

American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

JUNE 1976 / ONE DOLLAR



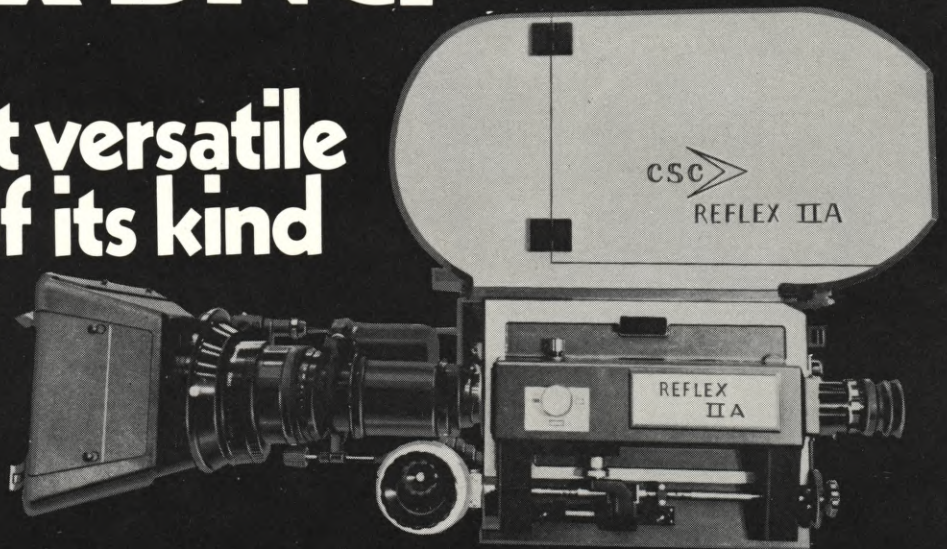
LOGAN'S RUN



AND HOW IT WAS FILMED

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The most versatile camera of its kind available today.



Light weight:

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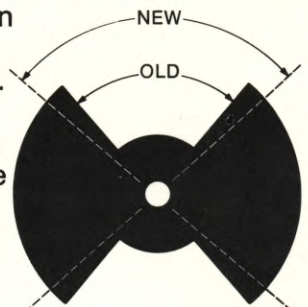
Now you have a choice.											
9.8 mm	14.5 mm	15 mm	18 mm	20 mm	25 mm	32 mm	35 mm	40 mm	50 mm	75 mm	100 & up mm

Super speed Zeiss lenses:

Another exclusive—you can specify aspheric ground floating element Zeiss Distagons. Scalpel-sharp images at a true T:1.4! 25mm/35mm/50mm/85mm focal lengths are available.

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Our new BNC Reflex IIAs are immediately available. Call or write for details—today.

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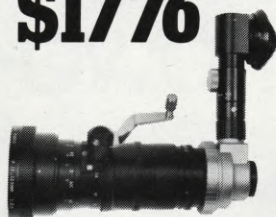
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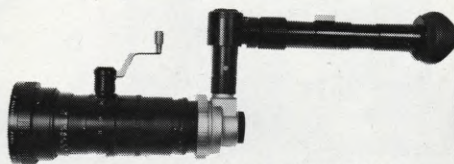
1976 ZOOM LENSES AT 1776 PRICES.

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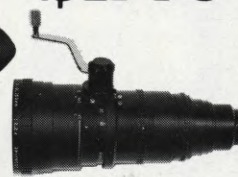
12-120mm F2.2
WITH 1"VF AV30

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12-120mm F2.2 WITH 7 1/2" VF AVC

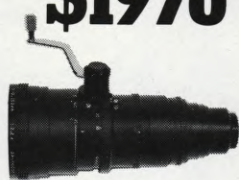
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12-150mm T2.3
WITHOUT VF

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10-150mm T2.3 WITHOUT VF

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9.5-57mm F1.6 WITHOUT VF

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Most flatbed editors can't do all the things that this one can. But, on the other hand, they cost more.

Take the world's finest 16mm flatbed editors, compare them feature by feature with ours, and you'd be hard pressed to find one that matches Showchron.

Then, when you compare their price tags, you'll discover that American-made Showchron at under \$8,500 is a pile of money less than anyone else.

Showchron is manufactured by Honeywell and sold only through authorized dealers with factory trained service technicians.

It has a patented single sprocket drive that significantly reduces the danger of film scratching. The core spindles incorporate a clutch which prevents friction damage to the film emulsion during instant braking at high speeds through the sprockets or during rewind. Showchron has a direct interlock drive system, a torque motor for each of its turntables and electromechanical brakes.

Each sprocket has an inching knob

for manually locating frame-to-frame viewing, for marking, and for precise threading of start marks.

The sound track may be shifted forward or back for precise sync while film is in motion. The sound track may also be advanced or retarded, independent of film, at high speed.

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The digital counter displays not only feet/frames but minute/seconds and has a separate display indicating the number of frames which the sound has been displaced relative to picture by the use of the advance/retard feature.

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American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

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

JUNE, 1975

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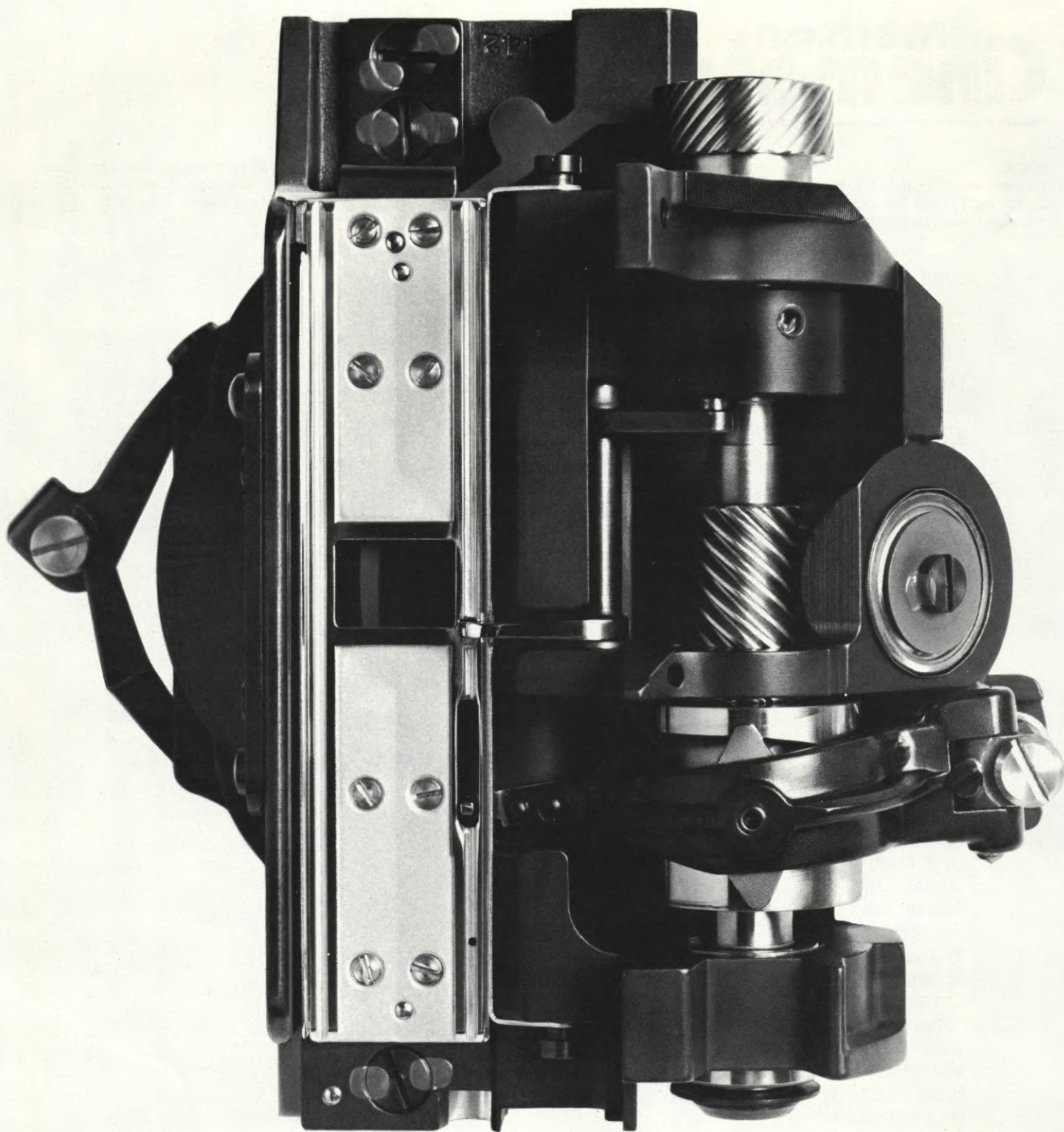
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ON THE COVER: A huge stylized metal hand with a glowing red crystal in the palm serves as both a prop and a symbol for MGM's spectacular science-fiction adventure-fantasy, "LOGAN'S RUN", produced by Saul David and directed by Michael Anderson. Cover photograph by SID BALDWIN.

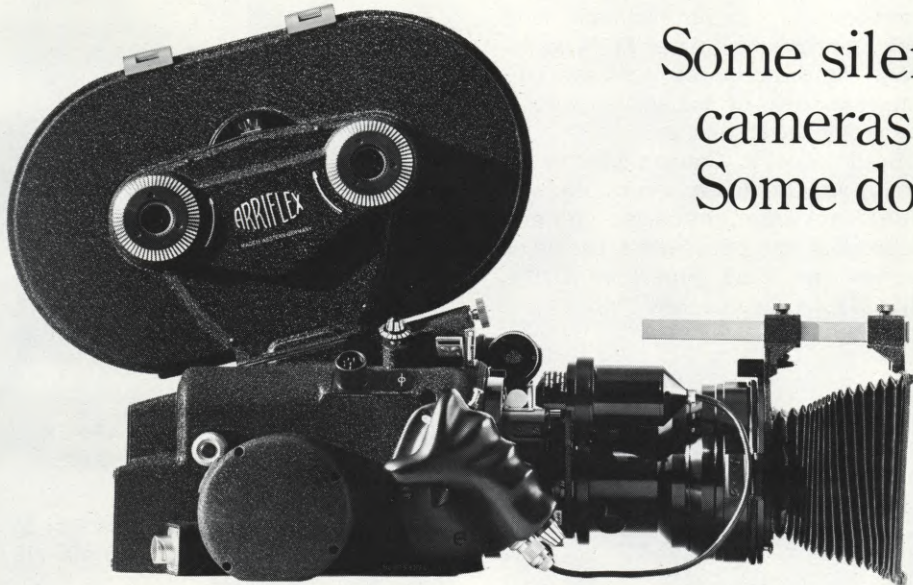
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The Arriflex 16mm movement

Above all, you can depend on it.

Some silent-running cameras *stay* silent. Some don't. Why?



The most awkward aspect of designing cameras is film. The manufacturers do a superlative job.

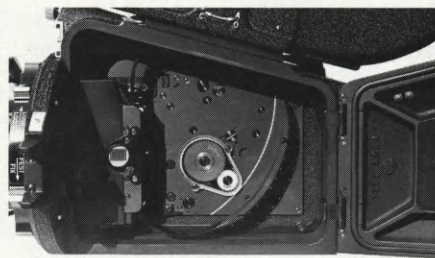
But it's still a strip of coated plastic with holes in it. The base can shrink and curl. Some emulsions swell and get sticky in hot weather.

The only *reliable* way to deal with these variables, is to use a cam-driven claw and a completely independent cam-driven registration-pin. Plus a long, straight film path, to keep the film flat in the gate.

Self-Blimped

That's how we do it in the 16S, the 16M and the 16BL. Of course, to make the 16BL silent-running, we have to en-

case it in a sound-proof casting. But that means the 16BL stays as silent after *years* of use, as on the day you bought it.



