellian images and some rather definite rebuttals. Director Sydney Pollack, one of the panelists, took polite exception to the inference that the creative talents of those who translated the script into the actual film (mainly the director and editor) would count for naught under such a mechanized system. He insisted that the same script given to several presumably competent directors would play differently in the hands of each. "I wouldn't want to see 'A CLOCKWORK ORANGE' in the hands of anyone but Stanley Kubrick," he said.

Others in the group opined that it would be a real boon if such a system could actually be made to work, but they were inclined to wait and see.

In many ways, the panel discussion on "The Technology of Survival" proved to be the highpoint of the Conference—not only because it hit closest to home with the audience made up largely of student film-makers, but because it included some highly knowledgeable (and colorful) types. Following are selected excerpts from the comments of the panel participants.

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MELVILLE SHAVELSON

Writer/Producer/Director

Good morning, fellow survivors. Everyone has been telling us that the entertainment industry is in the midst of a technological revolution. But even Fidel Castro wouldn't want to get mixed up in a revolution where everyone is getting killed.

In 1971 we were informed that the video cassette would be the savior of the motion picture industry. One year later there is no savior in sight, but Hollywood is still nailed to the cross and Jesus Christ is watching Billy Graham on TV. We have seen 3-D and Cinerama come and go, leaving in their wake 4,000,000 polaroid glasses and 700,000 migraine headaches. If technology is the wave of the future, how come one of the top-grossing pictures of the year and a nominee for eight Academy awards was shot in black and white? Maybe its title was prophetic, "THE LAST PICTURE SHOW". All it proves is that what's good is good. And that's too difficult a lesson for the hot-shot entrepreneur of sure-fire technological audience-appeal to stomach. What good is a business if you have to have talent, too?

MARK ZARKOFF

Producer/USC Professor

I am a producer who went to Cannes on my own—even financed my own trip—because I am a producer looking for something to produce. The picture in Hollywood is such that the pickings are very lean, as we all know, and that is probably one of the reasons why we are all here. I went to Cannes and met with about 15,000 people from all over the world. It was an international conference and they were all vitally interested in this baby we call CATV and in video cassettes.

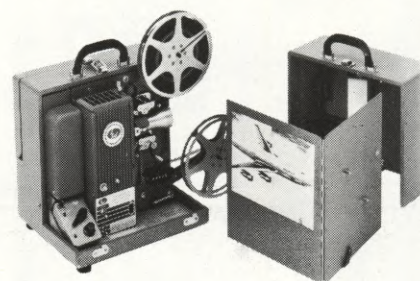
I can tell you in general about the atmosphere which I met.

And that was one of confusion. It was an atmosphere of fear and anxiety—and yet, pervading the entire week of meetings and conferences, was a desire on the part of the producers, money people, individuals ready to make a deal in software as well as in hardware. They are ready to go.

Now there are many problems holding us back. Problems dealing with standardization, problems dealing with copyright laws, problems dealing with who's going to do what to whom first and shall I be the first one to do it. There is no doubt that many of us are developing properties ready to do. What or who shall back us is a problem. When shall this happen is another problem.

We are constantly being confronted now, I think with an atmosphere of

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impatience. We want it to happen right now. I'm certain that someone is going to say that cable has been around for 20 years. Well, not the way it's going right now. Sure, there have been a number of houses attached by flimsy wire way back, but now cable TV is pervading the country. You pick up any issue of *Variety* or the *Reporter*, *Wall Street Journal* and you will see acquisition after acquisition being made, consolidations being made, very quietly. Cable is proliferating in the country. CATV is being dug under your streets right now.

There have been a number of projections made on what will happen and I have with me right now, a report from the Stanford Research Institute dated March 6th 1972 and, if I may, I'd like to read just a little bit of it.

"Although pay TV is likely to be promoted initially on the basis of first-run motion pictures and spectator sporting events, once the incremental fee concept is accepted for mass audience programming it is expected that more selected types of educational and entertainment programs, such as tutorial courses, adult education, specialized programs for physicians and attorneys, cultural events, will be marketed. Pay-TV programming will groom the consumer market for even greater title selectivity which can only be supplied by video cassettes. By the early 1980's, at least 30% of the household sets subscribed to CATV are also likely to subscribe to some form of premium TV services and they will pay an average of \$5.00 to \$7.00 a month for this added programming service. Projections by SRI indicate that revenue resulting from local originating activities could increase from less than \$10,000,000 in 1970 to more than \$90,000,000 in 1973, more than \$350,000,000 in 1976 and almost \$2,000,000,000 in the early 1980s."

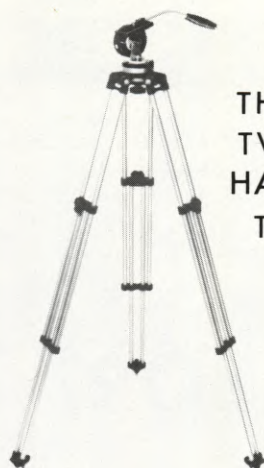
Now, with numbers like that confronting us, I think that an attitude of fear should be dispelled and an attitude of anticipation should be developed and with this attitude of anticipation I would think that you young people in the audience should be preparing for the day and that day will come very quickly when you will be involved in a burgeoning TV business. The question I'd like to ask is: do we make the same mistakes in this new business as we have in the past that put us in this particular box? Is hardware going to get us out of the pickle or is it going to be a change of attitude on the part of business and the creator?

SIDNEY SOLOW

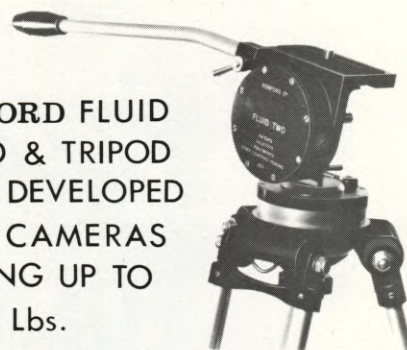
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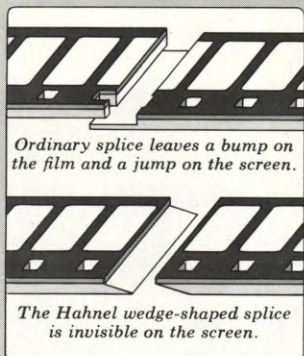
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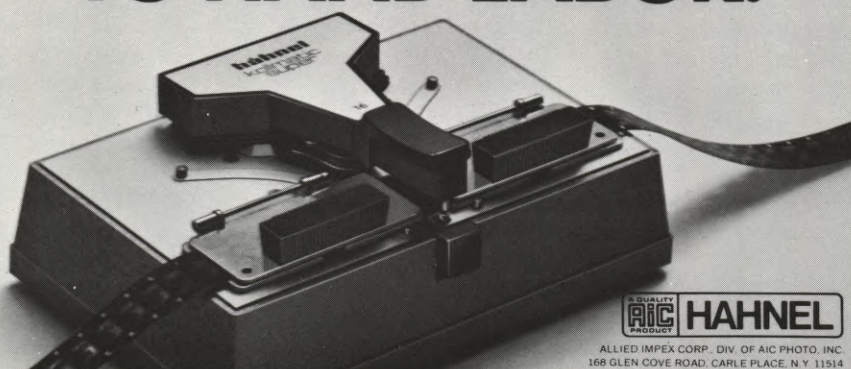


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about Super-16. I don't want to go on record as being in any way opposed to Super-16. It's a great format and it has its uses. At our laboratory we have been processing it and blowing it up. But it is interesting to examine the history of Super-16. It was originally developed in Sweden and Norway, and in those countries, until a couple of years ago, only negative films were available. If you shoot the normal 16mm format and blow it up to 35mm, the results are unsatisfactory using that original material; it's simply too grainy. So, someone, out of necessity, devised the Super-16 format which produced not only a larger area, but a proportion of the image that was more similar to the projected image of 1.85 to 1 for the theatre, so that Super-16, using negative film, is an immensely useful and successful format.

In this country, however, we've never used 16mm negative to any large degree, and for very good reasons which I won't go into now. But one of the principal reasons is that we have Ektachrome commercial (ECO 7252) now available to us and this has extremely high resolving-power and low granularity. It's a high-resolution film, capable of great sharpness. So, therefore, all the troubles that Super-16 presents can be avoided by shooting the regular aperture. You ask: what are those troubles? Number one, you've got to have a specially adapted camera with the lens offset to a new center line and you run the dangers of scratching the edges of the film in the camera. Second, you need a special projector to view your dailies in their entirety. Three, you are really restricted to showing this film in American theatres where the 1.85-to-1 aspect ratio is the prevailing mode of display. If you send this blow-up print to some other countries which don't usually present pictures in that format, they'll find themselves projecting a black border at the bottom and at the top. If you want to present this picture on TV you have to go through an expensive conversion into the TV 1.33-to-1 format. And if you want to project it for ordinary 16mm presentation, such as in schools or other places where large quantities of 16mm films are used, you again have to pay for an expensive conversion to the ordinary 16mm format. So, by and large, my personal opinion is that Super-16, in this country, does not offer sufficient improvement in quality to warrant all the trouble you have to go through.

One comment should be made about Super-16. Most people think it is a much larger format. It is not. The reason you get more area is that in

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normal 16mm you have to cut down image area off the top and bottom in order to get the 1.66 greater aspect ratio. All it really adds is 2mm in width. But because, in order to get that scope picture you have to throw the top and bottom away—this is why it has the advantage. No other reason.

FOUAD SAID *Cinemobile Systems*

Our industry will always depend upon technology. You can take the most talented guy in the world and if you don't give him the tools to translate his ideas into film, you'll get nothing. This is the area where nobody in the industry is spending 10 cents. They talk about it, but when you try to get a good idea accepted, they make it so hard for you to follow it through that they almost break your back. Their attitude is: why change? What's wrong with a 30-year-old system?

Today we are talking about whether technical innovations will help bring back the audience. Absolutely! We will always depend upon cameras, sound, labs, video systems, computers, cable systems and lights—and these technical innovations will help us make the images to give to the audience. Without such technical innovations, we'll stand still.

This is one of the big problems in Hollywood today. I would say that 95% of the feature films today are made with the BNC camera. The BNC was designed by Mr. Mitchell in 1931 (his son is working with me now), and since then they've put a reflex mirror on it and this and that. Panavision took the same movement and put a lighter housing on it. Ed Di Giulio took the same camera and put a beam-splitter in it—but it's still the same camera. Imagine what would happen if the automotive industry or the aircraft industry were still using the same basic technology they had in 1931. But this is exactly where we stand in this industry right now.

There was a study made by Dr. Gunther L. Klaus about eight months ago. He went on different sets and came back and said that 72% of production time on the set is technical preparation. The director says he needs a dolly shot. So the grips get the dolly and start laying 4 x 8 lumber for it to ride on. There are fifty people on the set and they stand around and wait for an hour while the 4 x 8 lumber is laid and the dolly is set. Then there is the camera and the Worrall head and all those technical elements to be set. That's where 72% of the time and expense is used.

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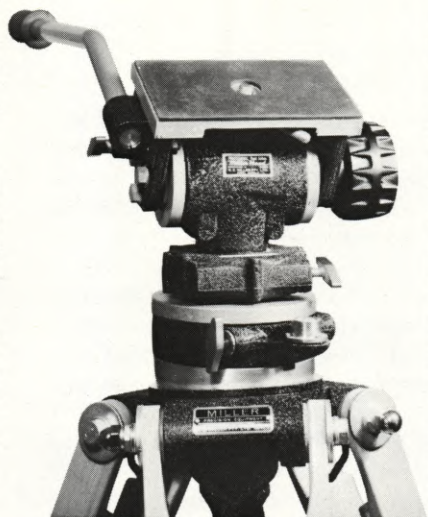
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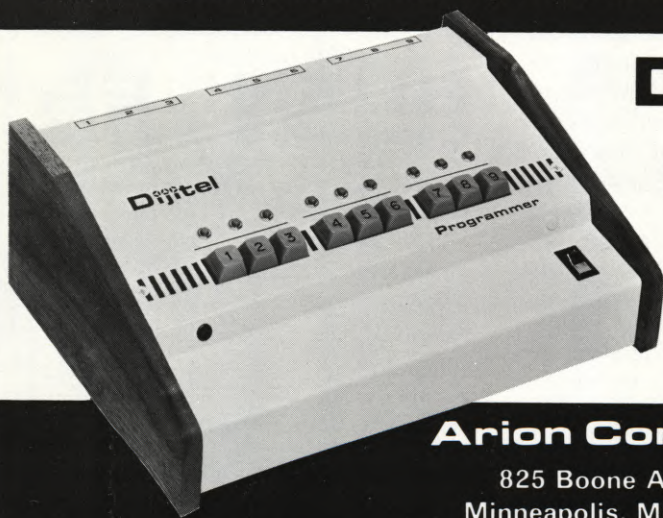


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\$100,000 to solve these problems and find out how to save time. But the equipment manufacturers are doing it. There is the new Arriflex 35 BL hand-held silent camera coming out. They have new Nagra recorders that weigh a pound and a half. The new wireless microphones are fantastic. There are new xenon lights coming out. Panavision is making ultra-fast lenses that use only 1/4 as much light as before, which means that instead of having to use eight Brutes, you can shoot with two Brutes.