LONG LOOPS MINIMIZE FILM CURL IN THE GATE

Reliability First

Our design philosophy is: First build a reliable movement. *Then* make the camera silent. Some other designs build silence into their movements *at the expense of reliability*. And movements tend to grow more noisy with age.

Which Rawstock?

One of those designs has a *spring-loaded* claw and registration-pin that are *not* independent. This movement must be adjusted to match different rawstocks—and even then, it needs repeated tuning. You can set it for silence *or* for reliability. The two considerations *compete* with each other.

Indispensable

All designs are compromises, including ours, of course. You don't buy a Maserati for the same reasons you buy a Rolls Royce. With cameras, we think that reliability is the *one* feature that is indispensable.



ARRI

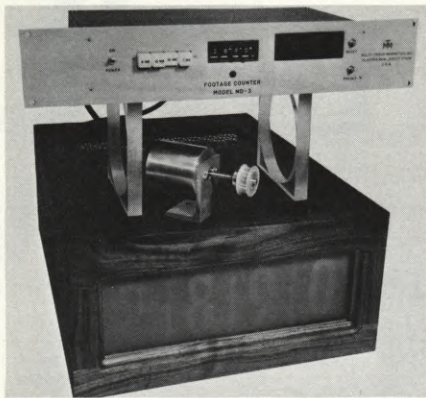
ARRIFLEX COMPANY OF AMERICA

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

BACKED BY SERVICE

WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE



SOLID STATE FILM COUNTER NEW FROM MTM AND BRAUN

A footage counter is simply a device to provide a reference point for the sound mixer/editor. Until now, counters have been either mechanical or electronic, driven off a distributor system which also drives the reproducers, recorders and projectors.

MultiTrack Magnetics Inc., creators of the Hologscope Projector and Avex-1 Edit/Mix unit, has designed a footage counter which is unique in the film and television industry.

The MD-3 Dynamic Counter has four counting or dividing circuits which allow the user to cross-reference running times in 35mm, 16mm, Super-8mm, and time. This is a big advantage when a production is being edited in 16mm with later blow-up to 35mm, or reduction to Super-8mm. Editing for television use is now particularly easy with the almost-instant comparison between footage and spot time.

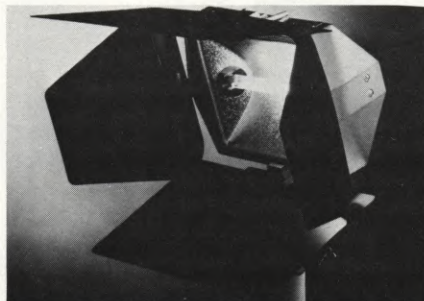
Additional comparator blocks for the unit are available as accessories. These blocks will provide pre-setting functions and can control the triggering of other equipment in the system. The footage counter can be used like a mini-computer for automatic looping and dubbing, resulting in great savings in time and effort. Film inspection is made a great deal easier using the pre-set functions of the counter.

Steve Talian, president of MultiTrack Magnetics Inc., said, "The big advantage of the Dynamic Counter is that you can continuously count, add, subtract and convert different footages. Using this device within a complete system, we are trying to free the post-production people from mechanical functions, to make their life easier and give them back their artistic talent. The potential use for this equipment," Talian continued, "is not just television

stations and sound studios. It can be used in cutting and editing rooms with great facility."

The Counter interfaces with existing equipment by use of an infra-red optical shaft encoder. Use of error-detecting circuitry, low output impedance and 100 feet of doubly shielded interconnecting cable eliminate noise pick-up problems. Like all MTM equipment, the basic device is always built with the idea of expansion without discarding the original units.

Braun Electric Canada Ltd. is the exclusive Canadian distributor for MultiTrack Magnetics equipment. Catalogues and prices are available on request at 3269 American Drive, Mississauga, Ontario, L4V 1B9.



MINI-KING FILL LIGHT INTRODUCED BY BERKEY COLORTRAN

A compact, die-cast fill light has been introduced by Berkey Colortran, Inc., division of Berkey Photo, Inc. Dubbed the Mini-King, the unit represents a new advance in compact professional lighting equipment design, according to Peter T. Coe, Berkey Colortran president.

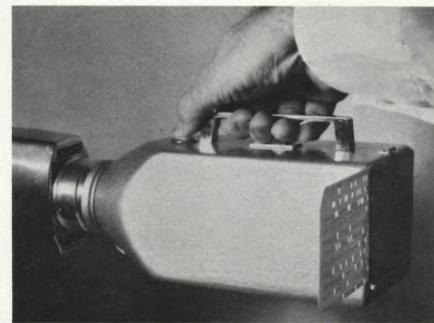
The Mini-King is designed for use as a fill light in motion picture and still photographic applications. Manufactured of pressed steel and die-cast aluminum for optimum structural strength, the unit is equipped with a high-brightness reflector that delivers 135 foot candles at a distance of ten feet, covering a 12' x 10' area. A four-leaf barn door is offered as an optional accessory. A family of 500-, 750- and 1,000-watt, 120-volt lamps are available for domestic use. An 800-watt, 230-volt lamp is available for overseas applications.

The unit is equipped with a 12-foot, three-wire cable and an in-line switch. It is designed to mount on 5/8"-

diameter studs.

The Mini-King is 6.8" wide, 8.2" high and 3.6" deep; weight is 2.3 pounds. The unit lists for \$64.00, less barn-doors, FOB Burbank, CA.

Berkey Colortran is a major manufacturer of lighting equipment and control systems for theatrical, television, motion picture and still photographic applications. Complete technical literature is available from Berkey Colortran, Inc., 1015 Chestnut St., Burbank, CA 91502; telephone (213) 843-1200.



XENEX DATASLATER™ "CLAPPER BOARD" COMPUTERIZES MOVIE-VIDEO SCENES

A new aid to video producers or to professional and amateur film makers has been developed by Xenex Products, Inc. Called the Dataslater™ (Pat. Pend.), the sophisticated self-contained portable slater replaces the conventional slate board and its clap stick.

The Dataslater is an easy-to-use device that offers numerous advantages: It provides scene and take identification and simultaneously enables audio and visual cues to be recorded for subsequent synchronization of sound-track to picture. One model also features a rear illumination system for artistic titles to be produced during the normal course of filming. Thus, the need for separate shooting and later "cut in" of titles at the editing table is eliminated.

An additional advantage of the Dataslater is its uniqueness in linking actual scene information to film library functions and scene retrieval, and with cost accounting functions of motion picture production. This is achieved through the use of an EDP (electronic data processing card) which has a miniature "slate board" printed on its back. A card is furnished prepunched with non-changing information at the time the cameraman requisitions the film. The cameraman adds additional information on the "slate" side of the card to update it later with key punch additions.

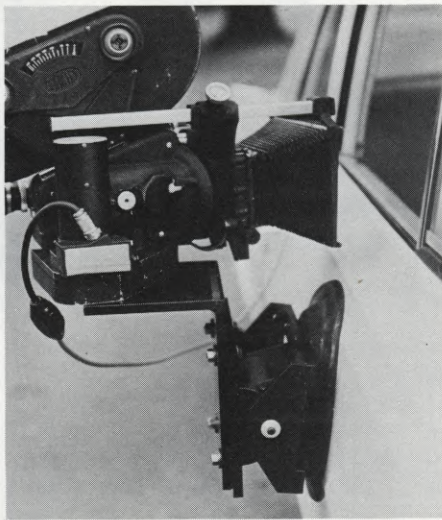
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SUPER GRIP

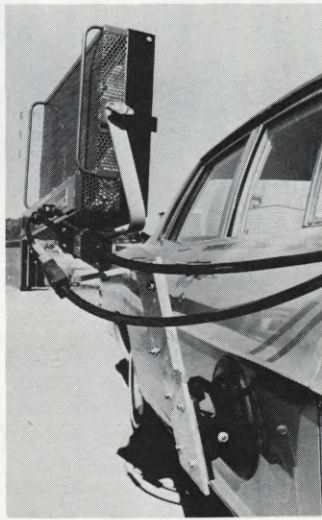
...the ideal camera mount for difficult situations

Super Grip's single, powerful "gripper" makes it a quick, strong and efficient means of mounting cameras and lights in an unlimited number of difficult situations. It will mount on curved,

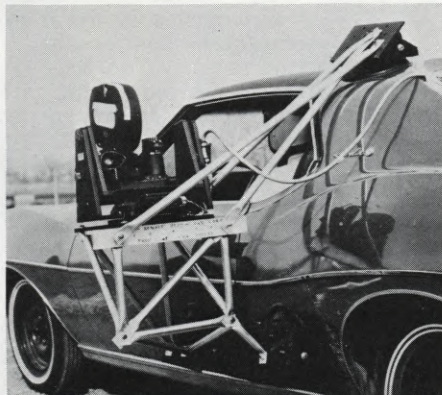
irregular or flat surfaces in a horizontal, vertical or in-between position and it may be tilted through a 360° circle by turning the gripping pad on the surface.



(1)



(2)



(3)



(4)

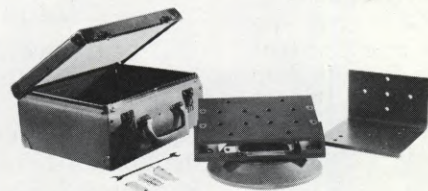
(1) Super Grip with Arri mounted on door of car. Note how gripper fits contours of auto body. (2) Super Grip used to mount four-lamp FEY light on car door. (3) Three Super Grips used in conjunction with special camera rigging utilizing remote control for camera pan and tilt. No damage or modification of car is necessary when using Super Grips. (4) Super Grip easily supports weight of man, has attaching pressure of more than 700 pounds.

FEATURES:

- Built-in attaching pressure indicator that prevents damage to expensive equipment.
- Attaching pressure of more than 700 pounds.
- Gripping pad section made of tough, durable rubber with a ribbed sealing edge.
- Molded-in ring provides secure attachment for the tilting plate assembly.
- Gripping face formed on a 12" radius. Edges are below center about an inch.
- Tilter assembly is made of 6061T6 aluminum, machined to close tolerances to assure reliability.
- Completely anodized for long life.

PRICE:

\$350.00



(Includes Super Grip complete with carrying case, angle camera bracket, mounting bolts, wrench and instructions.)



Contact your local dealer or:

SERVING THE WORLD

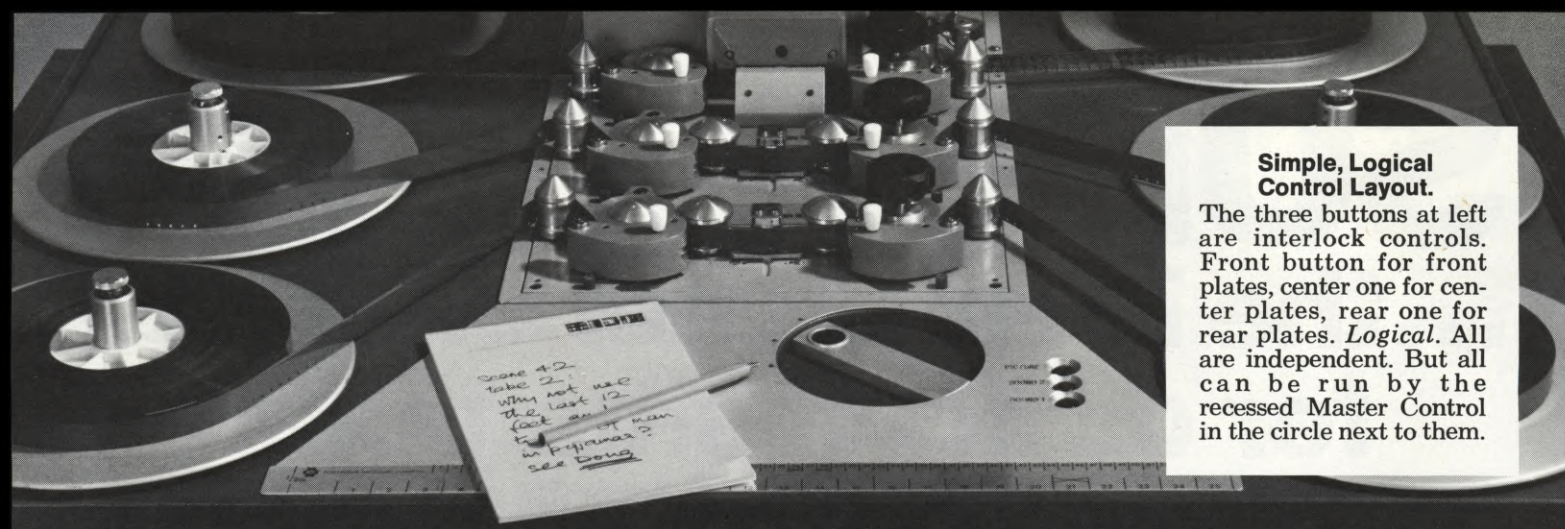
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Simple, Logical Control Layout.
 The three buttons at left are interlock controls. Front button for front plates, center one for center plates, rear one for rear plates. *Logical.* All are independent. But all can be run by the recessed Master Control in the circle next to them.