No matter what happens with motion pictures or television or cable-TV, we'll always be dependent upon technology. We are dependent upon the manufacturers of equipment.

There's one thing I want to convey to you guys here. I went into the industry from USC. I went to USC for six years and whatever I may have contributed to the industry by making the Cinemobile I learned in this school. You can't beat education. I think you guys can contribute a lot to this industry, which needs you very badly. So, please come in and help the industry to do a better job.

JOHN ALONZO

Cameraman

I am a user of this new technology and I love it. I love all the new things that are invented. In my heritage there is a man named Emiliano Zapata. He was a rebel and, in terms of technology, I am the same way. I tried Fouad Said's Cinemobile the first time because I just wanted to try it. I did it, probably, just out of wanting to show people that it could be used.

I come from the world of 16mm. I was a documentary cameraman for Wolper Productions for a long time. So when I was thrown into the business of shooting a feature motion picture, I tried out the Cinemobile just because it was new. I tried out xenon lamps because they were new, not because I knew how to use them, necessarily. But I have had great success with them.

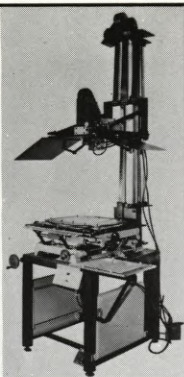
I use small crews because I am aware of the producer's problems. He can no longer afford to use large crews. We have specialized crews, crews that work very hard. They're all fairly young and they all have the same interest in making the movie that I do.

As to the relationship between technology and survival—surviving doesn't necessarily mean newer and better equipment. It means allowing the new minds—people like yourselves with new ideas—to come into the industry. That sort of thing, I think, is very important to the survival of the industry. ■

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LOGIC OF SURVIVAL

Continued from Page 638

For any production system to be really effective, none of the inputs, tools or facilities can be ignored, since they are interdependent. The cost of manufacturing a product is determined largely by how well all of the input and processing factors are chosen and integrated. Cost/value trade-offs are required, and are based to a significant degree upon accurate feedback from market data. The outstanding weakness of our motion picture business system is the lack of an effective feedback loop from our markets back to our inputs.

This weakness exists, to a significant degree, because of the fact that our product is artistic in nature, even though it is rooted in technology. The human wants and needs which can be satisfied by a dramatic motion picture are, generally speaking, emotional rather than intellectual or physical. Yet the production of that motion picture requires the employment of an enormous spectrum of technological disciplines, and the assistance of an interdisciplinary team which spans that spectrum of technologies.

Consider for a moment the men and technologies responsible for manufacturing the superb films, cameras, microphones, amplifiers and other sound recording and transfer equipment, projectors, editing machines, printers, film processing machines, just to name a few. And consider the men who use and operate all of these, with consummate skill, to produce the picture and sound records that become the final motion picture. Obviously, then, we have an art/technology interface. But since our motion picture, to be successful, must communicate with people, we also have an artistic/sociological interface and a technological/sociological interface.

Visualize, if you will, an equilateral triangle, the three sides of which are *art*, *technology* and *society*. Each corner of the triangle represents one of the interfaces we have named. Logically, we should examine these interfaces, hopefully to learn the synergy which exists between art, technology and society relative to satisfying society's emotional wants and needs. Suppose we begin with the relationship between technology and art, since this seems the most obvious of the three.

Art may be defined as a selective recreation of reality, in accordance with the artist's metaphysical value judgments. I use the term "metaphysical" here in its philosophical rather than its occult sense—as a branch of philosophy involving ontology and epistemology.



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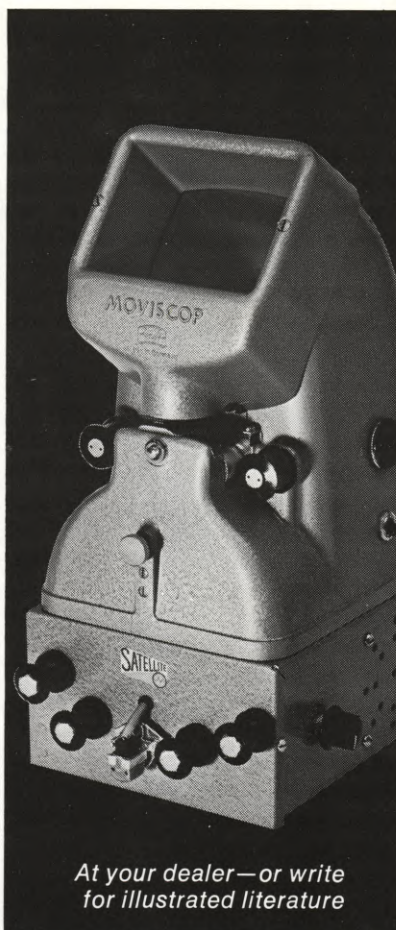
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The motion picture art form, because of the selectivity of events exercised by the writer and often augmented by the director, seems more real than life. The role of technology is two-fold:

- (1) To provide the enormous scope of visual and audio experiences which are possible to the motion picture. And
- (2) To do this superbly, without ever distracting the audience, and thereby reminding it that what they are experiencing is only a motion picture.

A flickering image on the screen, or a hum in the sound track is all it takes to destroy the illusion of enhanced reality, and thus prevent the motion picture from satisfying whatever emotional wants and needs it might have otherwise fulfilled.

Fortunately, motion picture technology is so good that the artistic/technological interface can hardly be faulted. But while technology has come far in satisfying society's *physical* wants and needs, technological excellence per se will not satisfy *emotional* wants and needs. Only art can do this. Technology can lend a powerful assist, but it cannot be more than minimally effective if the artistic/sociological relationship is poor.

But let us examine the technological/sociological interface, about which much is known, for this can lead to some interesting analogies relative to the artistic/sociological interface which seems so mysterious.

First of all, technology is often equated with science and research, and this is wrong. Technology is scientific knowledge applied to useful arts. Which is another way of saying that technology is science applied to the problems of society, and that science serves only those ends set for it by the environment in which it exists. The problems of science are simply those problems which society says need solving, for they are the only ones society will support.

Some rather interesting conclusions can be drawn from this:

- (1) Technology is not useful merely because it exists.
- (2) Technology may be useful if it satisfies a human need or want, known or unknown.
- (3) Future human needs may be predictable, and may give birth to future technology.
- (4) New technological innovations may create needs which society will pay to have satisfied.

A thorough consideration of facts such as these has led to an entirely new technological discipline—technological forecasting—by which the significance of possible future technological develop-

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ments can be predicted with reasonable accuracy. It involves knowing, as best we can, where society is going and where technology can go.