New KEM Rapid-S six-plate: It doesn't run you. You run it. 35mm, 16mm and Super 8.

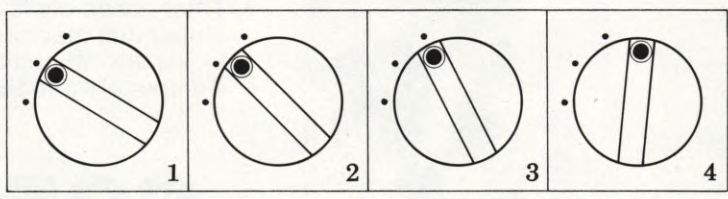
You do the editing, not the machine.
 The KEM stays out of your way. Its *simple* controls free you to think creatively.



Your editing machine *must* give you sound speed. But for frame-by-frame viewing and to hear sound modulations, you *also* need variable speeds from 3 to 24 fps. For fast scanning of dialog and action, maybe 24 to 60 fps. And high speed, for rewinding in sync.

One Control Simplicity

The KEM gives you all that with *one* Control Lever. Plus an Instant Stop button *on that lever*. Instant stops, at any speed.



ONE CONTROL LEVER DOES IT ALL.

Infinitely variable speeds, forward and reverse. Move lever to right, film goes to right. To left, film goes to left.

In picture 1 above, the Control Lever is at Stop. In picture 2, it's moving the film and/or tracks to the right, somewhere between 3 and 24 frames per second. In 3, the film is going right (forward) at 24 frames per sec-

ond. In 4, it's going right at *more* than 24 frames per second. The more you move the Lever, the faster things go. Moving the lever to the *left*, the same thing happens in reverse. Logical and easy. You don't have to *think* about it.

3 Frame Counters
 Each transport has its own frame counter, independent of the others — or interlockable, of course. The Rapid-S is like a super synchronizer.

Big, Bright Picture
 With KEM's optics, you can clearly distinguish one frame from another. The image stays as bright on freeze-frame. Heat filter. Image area on screen measures 8½ x 11½ inches.

High Fidelity Sound
 The sound is fantastic — full and brilliant. You can play it really loud, for the feel of what it will be like in the theater. And whatever's on your track, you'll *hear* it.

Engineering Quality
 Just as an example: ball bearings on every moving part. German precision. No plastic anywhere. Modular electronics. *Simple*, therefore reliable. When you're checking out the other editing machines, ask to look *inside*. Then look at the KEM.



All Within Easy Reach

The Rapid-S is only 42 inches wide. The picture transport is the one furthest from you. Its core spindle is only 26 inches from the table's front. *No stretching.*

Easy Manual Inching

Big, handy inching knobs are mounted on each transport path. You can inch manually with all three transports in interlock, or any one independently — or any two.

FIND OUT MORE — MAIL THE COUPON

Please tell me more about the Rapid-S

NAME

COMPANY

STREET

CITY STATE.....

ZIP PHONE

MM Editing; 321 West 44th Street, New York, N. Y. 10036
 KEM Editing; 6253 Hollywood Blvd., Hollywood, Calif. 90028

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 321 West 44th Street, New York
 New York 10036 (212) 582-1681

Western United States:
KEM Editing Systems Inc.
 6253 Hollywood Blvd., Hollywood
 California 90028 (213) 461-4143



WHAT WE DO FOR YOU IN PRODUCTION, WE CAN DO FOR YOU IN POST-PRODUCTION.

To a lot of people over the years, Camera Mart has become the shortest distance between shooting schedule and wrap. And for very good reasons.

Working for the long term instead of the quick buck, we've invested a lot of talent, equipment and facilities—including four of the best-equipped shooting stages in New York. So our commitments don't just sound good—they *are* good. For the latest gear. In the best condition. On time and as promised.

All easy to say, of course. But not so easy to do. Yet we've done it well enough to become the fastest-growing major equipment house in the East.

When the shooting stops, we don't. Because we know what happens behind the editor's desk is as important as what's shot in front of the camera.

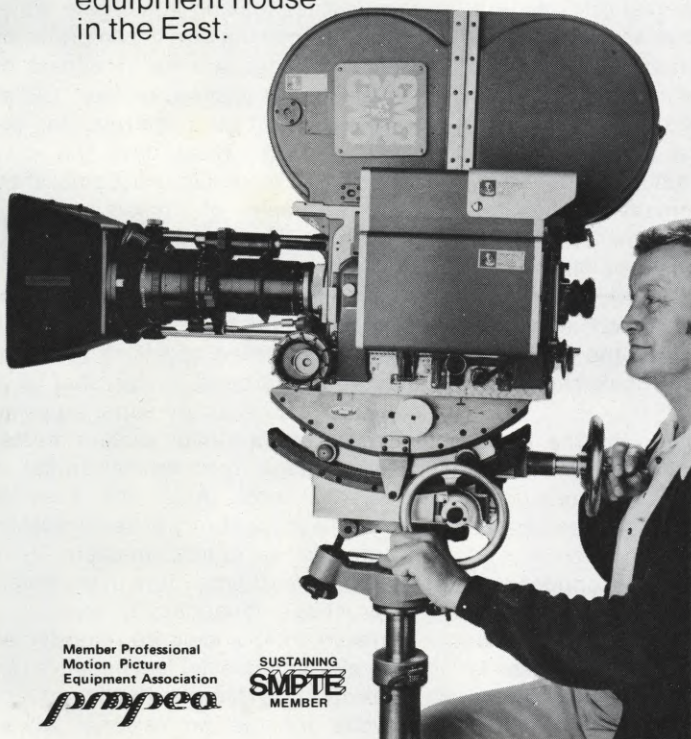
So we offer a broad selection of the latest editing equipment, for rental, lease or purchase. Checked out with the same nit-picking care as all our production gear. By people who take your job as seriously as theirs.

Whatever you're doing—feature or commercial, documentary or industrial—it pays to rely on Camera Mart. We'll give you a good deal...and a good deal more.

**CAMERA
MART**

THE CAMERA MART, INC.

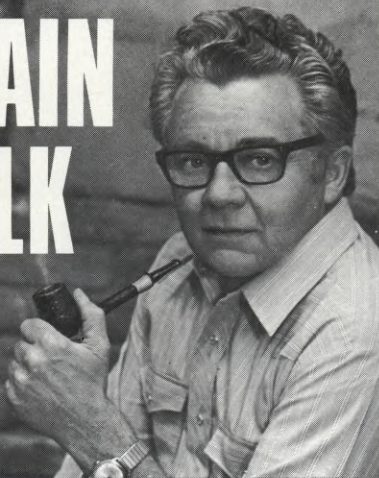
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Equipment Association
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SUSTAINING
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PLAIN TALK



by *J. Carl Treise*

When your film processor is sick, will the manufacturer make a "house call"?

I get a little tired of hearing film equipment manufacturers talk about how much they care . . . and then not coming to your help, when you really need them.

When you have a problem, can you reach a top man in the organization, or are you shunted aside to some lackey? If your problem is serious, will they hustle someone out to see what's wrong and help you on the spot?

I'm disturbed by the fact that some manufacturers don't seem to give a damn any more, once they make a sale. If the delivery is weeks (or months) late, if the gear arrives without all the parts, if the unit doesn't work as promised, that's just too bad.

If anyone shows up on your doorstep, it's likely to be a salesman full of explanations . . . and that's about it.

A quotation should be more than just a piece of paper. It's a commitment between people. It's a promise by the manufacturer that he will build for you exactly what you need and if the equipment doesn't do everything it's supposed to do, he'll come back and make sure it does.

Anything less is a sham.

TREISE
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QUESTIONS & ANSWERS

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

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



Q We have a problem that is vexing us and has been for some time. What is the secret behind the producing of clean A&B rolling of 7247?

A&B rolls are nothing new to us. We have A&B'd multitudes of footage in 7252 and 7242 with no problem. The main element of the problem, besides dust, is cinching. No matter how cleanly and carefully we work the rolls, there are still plenty of cinch marks. I have heard that dust is everywhere and only with super-expensive anti-static devices can a room be made ready for 7247. Still, some private parties are doing clean 7247 A&B rolls right at home. Is there something in the tightness of the rewinds that is critical?

A You have run into a very important and a most controversial aspect of present-day 16mm production: the use of EK 7247 negative film as a shooting stock. You mention that you never have had difficulties with 7252 and 7242 (reversal) films. The opinion of many professional laboratory experts is that for general educational purposes, reversal originals are the *only* materials that should be used for shooting. The hundreds of thousands of prints now in school libraries as well as the new prints offered for sale by educational film distributors have, with just a handful of exceptions, all been shot on 16mm reversal film.

Most assuredly, type 7247 is a photographer's delight: the film has an attractive Exposure Index of 100, extremely fine grain, speed enhancement possibilities, and the ability to yield daily prints that look clean and beautiful.

The troubles begin in the post-production period. The cinch marks, abrasions, spots, etc are serious problems as a result of these inescapable facts:

1. Negative film (as opposed to reversal) in 16mm width is not analogous to the same film in 35mm. The negative-positive process is standard and successful in 35mm because the film can be handled more easily and because a blemish that is proportionately larger and therefore objectionable in 16mm is too small to be noticed in the 35mm

image size.

2. All of the flaws such as scratches, abrasions, cinch marks, etc. reproduce in the negative-positive process as "minus density" in the final result and are more serious because, as white marks, they are easily noticed. In the reversal process, handling marks on the original appear as "plus density" and, as black marks, do not show on the screen.

The post-production operations to which 16mm negatives are subjected are, of course, negative matching, splicing, preparing descriptive light cards, cueing or programming, timing on an electronic color analyzer, cleaning and printing. All of these operations must be performed by film technicians who have been specifically trained in the special handling methods which are indispensable for type 7247. And, as you remark, it is indeed true that the greatest success is obtained by those laboratories that have installed "clean room" work-tables in their negative cutting areas.

The new 16mm negative material is excellent for making liquid-gate blow-ups, or for making one or two prints for transfer to video tape for broadcast, or for making up to three or four "CRI's" (reversal duplicate negatives) for release printing. These last two procedures are many times accomplished only by means of contact wet-gate printing or "liquid-gate" optical printing.

Some further considerations are that main titles must be made either by shooting so-called self-titles (lettering over a background to be shot in a single exposure) or by superimposing lettering over a motion picture master positive image in an optical printer at substantial cost. Also, the ease of creating a stock library of useful scenes by means of optical masters — a straightforward procedure in the reversal process — is sacrificed.