There is a great deal of similarity between the artistic and the technological interfaces with society. Art, too, serves only those ends set for it by the environment in which it exists. And the functions of art are only those functions which society says should be carried out, for they are the only ones society will pay for.

Parallel conclusions may be drawn for art as for technology:

- (1) Art is not useful merely because it exists.
- (2) Art may be useful if it satisfies a human want or need, known or unknown.
- (3) Human emotional wants and needs may be predictable, and may give birth to future works of art.
- (4) Artistic innovations may create wants and needs which society will pay to have satisfied.

What we are saying is that it may be possible to predict how well a prospective motion picture might do at the box office, and to do this before a screenplay is translated into film. I realize that this concept is shocking to many problem-laden "intellectuals" who explain that many "good" films lose money because artistic quality is irrelevant to pleasing an audience. Yet these self-styled experts are at a loss to define either "artistic quality" or a "good film," except as something they personally prefer.

As to those who would divorce art from audience appeal, we must remind them, and ourselves, that we are concerned with the survival of an industry, a business which can only survive by pleasing its customers, by satisfying their emotional wants and needs. It has been held that the qualities that make a hit movie are mysterious and unfathomable, and that deciding what pictures should be made must be done on the basis of knowledge of the past, understanding of the business, and in the final analysis, instinct. No business, having once attained the status of an industry, has ever survived on the basis of some form of omniscience rather than valid market information. In my judgement, ours will be no exception.

It is important that any business periodically ask itself: "What is our business? What should it be?" Consider what happened to the old buggy manufacturing businesses that were unable to shift into the "people-moving" business. The railroads fell into that same trap. Today the motion picture, television,

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radio, newspaper and magazine businesses should all recognize that they are in the *communication* business.

We in motion pictures communicate with the minds and emotions of our movie-going public. By releasing a picture we tell the public that we expect to fulfill certain of their emotional wants and needs. Audiences view the film and judge whether or not any emotional wants and needs have been satisfied by what our picture communicated to them. But the communication process we have initiated does not stop there. Having judged our picture in the light of their own wants and needs, those audiences now pass their judgements on to families, friends and associates. In this way, by people-to-people, word-of-mouth advertising, our picture becomes a box-office hit, or a flop. Obviously, then, we should know something about the emotional wants and needs of audiences, and the percentage of the total, potential audience which shares any specific want or need. If we could create a valid data bank relative to this art/society interface, we would be able to produce many more pictures that people would want to see. And here technology can help.

The fact that motion pictures are conceived, written, and directed by artists may make it incomprehensible to apply technology, no matter how modern, to this highly subjective problem. Let me tell you, then, that our Research Center has been working for more than a year on a method for predicting the earning potential of prospective motion pictures before they are photographed; that we have had encouraging success; and that we are convinced this can be done practically, and at some reasonable confidence level.

Time does not permit me to go into details here, but let me give you an idea of what is involved.

Generally speaking, the question of whether or not a product should be manufactured, and at what cost, is a business decision made on the basis of best market information. The business risk involved is a function of the scope and validity of this informational data base. In the production of motion pictures the risk is usually great because a reliable data base is almost non-existent.

When one picture succeeds beyond all expectations while another fails to earn its cost, this fact, together with response stimuli inherent in the pictures, represent data. These data are subject to association and correlation. Our hypothesis is that certain intrinsic factors of a motion picture determine how many people will pay to see it. The box-office gross revenue is thus a meas-

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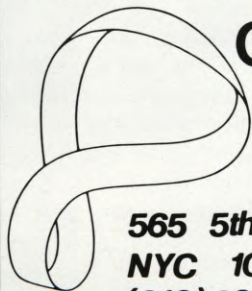
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ure of these intrinsic factors, independently or in combinations, in motivating the movie-going audience to see a picture. If these factors and their synergy are identified, quantified, and made available during the planning stages of a motion picture, then the revenue-producing potential of that picture should be predictable, within certain dollar limits, by using specific statistical techniques. What this adds up to, in systems technology, is feedback.

The principal feedback for the motion picture business system is the box-office. This information is not now in a form which identifies or permits the determination of which inputs to modify. We believe that existing data relative to motion pictures which have already played in theatres could be used, along with other pertinent data such as sociological environment, socio-economic trends, etc., to construct a computerized statistical model. Factors consistent with those used to construct the model, but for pictures still in the planning stages, might then be evaluated in the model in order to predict a prospective picture's revenue potential.

It is no secret that life insurance companies cannot predict the life span of any individual man; but, by using statistical techniques, they bet money on the life span of a large group of men, and they always win. They can do this because there are commonalities and differences among individuals; and because there are differences among the differences; but not among the commonalities. Consequently, as people are clustered into larger and larger groups, differences cancel out and group commonalities emerge.

As with the life insurance companies, we are not concerned with individuals, but with the emotional commonalities of the millions of potential movie-goers—people who allegedly do not go to movies, but who stand in line to see an *Airport* or a *Love Story*. We are not searching for a magic formula; we have no reason to believe such a formula can exist.

Neither are we trying to determine how to write a successful screenplay, or to create a fail-safe list of story ingredients. We are trying to create a new decision-making tool, which will help a producer quantify the risk of turning a screenplay into a motion picture.

If a producer wants to make a picture which would have emotional appeal for only a small fraction of the total potential audience, all well and good. But he should make it at a price commensurate with the box-office revenue to be expected from that small potential audience. Pictures which

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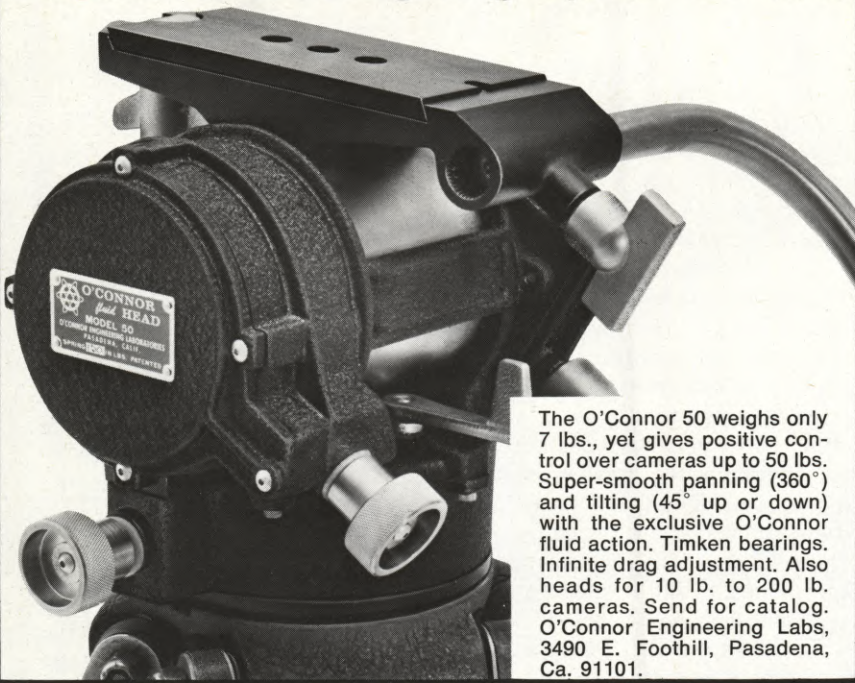
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would have emotional appeal for a large percentage of the total potential audience could cost more, and still be cost-effective.

During the course of our work we recognized the need to investigate the art/man interface—to learn more about the nature of art, and the nature of man. The search for information was both difficult and rewarding.

The low position of art in the scale of human knowledge is perhaps one of the most eloquent symptoms of the difference in man's progress in the physical sciences and his progress in the humanities. In physics, we have reached the point where we can study subatomic particles, and explore interplanetary space; but a phenomenon such as art remains, for most men, a dark and sometimes scornful mystery. Little or nothing is known of its nature, its function in human life, or the reason for its tremendous psychological power. Yet art is of intense importance and profound personal concern to most men. It has existed in every known civilization since man's prehistoric dawn—earlier than the birth of written language.

Many years ago, Aristotle saw the reason for the importance of art. He said that fiction is of greater philosophical importance than history, because history represents things only as they are, while fiction represents them as they *might be* and *ought to be*. What Aristotle said about fiction is valid for all true art: It goes beyond the probable and makes us see what is possible . . .

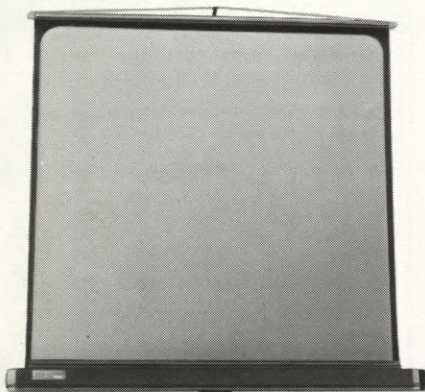
Art does not *teach*; it *shows*. Teaching is not the purpose of a work of art any more than it is the purpose of an airplane. The primary purpose of an airplane is not to teach man how to fly, but to give him the *actual experience* of flying. The primary purpose of true art is to give man the experience of living in a world where things are *as they ought to be*. In this way he experiences a period of life-giving, metaphysical joy—a period of love for existence, after which he can say to the artist: "This is possible! I am glad to have experienced it in my life," or "You have shown me your achievement, and it will give me courage for mine."

It is doubtful, based upon what we have learned so far, that many people go to a movie except with an implicit premise of volition—that they will discover something of value, and that this experience will enrich their lives.

It is a commercial error, generally speaking, to assume that people will accept shoddy or insipid art any more than they will accept shoddy or useless physical merchandise. Why is that which

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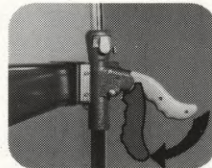
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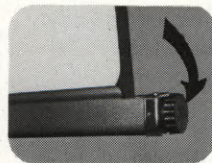
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is not worth contemplating in real life worth recreating in art? Why should the kind of people who bore or disgust movie patrons in real life be appreciated by them as movie heroes or heroines? Even the old troubadour who roamed the countryside in medieval times understood the necessity of inspiring men with life's potential beyond the dreary boundaries of their daily toil. Perhaps we can still learn something from him.

Psychologists and sociologists with whom we have worked tell us that in an affluent society, human needs tend to move up a scale from material goods toward a desire for self-realization by proxy—by empathy with characters in pictures that provide the sort of critical life experiences humans feel they ought to have. We need to find out what people really want from the short time they spend on this earth, and then learn to provide it in our motion pictures. Perhaps we need to remember the genesis and the meaning of the word "hero"—to recall that wonderful euphoria of walking out of a theatre, feeling 10 feet tall because of our empathy with an heroic character on the screen.

There is a way of measuring how well our pictures fulfill the human needs of our audiences. This measuring device is the box-office. We hear about fractionated audiences, but every now and then a picture comes along that has broad, basic appeal—*The Sound of Music*, *The Graduate*, *Mary Poppins*, *Guess Who's Coming to Dinner*, *Dr. Zhivago*, *Airport*, *Love Story*, and others—all different, but all with a charisma, a mystique. Why? Has the box-office been telling us something we have never understood?

By learning how to identify successful prospective movies, we can enhance the viability of our industry, true. But modern management recognizes profit, important as it is, as a by-product; not an end in itself, but a measure of how well an organization is serving society. And by learning how to make the right pictures, we can function to serve society—perhaps even as social architects. Only in this way can we encourage our Phoenix to fly out of today's ashes.

If we fail to do this, for whatever reason, we may well see the demise of our industry as we know it. But not of the motion picture itself. It will survive this period of irrationality in which we too often produce, and ask audiences to accept, tainted scraps to satisfy their emotional appetites.

To the degree that we can look inward to what people want, then look outward to fulfill these emotional needs and values—if only on film—we can achieve a new legitimacy as a viable industry in our society. ■

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FILMING NIXON IN CHINA

Continued from Page 625

and their Chinese counterparts. Supervisor of film processing was Richard Hyde of CBS, and Herb Starbird of NBC with Lab Men Dan McAvoy and Larry Sine. Special water tests were made and Eastman Kodak recommended that hot water softeners be used because of the hard water in China. All of the EF Emulsions were processed with a Jamison MK 4 and Jamison Compac Processors. Richard Hyde estimated that with film tests, 106,000 feet of film was processed during the eight days of Nixon's visit.

Several cameramen also brought special lenses and wireless microphones with them. Because security was so relaxed, we found it very easy to work in close with 9.5-to-95 and 12-120 lenses. But wireless mikes were taboo with the Chinese, so we didn't use them at all.

Before arriving in China one of our biggest concerns was just how much of the country we would be allowed to see and film. We knew we would be following the President and Chou in Peking, that there would be picture opportunities in Hangchow, at the Great Wall, the Ming Tombs, the Forbidden City, and Shanghai. But that was all carefully set up in advance. Would there be anything of the people, the culture of China, that we could show the American audiences at home?

Right up until the time we landed in China most of our inquiries were turned aside. So imagine our surprise when we were handed our press credentials in Shanghai, along with a list of the places we would see and film that were *not* on the President's itinerary. Most newsmen were astounded. They had no idea they would be permitted to film the 196th Division of the People's Liberation Army, or that the doors of selected school-rooms would be open to us, or that our cameras would be allowed inside Peking University, all of the hospitals and factories. Like the expression goes, it was both good news and bad news. We were elated that so many filming opportunities were available, but how were our "skeleton" crews going to be in two, three, or four places at once?