In sum, 7247 should be regarded as a special high quality, fast negative raw stock that is tremendously advantageous for the professional whose end-uses are suited to its special properties. But, because of its unusual delicacy, it should be employed judiciously. ■

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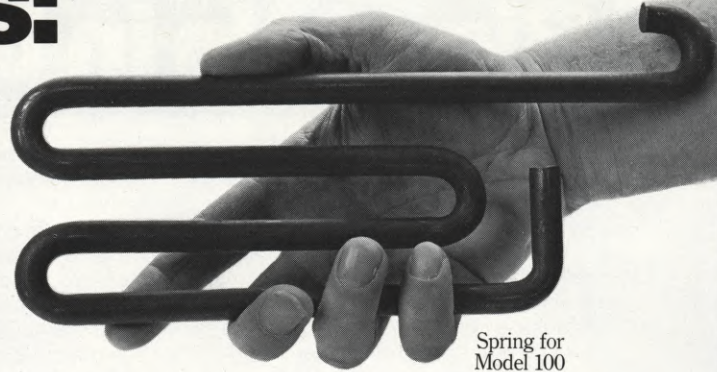
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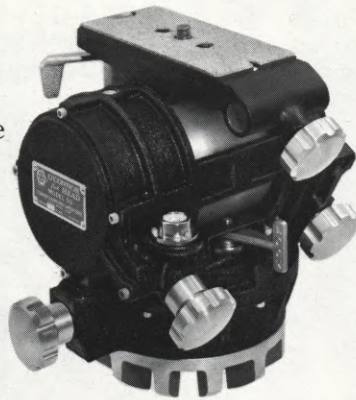
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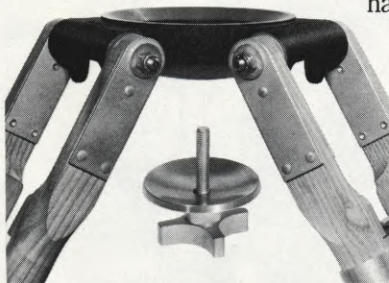
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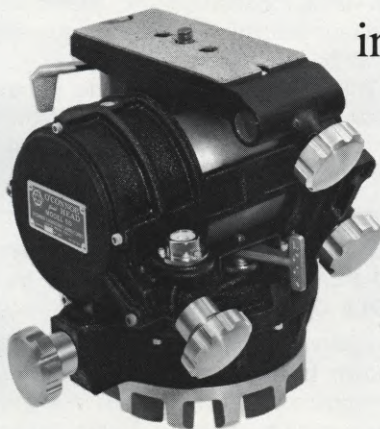
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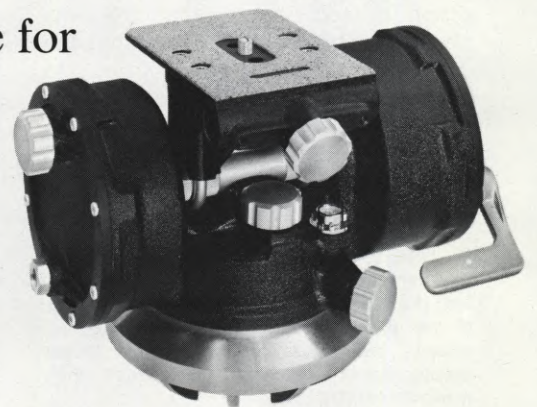
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CINEMA WORKSHOP



By ANTON WILSON

PANNING

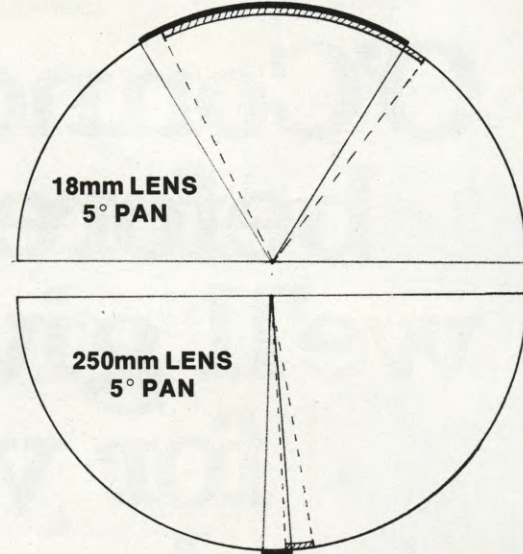
A pan is merely the horizontal rotation of the camera. What could be more simple? Guess again. If a cinematographer is not careful, his "perfect pan" could turn out a horizontal horror. Most cameramen are familiar with the so-called stroboscopic effect caused by rapid panning. The cause of this skipping effect is quite complex and depends on several factors, including physiological and perceptual phenomena of vision, as well as viewing characteristics such as screen brightness and distance from the screen. These factors are obviously out of the cameraman's control and we will not discuss them.

The most important factors causing the stroboscopic effect are the camera shutter and focal length of the lens. Most motion picture cameras employ a shutter opening of 180° or less. The shutter is closed as long as it is open and, thus, it is missing at least half the action that takes place in front of it. In FIGURE #1, for example, if a car were to pass across the screen in half a second (1A), the camera would actually record 12 semi-blurred images (frames) as in 1B. The blank spaces represent action missed while the shutter was closed. It should be obvious that the displacement of the object from one frame to the next is a function of its speed. FIGURE 1C represents a slower-moving object and 1D is extremely rapid movement. In the case of

1D, action is missed over one-fourth of the screen.

In the case of 1C, the eye and mind will attempt to link the successive closely-spaced images into a continuous motion. However, as the action is sped up, a point will be reached where the visual connection of images will break down, due to the large displacement between successive frames. (1B & 1D)

Now, taking the same example, assume the car is parked and the camera is panning across the static scene. The same reasoning applies. At some point the pan will be fast enough to cause the eye to see distinct displaced images as opposed to continuous motion. This effect is closely related to the focal length of the camera lens. FIGURE 2a represents an 18mm lens on a 35mm camera which takes in a horizontal view of about 62°. If the camera with this lens were panned 5° in one second, the image would only move about 8% across the screen in that second. However, in 2b the same one-second 5° pan with a 250mm lens (6° horizontal angle) would almost totally displace the entire scene. Visually the 5°-per-second pan is quite acceptable with the 18mm lens, as it will take a full 12 seconds for the scene to move across the frame. The same 5°-per-second pan is definitely not acceptable with the 250mm lens, as the scene will fly across the screen in about one second flat.

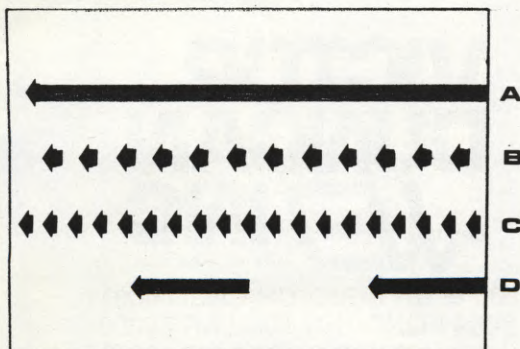


Given a 5° pan, the scene will change only 8% with an 18mm lens. Yet, the same 5° pan will cause an almost complete scene shift with a 250mm lens.

become so fast that the strobe effect will cease. The displacement between successive frames is so great (1D) that the visual mechanism only perceives a fast blur sensation. This is the so-called *swish pan*.

This discussion applies to pans of static scenes only. When following action, of course, any pan speed is permissible. ■

FIGURE 1 — As an object moves in front of the camera (A), the camera records only half the action, due to the 180° shutter (B). If the object moves slowly, the distinct images are close together (C). A larger displacement exists between images when moving fast (D).



There are charts and tables of recommended pan rates for various focal length lenses and film formats. As it turns out, the scene should not pass fully across the frame in less than about 7 seconds, no matter what the focal length or format. This is an easy rule to remember and use. As the cameraman tries out a pan, he merely picks a specific object in the scene and counts the number of seconds it takes from its appearance on one side of the frame to its departure on the opposite side. If it takes less than 7 seconds, the pan should most likely be slowed down according to ASC recommended rates. Film tests may reveal faster pans of acceptable quality. However, this seven-second rule will always yield a smooth pan. Interestingly, a pan can

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Continued on Page 699

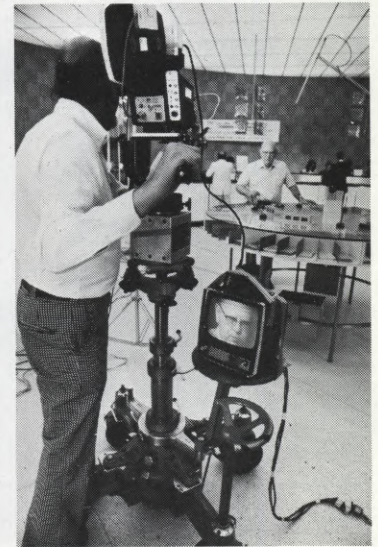


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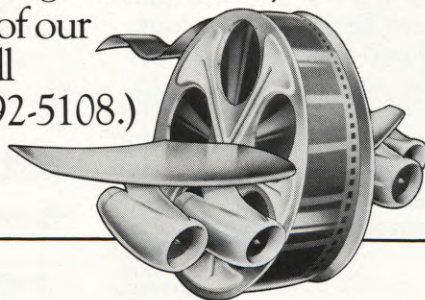


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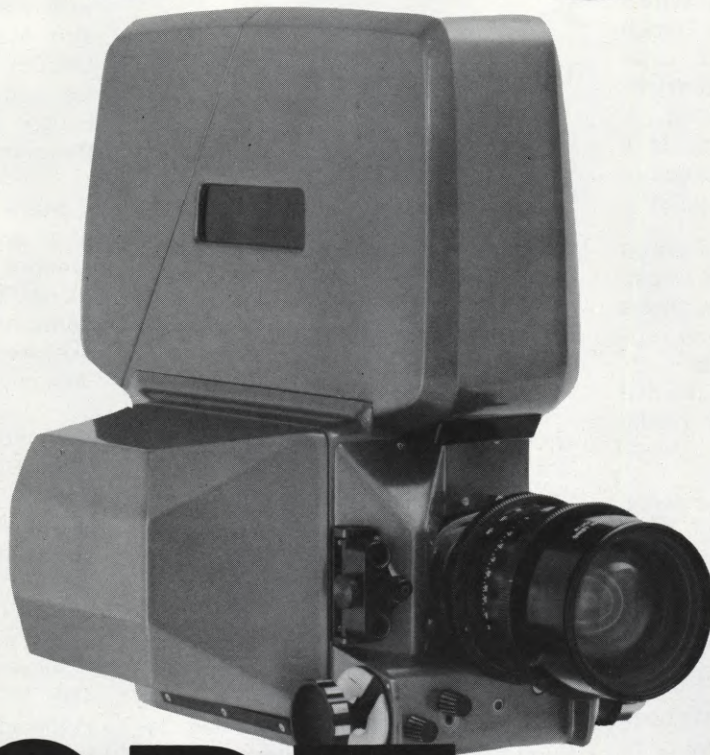
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STUDIES OF THE CINEMA

This Spring has seen a profusion of serious and engrossing books on the theoretic, social and literary aspects of cinema. Eric Rhode's *A HISTORY OF THE CINEMA* is such a book, a brilliant and informative overview of worldwide motion picture production since its origins. It relates film to the societies from which it emerged, re-appraising the work of leading movie-makers and re-examining the status of cinematic landmarks. (Hill & Wang \$17.50)

James Monaco's *THE NEW WAVE* examines the influence of five French directors — Truffaut, Godard, Chabrol, Rohmer and Rivette — on established concepts of filmmaking. A thoughtful and important study of a movement that changed the course of film history. (Oxford U. Press \$15.95)

A penetrating essay by Martin Jay on philosopher Siegfried Kracauer, whose book, *Theory of Film*, is a basic thesis on the esthetics of the cinema, appears in a special issue of the quarterly *SALMAGUNDI*. (Skidmore College, Saratoga Springs, NY 12866; \$4.)