Each network could have used at least five more crews and producers, but since this was impossible, we licked the problem by using a little Yankee ingenuity: Most of us just didn't get much sleep. In fact, Chinese officials were amazed that immediately upon arriving in China, after thirty hours of riding in a plane, most of the newsmen set out on foot to film Peking at night. They didn't

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try to stop us. It was no problem if we wanted to walk. Later, we would learn that transportation would become a real headache. I suspect this is one way the Chinese controlled us from just going anywhere we pleased.

One of my most memorable impressions of China was on Tien-An-Men Square the next morning, while remote video and film cameramen were setting up for President Nixon's arrival. There wasn't much to shoot at the time, so we turned our cameras on the traffic, using natural sound, or what there was of it, of thousands of people "whooshing" by on bicycles. The silence was uncanny. Imagine New York City at rush hour, with horns blaring, engines growling, and masses of people moving in human waves over the sidewalks. But here I was in Peking, thinking for a moment that I had lost my hearing, as the great steady stream of bicyclists silently pedaled to work.

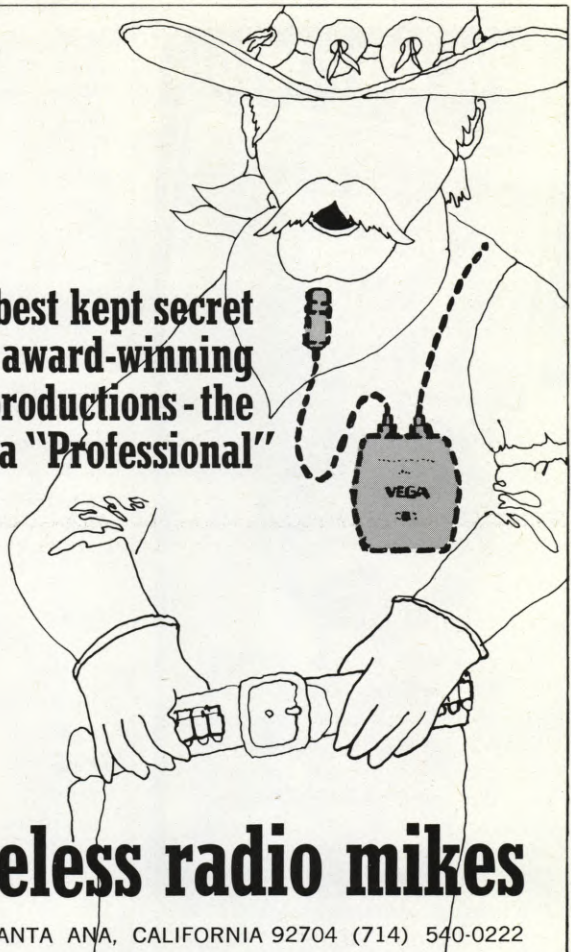
However, there was little time for such observations. Right from the start, we were kept busy. Cameramen were assigned to film the historic meetings between President Nixon and Chou En-lai, they were assigned to go with Mrs. Nixon on her tours of the city, or, as in my case, working with the network correspondents: Eric Sevareid musing about the trip on People's Square . . . Walter Cronkite introducing his evening news at the Great Wall.

And the features: Trying to get a spontaneous shot of Chinese school-children as they sang a well-rehearsed song, following the action as the 196th division went through its paces for visiting newsmen, and all the time remembering those deadlines for feeding our stories to New York via satellite. It was a little strange, making sound tracks at 2 a.m., China time, for the next day's evening news in New York.

The next few days seemed to run together; but there were highlights of the journey that stand out in my mind: The cleanliness of Peking, and the feeling of safety you had when walking its streets. And the honesty of its people. One time, I intentionally left my long underwear behind in my Peking hotel room before leaving for the warmer climate of Hangchow. But when I arrived in the resort city, my long underwear was right there, waiting for me in my hotel room.

The amiability of Chou En-lai: the Chinese premier turned out to be a real ham, mugging for the cameras at every opportunity. I think he got a bigger kick out of the American cameramen and photographers than almost any other aspect of the visit.

But most of all, the Monday night



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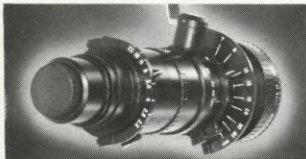
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banquet in the Great Hall of the People. It was the first of many banquets that were to follow, but it was the most impressive. I found myself in a state of mild shock just to be there, with the flags of the United States and the People's Republic of China hanging side by side on the backdrop, and I'm sure mine were not the only moist eyes in the room as President Nixon toasted Chou En-lai while the Chinese musicians played "America".

It was a moving experience in more ways than one. We had a busy time of it trying to eat with chopsticks, then grabbing for cameras as Chou and Nixon made a move, then playing the role of cameraman-diplomat by toasting the Chinese hosts at our tables. I remember at one point turning to a fellow newsman, also a Midwesterner, and asking, "What are a couple of hicks like us doing in a place like this?"

What we were doing, of course, was witnessing one of the biggest news stories of our careers, and despite the problems . . . the lack of manpower, the cramped schedules . . . we came away convinced we had done the best job we could.

And if there is one lesson we all learned in China, it is this: Those network vice-presidents who went along on the trip sure make amiable "grips" in helping the cameraman carry his equipment. ■

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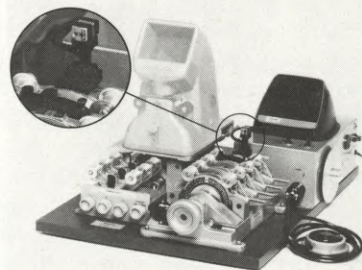
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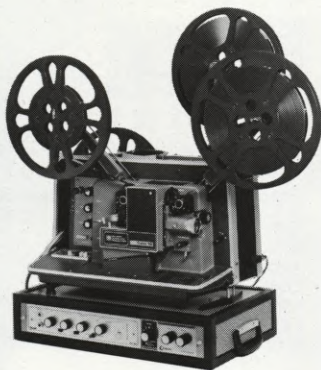
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PHOTOGRAPHING "PRIME CUT"

Continued from Page 673

Sissy Spacek (in a sexy, sheer see-through evening gown) to make their entrance down the staircase of the lobby, walk across the lobby toward the dining room. As they reach the entrance to the dining room CAMERA PULLS BACK and follows them across the dining room to a table where they are seated by the *maitr e d.* CUT! Obviously a continuous shot involving both huge "sets".