A critique of contemporary cinema, Donald J. Drew's *IMAGES OF MAN* questions the ethical values promoted by film and reflected by it, and offers a metaphysical solution to these social matters. (InterVarsity Press, Box F, Downers Grove, IL 60515; \$2.95)

The evolution of cinema art has been the subject of much speculative comment that is expertly appraised and summarized by J. Dudley Andrew. In *THE MAJOR FILM THEORIES*, he guides us from the psychological derivations of Hugo Munsterberg and the montage esthetics of Eisenstein to Christian Metz's film/language analogies. (Oxford U. Press \$3.95)

How French and German films of the 20's reflected the cross-currents of their countries' social trends is discussed by Paul Monaco in *CINEMA AND SOCIETY*, a well-researched and engrossing portrait of a turbulent era. (Elsevier \$9.95)

A valuable reference text, *BASIC BOOKS IN THE MASS MEDIA*, compiled and annotated by Eleanor Blum, provides information on close to 800 volumes dealing with the literature of the film and other communications media. (U. of Illinois Press \$8.)

Periodic additions to Ralph Newman Schoolcraft's *PERFORMING ARTS BOOKS IN PRINT: AN ANNOTATED BIBLIOGRAPHY* are issued quarterly

THE BOOKSHELF

By GEORGE L. GEORGE

since the 1973 publication of the book. (DBS, 150 W. 52 St., NYC 10019; \$2.50 quarterly)

An enjoyable exploration of bad taste in movies — as well as in all other popular arts — is to be found in Curtis F. Brown's *STAR-SPANGLED KITSCH*, replete with outrageously funny and pathetically embarrassing examples of the worst in our mass culture. (Universe \$15.)

THE CRAFTS OF PRODUCTION

The story of a corporation and of the four filmmakers who founded and managed it — Pickford, Chaplin, Fairbanks and Griffith — is told by Tino Balio in *UNITED ARTISTS*, a scholarly job of research into its business transactions, production activities and personality conflicts during a vital era of the industry. (U. of Wisconsin Press \$15.)

Arthur Marx's biography *GOLD-WYN: THE MAN BEHIND THE MYTH* is a lively, witty, and fact-filled saga. It captures the authentic flavor of the producer's personality, a unique blend of puzzling contradictions and very human traits. (Norton \$9.95)

Credited by many with creating the British film industry, and by some with nearly wrecking it, producer-director *ALEXANDER KORDA* is profiled by Karol Kulik in this brightly written and amply documented biography of a mercurial, cultured and opinionated artist. (Arlington \$12.95)

Makeup as a creative film craft is the credo of *THE WESTMORES OF HOLLYWOOD*, a dynasty of grease paint and wig artists whose tempestuous life story is candidly told by Frank Westmore and Muriel Davidson. (Lippincott \$8.95)

Art and technology are the elements that James F. Scott attempts to reconcile in his book, *FILM: THE MEDIUM AND THE MAKER*, a thoughtful and scholarly treatise on film esthetics seen in historic perspective. (Holt Rinehart Winston \$7.95)

Independent movie makers will find in Carl Linder's *FILMMAKING* both necessary inspiration and practical advice for creative cinematic expression. Technical aspects — particularly those dealing with camera work — are expertly discussed with an abundance

of stimulating suggestions. (Prentice-Hall \$9.95/5.95)

PERFORMING ARTISTS

An ingenious parallel between 16th century Italian Commedia dell'arte and slapstick comedy of the silent era is drawn by David Madden in *HARLEQUIN'S STICK — CHARLIE'S CANE*. Well-chosen stills emphasize the similarities as brought out in the scholarly text. (Bowling Green U. Popular Press \$10.)

The skills of nine film/TV comedy writers are examined by William F. Fry and Melanie Allen in *MAKE 'EM LAUGH*, a series of interviews with such top humorists as Norman Lear, Jack Elinson and Ruth Flippen. (Science & Behavior Books \$8.95)

Steve Allen's brand of comedy, most often an inherently absurd and spontaneous wit, gets full exposure in *SCHMOCK-SCHMOCK!*, a hilarious sampler of the monologues and sketches that have made him a favorite funnyman. (Doubleday \$6.95)

A popular movie queen of the 20's, Clara Bow makes a belated appearance in *THE "IT" GIRL*, a snappy biography where Joe Morella and Edward Z. Epstein expertly recount the star's uninhibited performances on screen and off. (Delacorte \$8.95)

Allen Eyles' *JOHN WAYNE AND THE MOVIES* considers the evolution in the actor's roles, from programmers to superproductions, in a detailed survey enhanced by numerous stills. (Barnes \$8.95)

British actress Anna Neagles's autobiography, *THERE'S ALWAYS TOMORROW*, is a warm and distinguished memoir of a successful screen and stage career with unusual glimpses into England's entertainment world. (Arlington \$8.95)

Yolanda Donlan's lively and outgoing recollections of a young actress in Hollywood, *THIRD TIME AROUND*, evokes with infectious charm the golden days of the movies. (Dial \$8.95)

A welcome paperback edition of an out-of-print reference book, David Shipman's *THE GREAT MOVIE STARS* profiles some 220 performers who have dominated the film scene since WWII. Biographical sketches, critical evaluations and abundant illustrations make it an attractive and knowledgeable volume. (A&W Visual Library \$7.95) ■

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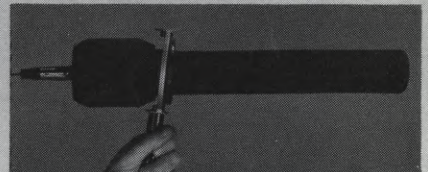
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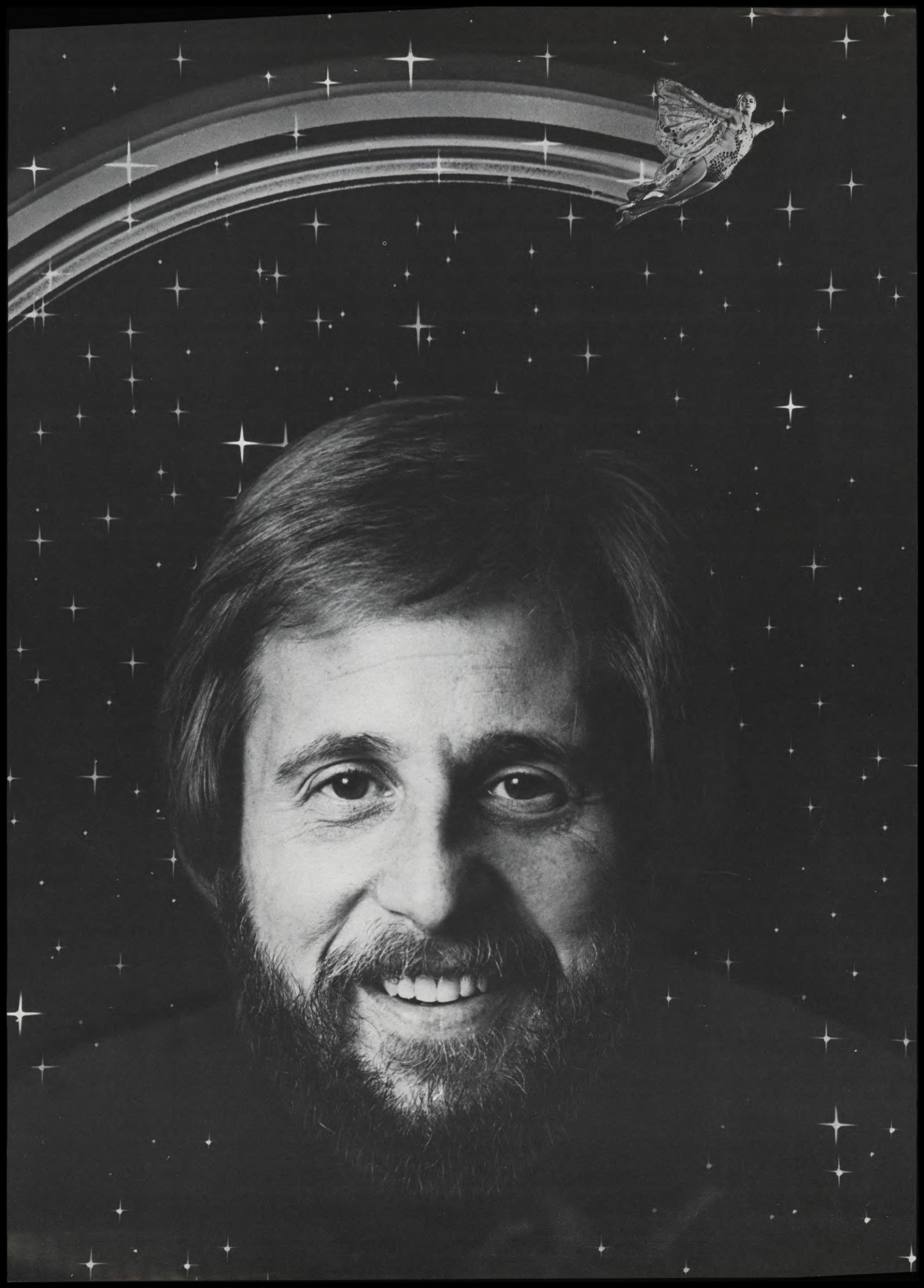
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"Although I came from a background of documentaries and scripted films, I now deal with illusions that are not readily photographed, but rather have to be created through hours, days, even weeks of arduous labor.

"Each shot may be rolled through a camera, 20 or even 30 times, to achieve a single illusion. Each time it goes through the camera it may be subjected to time exposures of anywhere from several seconds to several minutes, and each movement must be made time and time again, with the same exact repeatability and precision as a docking movement in outer space. You are literally using the film as canvas, except this canvas is only 35 mm wide, layering each level of imagery, effects, and subject

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"The next step is to take the film through a series of elaborate technical steps, and that's where the resolution, reduced contrast, and fine grain of 5247 really pays off, for it never allows you to realize that what you are seeing on the screen is an illusion. And that means a lot when the whole name of the game is to create the most convincing and magnificent illusion that you can.

"When I use the term, 'creative illusions,' I am saying that by altering time, spatial relationships, and juxtaposition of real images that normally do not co-exist, I can use these new relationships to totally alter people's experience of the scene, to present them with a reality that is

much greater than the sum of its parts.

"So what we have in film is a magic tool of dual power, with the ability to reach people not only with the realities of the moment, but that extend their worlds to the farthest reaches of their imagination, to probe even beyond their conscious mind, into their more personal world of dreams and fantasies.

"When I start directing a sequence, I feel a little like Lindbergh, intoxicated with the possibility and power to fly like a bird, somewhat frightened by flying over uncharted waters, and yet knowing that when I reach my destination, the personal rewards are incalculable.

"Fortunately, unlike Lindbergh, I, along with my fellow filmmakers, have had at our side the people of Eastman Kodak Company, always there to guide us over the rough spots, get us back on course, and yet willing to change the course of their own thinking when the survival of the filmmaker's dream is at stake."

For a revealing look at people and ideas in the moving visuals industry, Kodak has combined this and other interviews into a fascinating and informative booklet. For a free copy write: Eastman Kodak Company, Dept. 640-D, Rochester, New York 14650.



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12 field spring-loaded glass platen holds cels and other artwork flat eliminating glare.

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Interchangeable camera brackets adapting most quality cameras.

spring-balanced vertically adjustable, ball bearing camera carriage and lock for artwork from sub-35mm to 11" x 14".

animation dissolve linkage and scale.

precision registration devices position artwork from animation cels to filmstrips and mounted slides.

eight-field pantograph guide for artwork positioning.

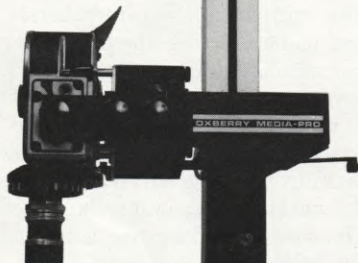
viscous-damped compound table for precise animation, slide and filmstrip positioning. Center pin permits 360 rotation.

Kelvin corrected 9x12 backlight with registration for cel animation or transparency copying.

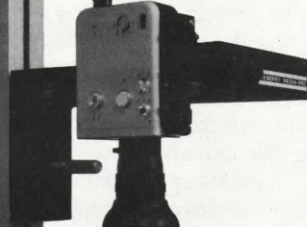
animation motor and console for continuous or single-frame, reverse or forward with resettable frame counter.