I elected to work the lobby at 50 foot-candles and the dining room at 75 foot-candles and "force develop" one stop using a T/4.0 stop on the lens. This sequence called for a light and airy feeling; a low-key effect would have been entirely out of character. By installing black cloth outside all the windows in the dining room we were able to shoot this sequence on a regular daytime schedule. (Luckily the dining room was on the street level.)

Since this was an old hotel and constructed of concrete reinforced with steel and gobs of old staff work, we were limited in many ways when it came to hanging our lamps. Naturally every lamp had to be hidden behind something in order to be out of the picture; the ceiling was in the shot also!

We got permission from the hotel management to use masonry drills to put holes and lag shields in one of the main concrete beams spanning the entire lobby. Our Special Effects men made up some steel brackets which were then bolted to this concrete beam. A wood 2" x 4" was then fastened to these brackets providing a stringer which held about 25 RFL500 flood "gator grips" (the weight was critical).

Luckily there were a lot of huge columns in the lobby. We used tall (22-foot) "pole-cats" behind these columns to hide dozens of 300-watt flood gator grips. Again we were lucky; there was a small balcony over the dining room entrance in the lobby area. Here we used two "Willis" lights. A few 5K's here and there and we were finished with the lobby.

The dining room presented a different set of problems. Luckily all the gorgeous crystal chandeliers were dimmer-controlled; this gave us complete control for our final balance once the set was lit. This was a "high-key" set; the walls were barely off-white with a lot of gold staff work. Unlike the lobby, there was nothing in the way of columns to hide lamps. But there was one beam spanning the entire room—concrete and staff work again! Only this

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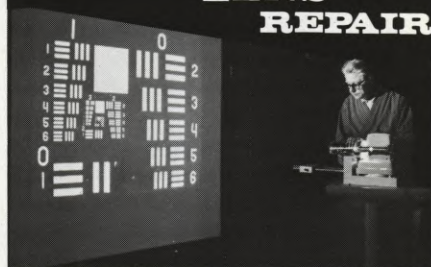
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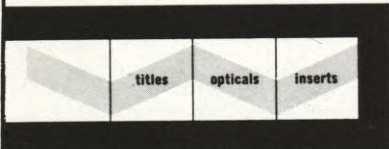
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time we couldn't drill any holes; but we got some special lightweight scaffolding to span the room. Here we mounted about six Par64 500-watt medium-beam lamps, plus an additional eight RFL500 photo flood gators. This entire bank of lights was then run to a dimmer for final balance because it was too tough to get back up to the lamps once they were in place. Drapery provided a decorative "teaser" to hide these lamps from the camera, since the ceiling was in the shot. On the floor I used regular lighting units, namely 10K's, 5K's, "Willis" lights, etc. All of the "hard lights" had *paper diffusion* of the type described earlier.

Naturally, all of this amounted to a huge lighting job. So we scheduled our exterior shooting in a manner which would release most of the electricians and a few grips to do the necessary pre-rigging, cabling, etc. I was quite pleased with the way things worked out. We were able to kill these sets on schedule in spite of all the physical obstacles.


THE SLAUGHTERHOUSE

This was a trying experience for everybody. The stench, noise, and the buckets of blood oozing all over the place were grating on the nervous system. The crew was terrific—slugging cables, lamps, and camera equipment through all the muck and mire. The source of "practical" lighting throughout the slaughterhouse consisted of "cool white" fluorescent fixtures. Therefore, I elected to use the 85 filter in the camera and confine the lighting equipment to 5000° Kelvin globes.

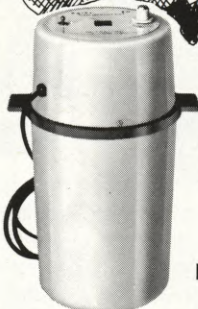
Some scenes were shot in areas that were in actual operation. This meant that we had to keep our floor lighting equipment out of their way. We clamped a lot of our units to overhead pipes, railings, and the steel superstructure. Our lamps consisted of "9-lite" (650-watt dichroic), single 650-watt dichroic, and Par64 1000-watt dichroic medium-beam units—all using variations of the diffusion described earlier, namely spun combos, paper combos, etc. The "look" for the slaughterhouse called for a "high-key, sterile quality."

THE BARN

A natural source of daylight inside the barn came from skylights on either side of the roof. In the morning the sunlight would enter the skylights facing East; in the afternoon it would enter facing West. To avoid a "mismatch" from sun streaks in the middle of a sequence I elected to cover all the skylights facing the sun with white tracing paper. This produced a non-

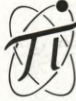


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directional diffused type of light. Frames were made for this purpose; some in combinations of paper plus neutral gels. Thus, in the morning, we would cover the East skylights—leaving the West skylights “open”. In the afternoon we simply reversed the procedure. End of “mismatch” problems!

With the exception of a brief night sequence, all of the barn interiors were either day or day “effect”. We used the 85 filter on the camera throughout the day sequences and complemented this with 5000° Kelvin dichroic globes on the lamps, plus variations of the diffusion described earlier.

There was a discussion concerning the interior color of the barn—whether to use yellow or white. Two factors came into play here: spectral diffusion and shadow color. For all the barn sequences I elected to use a highly diffused, non-directional type of light—some from the papered skylights and the rest from our regular floor lighting equipment. Diffused light has a tendency to “bounce” all over the set. Therefore, yellow walls—especially large areas—will have a tendency to turn skin tones red—much redder than you would expect. Moreover, the shadow areas tend to turn into all shades of a sickly looking yellow-greenish color. Therefore we painted the interior white—almost a whitewash color with a “dust aging” applied overall. This resulted in clean skin tones and nice gray half-tones in the shadow areas.

THE “LEANS”

This rat-infested flop house transcends our world of make-believe. It stands out in my mind as a grim reminder of the spectre of human misery that exists today. In PRIME CUT the camera tells it exactly the way it is: faceless, unfortunate human beings lurking in the shadows of an affluent society.

It was a dawn sequence. There was a natural source of soft daylight filtering into the room through some windows (about 35 foot-candles). This, in turn, created an excellent “low-key” mood with harsh built-in contrast—a natural for good definition when working with extremely “fast” lenses. Therefore most of this sequence was shot with the T/1.4 55mm Ultra-Speed lens, using the 85 filter on the camera and *very little* supplemental light. A terrific lens, under the proper lighting conditions. Unfortunately (at this writing) there is only one focal-length of Ultra-Speed anamorphic lens available from Panavision—which brings us back to the director-cameraman relationship. It helps when the director is willing to confine himself

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to just one focal-length in the interest of achieving a "natural look" when the conditions are right. Put another way: Why screw it up with lights when it looks just great the way it is?