Oxberry Media-Pro Plus...

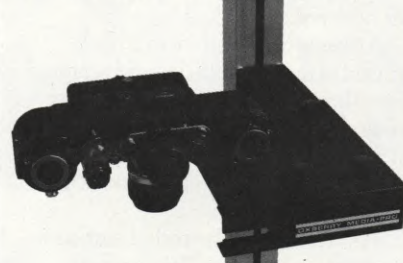
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Think about it . . . one multi-media system that will turn out professional media communication in 6 media formats. A "media pro" with many features some new and unique to the MEDIA-PRO and some old OXBERRY favorites developed over 25 years of media industry experience. Take a look at . . .

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. . . the multi-camera design that adapts five MEDIA-PRO camera systems to a common optical center. The basic stand also mounts most other fine still, motion, and video cameras.

. . . the extensive line of supplies and special production accessories bracketing the entire audio-visual field.

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Here's how inflation has hit this market:

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ECLAIR 16NPR	7830.	10,524.	15,900.	+ 103%
ANGENIEUX 12-120 ZOOM	895.	1140.	2520.	+ 181%
ANGENIEUX 25-250 ZOOM	2645.	3410.	7305.	+ 176%

If you want to beat this ridiculous inflation, you'll keep your present camera running longer and avoid the high cost of a new purchase. F&B/Ceco wants to help you fight these high costs. That's why we're offering a complete repair and service program.

Here's what we will do:

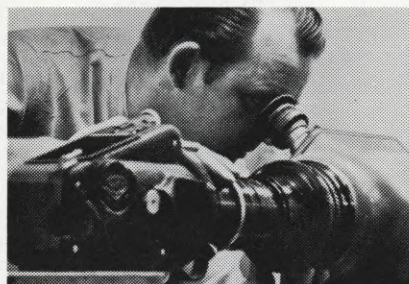
PREVENTIVE MAINTENANCE

- Check, clean and lubricate camera.
- Measure flange focal distance.
- Check ground glass depth.
- Check optical system.
- Inspect rollers.
- Clean film gate.
- Check lenses on collimator.
- Check motors for speed.
- Test batteries and cables.
- Test sync generator and cable.
- Clean and inspect magazine.
- Lubricate magazine rollers
- Set clutches.
- Check footage counters.
- PLUS — our recommendations for necessary repairs, adjustments or replacement of parts.

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- Replace worn parts.
- Clean and lubricate totally.

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- Adjust ground glass depth.
- Adjust film gate.
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- Align optical system.
- Set motors for proper speed.
- Check sync generator.
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*Includes Camera Body, 1 Magazine and Lenses in Turret.

**Includes Camera Body Only.

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A CADENZA OF NAGRAS

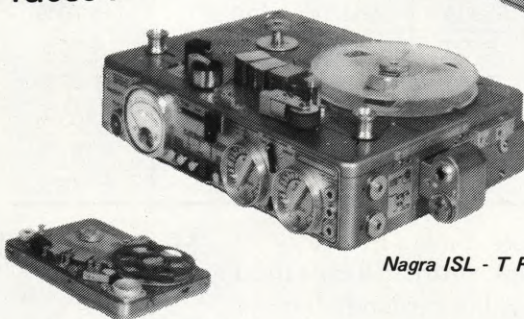
Samuelsons of London are Nagra hire specialists. When you rent a Nagra from us you can be sure of getting a complete outfit, even down to spare batteries and fuses.



Nagra Stereo Recorder NQS/L



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Two Sennheiser headphones type HD/100
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QSLs synchroniser
Four 50' microphone extension cables
Two 25' microphone extension cables
Two 50' mains extension cables
Two ATE/Nagra pulse cables
Two mains/ATE connecting cables
Two mains jumpers
set of plugs
6 100 MA fuses
12 type D nickel cadmium batteries
Battery charger type PAR
AVO test meter
Ground sheet
Instruction manual
Sound report pad
Magnetic tapes as required
Two Samcine carrying cases
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Nagra 4/2 recorder complete with 50/60 XTAL and QLSI
Leather carrying case
Kudelski mixer type GMT
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AKG D224E microphone
Two AKG type D110 lavalier microphones
Windshield for D224E
Clip for D224E microphone MVK/6
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Time varier QSV2
ATE unit mains supply
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Instruction book
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Amplifier and loudspeaker
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Samcine carrying case

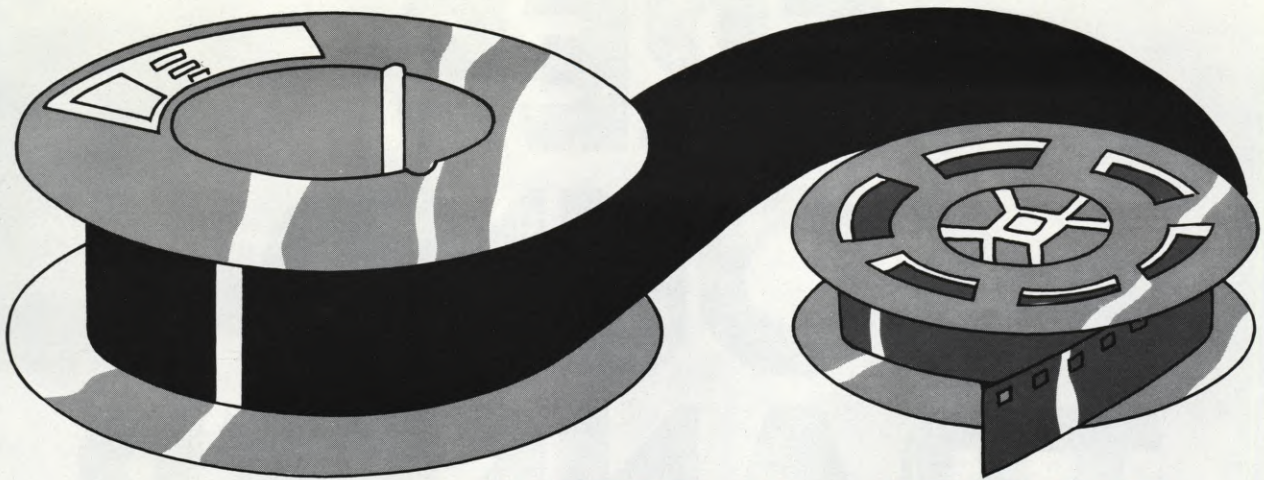
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Clean Answer Prints from 7247 Negatives.

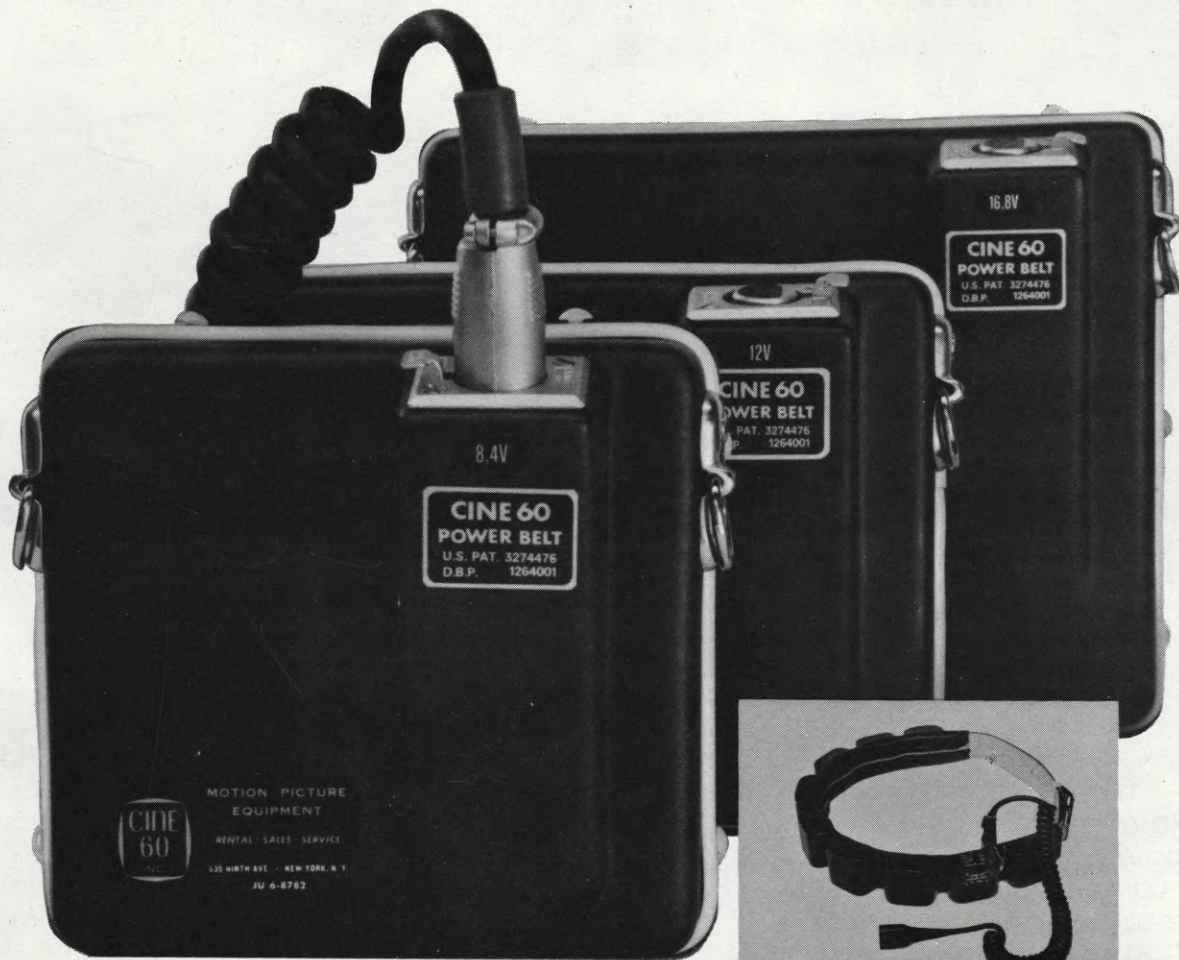
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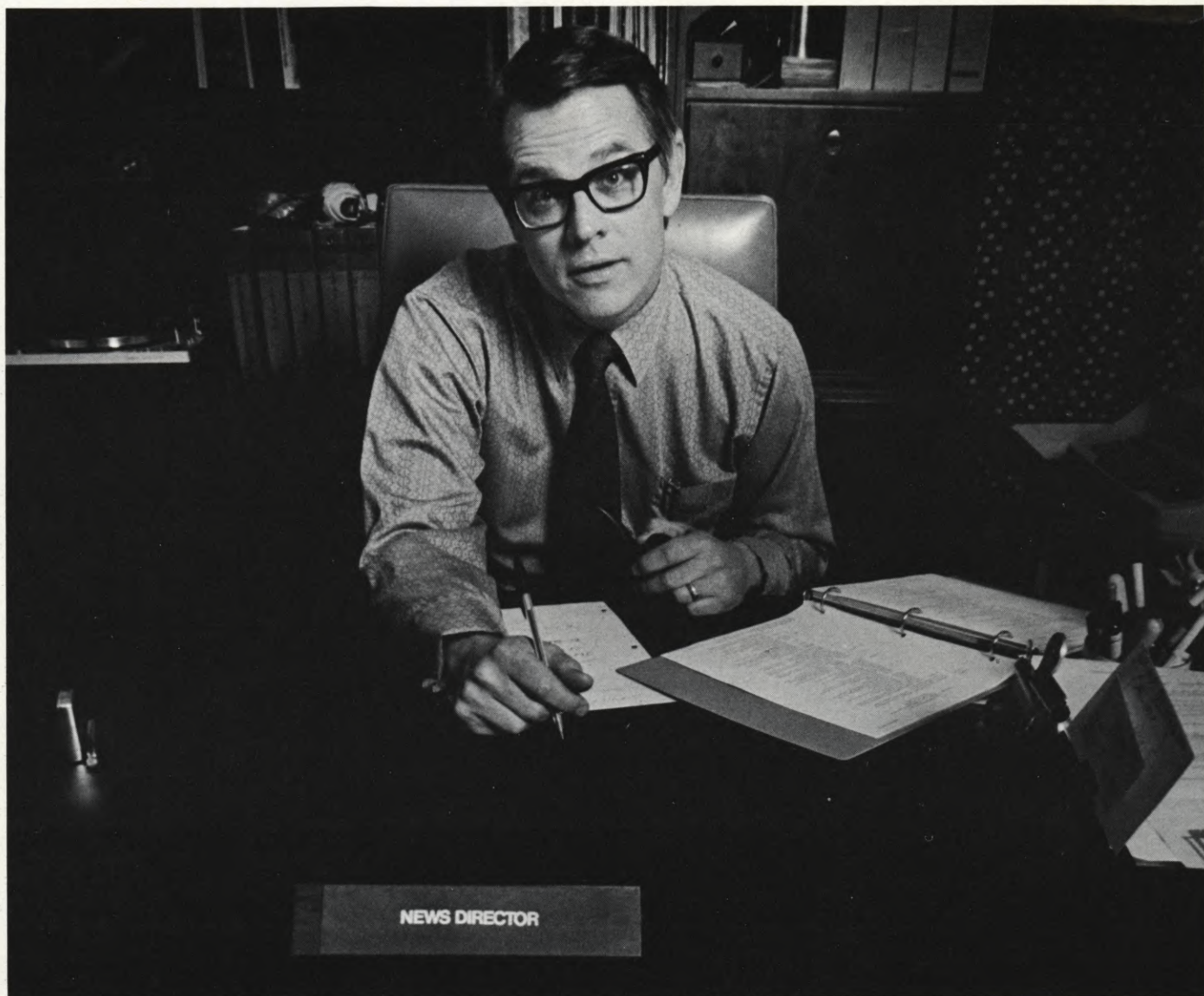
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Tota-Light.* More than just a new light, it's a new lighting concept. Compact 1000, 750 and 500-watt quartz lighting with an integral system of lightweight, modular mounting and light control components. Providing almost limitless location flexibility.

With Tota-Light, a room is more than just an area to be lit: it becomes part of the lighting system.

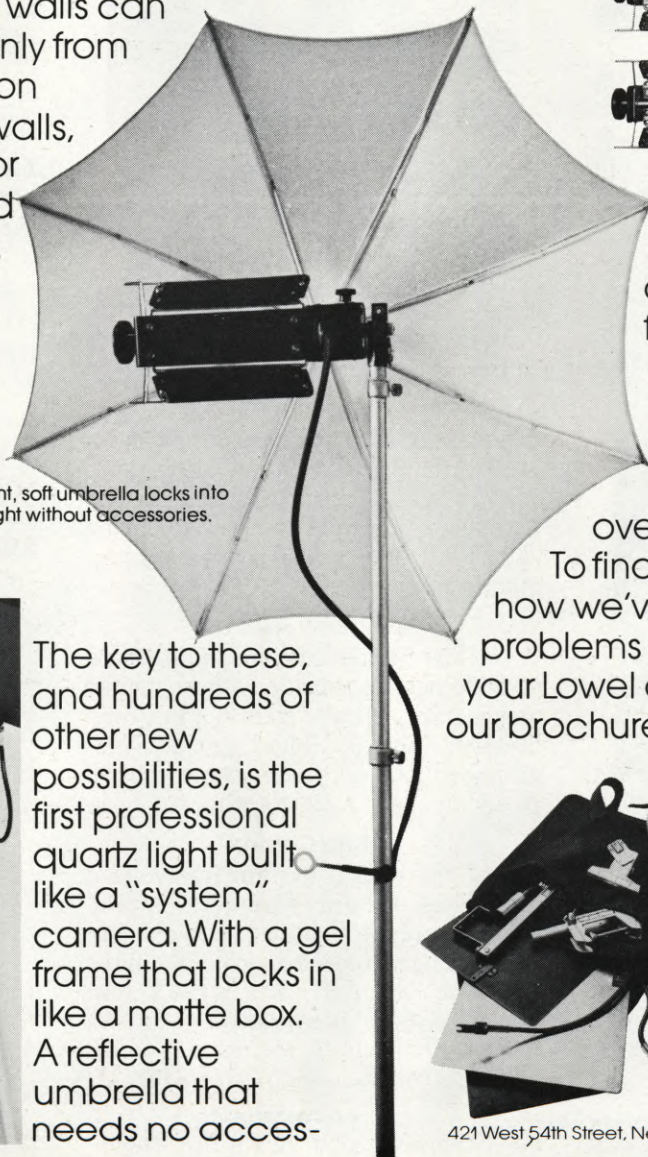
A system where three walls can be lit smoothly and evenly from a single light mounted on the fourth wall. Or four walls, ceiling and floor can be covered from a corner.



Snap-together flags and reflectors snap onto flexible arms.



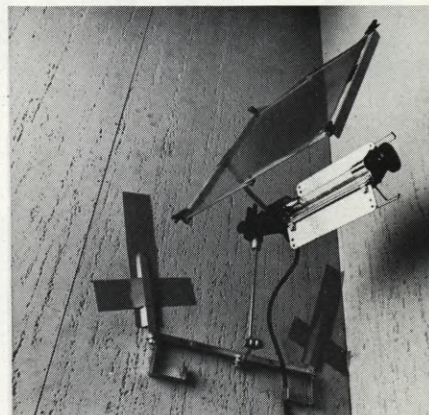
Locks atop doors, open or closed: flags control light precisely.



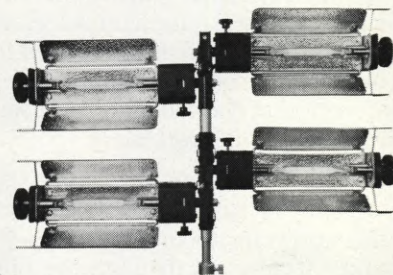
Bright, soft umbrella locks into light without accessories.

The key to these, and hundreds of other new possibilities, is the first professional quartz light built like a "system" camera. With a gel frame that locks in like a matte box. A reflective umbrella that needs no acces-

sories. And a family of snap-together flags held by flexible arms. Using these and other components, Tota-Light can be stacked, diffused, converted in seconds to a softlight,



Tota-Light tapes to walls and windows; frame holds precut conversion and diffusion gels.



Stacks on stand or clamp.

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*TM Pat. Pend.



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Programmed blowups at CFI

State-of-the-art techniques, fast service and consistent quality, because *every step* is under one roof.

Every step in the making of a blowup affects, or is affected by, every other step.

Fine Tuning

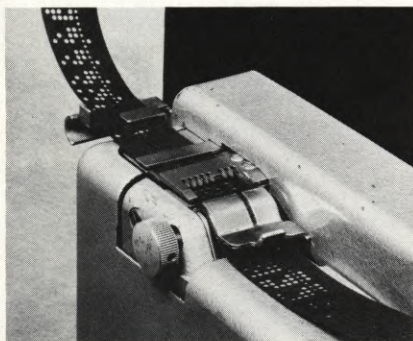
Every function—sensitometric, chemical, chromatic, mechanical, electronic and optical—must be fine-tuned to work best with the others. At CFI, there's a department that does nothing but monitor the whole system, *continually*.

Consistency

A blowup made at CFI benefits from this in two important ways. Benefit One: since it all goes through the one tuned system, quality is *consistently* the best possible.

One Light

For example—nine out of ten CFI blowups can be printed one light. For us, that means the system's working smoothly. For you, it means the job's ready sooner.



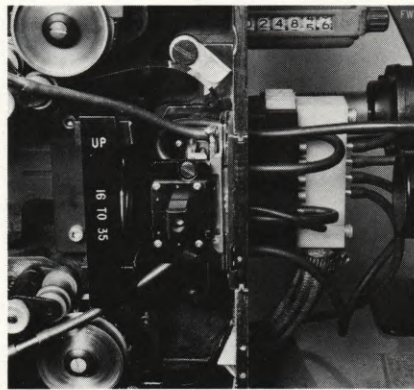
Computer punched tape automatically controls lamphouse timing settings during blowup.

Save Time

Benefit Two: faster service. Because it's all in-house, we can schedule every step whenever we choose—day or night. And our blowup machines are used *only* for blowups (not for titles, etc.). So they're always set up, ready to go.

Liquid Gate

Hiding scratches: some blowup machines coat each frame with liquid just



Rubber tubes pressurize liquid in glass gate. Film is fully immersed during entire exposure.

before it enters the gate. That works well, if the abrasions aren't too deep... At CFI, the film is *completely immersed* in a pressurized, glass-enclosed liquid gate.

Programmed

After timing the original on an electronic video analyzer, we make a 16mm first trial, which the timer corrects. A computer tape of his corrected timing is then fed into the blowup printer's program input.

Academy Award

The printer combines a standard additive-head lamphouse with a patented multicellular optical system. For this combination, (plus the liquid gate and programmed timing), the machine won an Academy Award. Here's why:

Subtle Control

This optical system transmits a great deal of light. That lets us take advantage of the additive head's subtlety (*fifty* timing settings for each of the three primary colors). And it lets us use a slow-speed finegrain internegative—and *still* make a 10 minute blowup from A and B rolls in 2½ hours.

More Awards

Three of this year's films nominated for Academy Awards were blown

up at CFI. A fictional short subject and two documentary features: *Dawn Flight*, *California Reich* and *The Incredible Machine*.

Deadline

"The Academy's delivery deadline was Tuesday at 6 PM. We arrived at CFI on *Monday* morning, with 58 minutes of A/B rolls," says Walter Parkes, who co-produced *California Reich* with Keith Critchlow.

Next Day

"At 5:30 PM the next day," says Mr. Parkes, "We picked up a 5,000 foot one-light 35mm print—and that's what the Academy projected!"

One Roof

Irwin Rosten produced *The Incredible Machine*. "I had the blowup made at CFI because they'd done the 16mm work," he says. "The quality is very, very good."

Service

"We came in with a 750 foot workprint and uncut negative," says Lawrence Lansburgh, who produced *Dawn Flight* with Claire Wiles. "But you'd think we were CFI's biggest customer!"