CAMERA MONORAIL

A chase sequence at the fairgrounds called for our hero and the gal to run underneath the grandstands in their attempt to elude "the heavies". This gave us two choices: a 180-foot dolly shot using a Western dolly or . . . what? If we used a Western dolly it meant cleaning out all the debris, i.e. beer cans, bottles, papers, etc., in the path of the dolly. Moreover, the ground itself would need to be levelled because there were mounds and big holes and tall weeds in the way. On the screen such a neat path would be pretty obvious—at least to those in our business!

Suddenly I happened to notice a convenient row of cross beams that supported a section of the grandstands. These beams were just the perfect height to support a monorail traversing the entire 180-foot run. Moreover, such an arrangement would allow us to show our hero and the gal running and stumbling over all the litter in their path.

For a very small investment of time and money, our Special Effects crew purchased some industrial conveyor track (like an "I"-beam) and a trolley assembly made for conveyor systems. By welding a piece of steel tubing to the trolley assembly and installing a seat, we ended up with a neat rig for the camera operator to ride (hand-held shot of course).

Using an ingenious pulley arrangement and a long rope, the grips were able to pull the camera operator along the monorail at almost any speed imaginable. The only trick involved was to figure out a way to stop this rig once it reached the end of the track! Two things were involved here: (a) The rig had to be brought to a complete stop smoothly to avoid a pendulum effect, and (b) We had to avoid the disastrous consequences of allowing the whole rig—operator and all—to fly off the end of the track! (The inertia was a factor: Roger Shearman, Jr. is a rugged 200-lb camera operator—and a damned good one I might add.) Several rehearsals with the stand-ins and we were ready for Lee Marvin. Everything went fine until the rig got to the end of the track. Lee ran *much faster* than his stand-in. Result: Roger landed right on his tail! Luckily, he didn't get injured. One more take and the shot was in the can. We used the 30mm wide-angle lens for this shot to heighten the wild fury of it all.

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There were many times throughout this production when we resorted to hidden cameras. For example, during the reaper chase there was a camera mounted on the reaper shooting through the whirling blades and remotely controlled by the reaper driver. The camera itself was concealed in a wooden box which, in turn, was painted the same color of red as the reaper. This sequence also called for a Cadillac limousine to crash head-on into the whirling blades of the reaper. We wanted an angle from inside the limo shooting through the windshield. To get this angle, I installed an Eyemo in the back seat.

There was no way of looking through this camera, so tests were made on Plus-X film (hand-developed on the spot) to make sure this camera was aiming where we intended. One of the stunt men in the back seat switched the camera on at the proper moment.

For the truck crash into the glass greenhouse we wanted an angle shooting through the windshield of the truck. To do this we made a wood mock-up of an air-conditioning unit and fastened it behind the driver's compartment of the truck cab. The camera was then mounted inside this box-like affair and controlled by the stunt driver in the cab. Inside the greenhouse was another camera—remotely controlled—encased in a steel box (¼" thick boiler-plate steel). This camera was placed dangerously close to the path of the truck. The steel enclosure made it possible to have big timbers and glass fall on top of the camera without any damage to the camera itself. We got a great low-angle shot from this camera. All other cameras (5 more!) for this crash were barricaded with timber to protect the camera crews.

CLOSING COMMENTS

Getting back to my opening statement, I hope the reader will agree with me by now that PRIME CUT was not a run-of-the-mill picture. It definitely was the type of assignment which demanded more than simply a pedestrian knowledge of photography. Moreover, any picture costing \$3½ million automatically puts it into a unique category by today's standards; assignments like PRIME CUT are few and far between. Therefore I am very grateful that I was considered qualified to be the cameraman to put it on the screen. To Executive Producer Ken Evans, and Producer Joe Wizan, and Director Michael Ritchie I can only say . . . "Thanks fellas . . . for giving me a shot at PRIME CUT." ■

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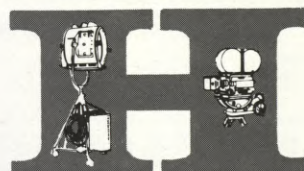
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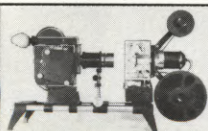
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Continued from Page 668

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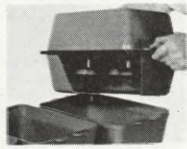
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FILMING IN FREE-FALL

Continued from Page 659

star. A zoom can also be used effectively to film plane exits, parachute openings and, particularly, canopy-to-canopy shots. The ultimate in artistic effects can be achieved in combining the zoom lens with a high speed camera (up to 200 fps) in free-fall (currently in progress).

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Some free-fall cameramen believe that holding their heads during opening shock minimizes the effect of the camera weight during opening shock. I personally find the opposite to be true. I use both hands out in front of me to stabilize myself for the best possible body position and I set up slightly head-high for opening, tensing my neck and shoulder muscles as much as possible. Holding one's head forces the hands in and tends to put a jumper in a head-down attitude, increasing the effect of opening shock.

Other factors can help minimize the problem of opening shock. One help is the use of cloth extensions sewn onto the jumpsuit underneath the arms (which also are needed to give the cameraman more dynamic range in varying his terminal velocity than his subject matter has). A split saddle type harness also helps to distribute the opening shock between both legs (differentially staggered, timewise), instead of tending to concentrate the opening shock along the spine as the conventional solid harness does. Another help is to wear conventional parachutes (mounting the reserve parachute in front instead of on the back). Adjusting the Capewells (attaching point of the parachute to the harness) high on the shoulders also minimizes the opening shock. Practice over the years amazingly increases one's stamina to withstand heavier and heavier camera loads during the parachute openings. ■

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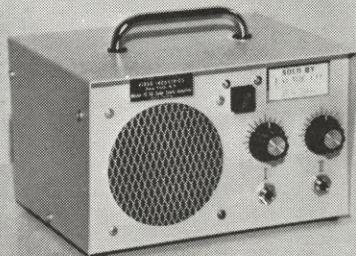
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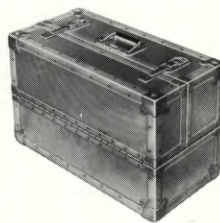
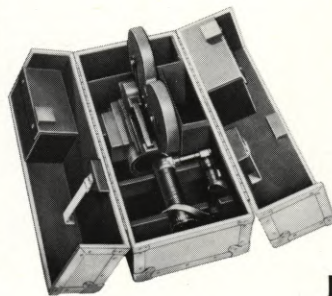
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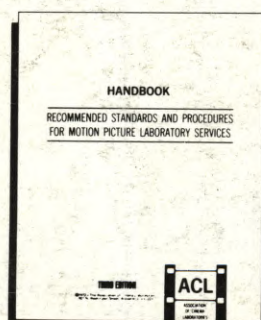


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