Madman

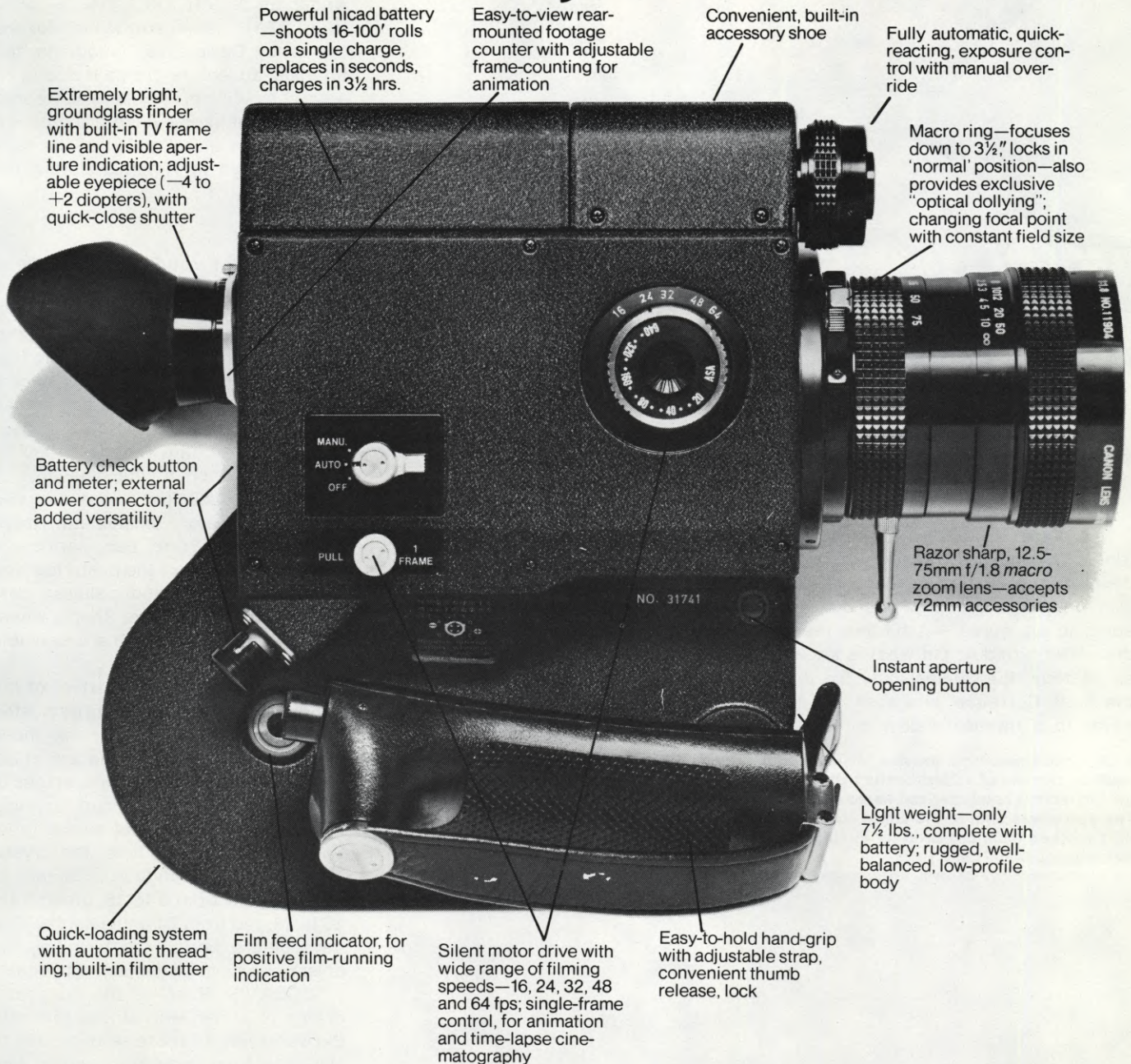
"Everybody was *enthusiastic*," says Mr. Lansburgh. "The timer kept polishing until I couldn't *see* his changes. A real madman. And the blowup print actually looks better than one made from the camera original!"

CFI

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Silent motor drive with wide range of filming speeds—16, 24, 32, 48 and 64 fps; single-frame control, for animation and time-lapse cinematography

Easy-to-hold hand-grip with adjustable strap, convenient thumb release, lock

With the Canon Scoopic 16M, your professional instincts don't have to fight your budget. Because no other '16' offers so much versatility for so little money—just \$1945 for the entire package: camera with lens, battery and fitted deep-flotation case. And look at the features!

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AND HOW IT WAS FILMED

In what is one of the most technically intricate films ever made Hollywood's top artisans combine their expertise to create an exciting fantasy-adventure of a world 300 years from now

The time is the 23rd century.

The place is a section of the United States, hermetically sealed off from devastated areas that surround it, filled with people whose lives are devoted solely to pleasures — until they reach their 30th birthday. On what is known as Lastday, the 30-year-olds file into the huge Carrousel and seek life renewal in a mystical liturgy witnessed

nightly by thousands of cheering arena spectators.

There are a few who eschew the Carrousel and seek sanctuary. They are known as the runners. Logan, a policeman assigned to track down their sanctuary, elects to seek a life beyond 30, himself. This is the plot line of "LOGAN'S RUN".

In what certainly must be the most

A climactic scene from the new MGM science-fiction spectacle, "LOGAN'S RUN", in which youthful citizens of a 23rd-century Utopia flee in panic as a huge red crystal explodes after the city-state's computerized nerve center has been shot up by one of its former policemen. The scene was shot in the Great Hall of the Dallas Apparel Mart, one of several stunning ultra-modern locations used for filming. ("LOGAN'S RUN" photographs by Mel Traxel, Sid Baldwin and Rollie Lane.)

unique, provocative and controversial subject matter for a motion picture in many years, Metro-Goldwyn-Mayer initiates its second half-century in the film industry with Saul David's multi-million-dollar production of "LOGAN'S RUN", starring Michael York, Richard Jordan, Jenny Agutter, Roscoe Lee Browne, Farrah Fawcett-Majors and Peter Ustinov. Directed by Michael Anderson of "AROUND THE WORLD IN 80 DAYS" fame, and written for the screen by David Zelag Goodman, the futuristic adventure drama is based on a novel by William F. Nolan and George Clayton Johnson. It represents an extrapolative investigation of life as it may be lived in America during the 23rd century.

THE STORY

Beneath the rounded symmetry of the giant glasslike domes, the 23rd century megalopolis is a gleaming panorama of buildings, parks and walkways connected by maze cars that silently zip through their translucent air-pressure tubes, transporting human cargoes to various points of destination. The many shops reflect a public dedication to the pleasures of living — Hallucimills, where one can enjoy hallucinatory excitement; Relive Shops, where one can reprise a delightful memory of the past; New You Shops for instant and painless cosmetic surgery; and Love Shops, where the pleasures of the flesh are available to both sexes.

At the massive headquarters of the Sandmen, an elite police unit dedicated to exterminating the Runners, those who seek to live beyond the age of 30, the huge Lifeclocks signal the stages of existence as they control crystals imbedded in the hand of each citizen. With the passing of time, the crystal changes color — white from infancy to age 8, yellow from 9 to 15, green from 16 to 23, red from 24 until Lastday. Ten days before one's 30th birthday, the crystal begins to blink black-and-red.

"LOGAN'S RUN" is the adventure drama of a man who strives to locate the sanctuary of those who choose to run away from Lastday, a woman who helps him in his quest, and the Sandman with only one mission in life — to stop anyone who runs.

THE PRODUCTION

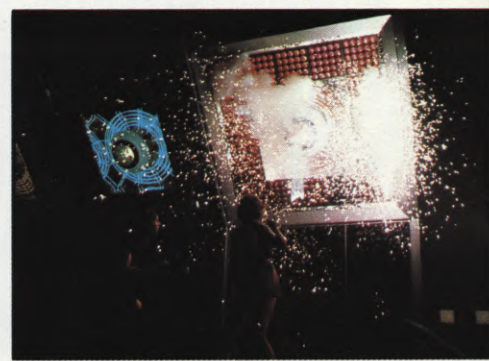
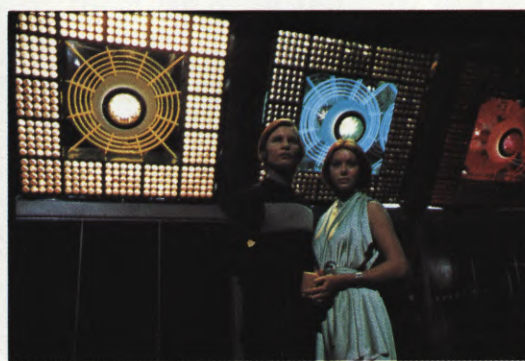
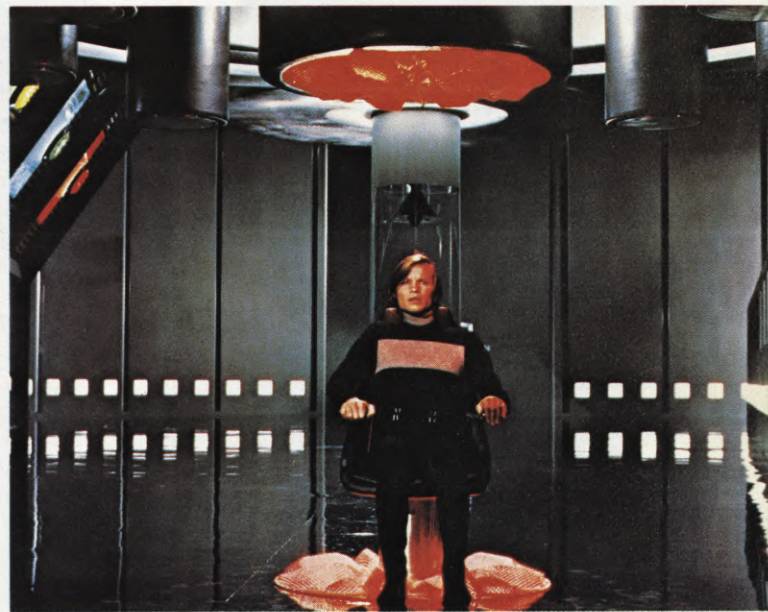
Because of its concern about life 300 years from now, "LOGAN'S RUN" became one of the most challenging projects ever undertaken by a group of film creators. Everything — exterior and interior settings, modes of transportation, food, drink, furnishings,

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(ABOVE LEFT) Protected by the giant domes that seal it off from the outside world, the 23rd-century city is a panorama of lakes, parks, greenery and glowing jewel-like architecture, linked by a maze of transportation tubes. (RIGHT) Logan (Michael York) and Jessica (Jenny Agutter) emerge from the hallucinogenic vapors that welcome patrons to the Love Shop. (BELOW LEFT) As a member of the city's elite police force, Richard Jordan places evidence for examination by the electronic scanning device. (RIGHT) Logan undergoes interrogation by the unseen computerized authority that rules the city.



(ABOVE LEFT) On "Lastday", 30-year-olds, slated for liquidation, wear bizarre death masks as they gather around the giant red crystal of Carrousel. One of them is beginning to levitate in the force field. (CENTER) Logan and Jessica stand before the life-clocks in Sandman headquarters. (RIGHT) Logan shoots the computer, triggering a chain reaction of explosions that will destroy the city. (BELOW LEFT) Juvenile delinquents pause in their mischief as the city explodes around them. (CENTER) The beautiful city begins to self-destruct. (RIGHT) Sandman headquarters disintegrates with a spectacular flash.





In the society portrayed, all citizens are born with crystals in the palms of their hands, which glow according to age. When crystals flash, it means they have only 10 days to live.

clothing, laws, beliefs, jobs, hobbies, entertainment, jewelry, personal habits, etiquette, manners, life styles, status symbols, even love customs — everything had to be devised and created especially for the film.

This particular 23rd century utopia is ecologically balanced, filled with unending personal pleasures, graced by the absence of individual responsibility or any but pleasant tasks, nurtured by complete sexual freedom and regulated by an invisible, computer-

ized authority that appears to be devoted to pursuits of happiness.

But like all things that sound too good to be true, there's a catch to it. The existence may be utopian but nobody is allowed to enjoy it a single day beyond his 30th birthday.

The motion picture stars Michael York in the title role as a member of an elite police force whose job is to enforce the laws of longevity. When York, the Sandman, as he is called in the story, investigates the possible existence of a sanctuary for those who attempt to live beyond 30, he begins to learn that life without love is unfulfilling. A pretty young girl, played by British actress Jenny Agutter, has more than a little to do with York's gradual change of attitude.

The people live in a megápolis that is hermetically sealed off from the outside world by giant translucent domes. The temperature is a constant 75 degrees so clothing is not an important factor. The women wear short, free-flowing garments of semi-transparent synthetic fabric. The men are clad in loose-fitting tunics and form-fitting stretch pants. Both men and women wear jewelry of their choice to accent their individuality and freedom of expression. The only "uniform" look exists among the Sandmen, who are the heroes of that era. When they track down a runner and exterminate him, the people cheer.

The people are vegetarians. During meals they munch on fruits and raw vegetables and drink energy-giving

liquids. Nobody smokes. The design of dining utensils reveals an interesting fact — everybody is right-handed.

Even though the outside world is hidden, there is day and night, artificially created by light-controls. But there are no clocks and watches — only the life-clocks that control the lifespan and the crystals imbedded in the left palm that change color with the passing years.

Liquor is apparently *passé*, but the drug syndrome is very much evident. At shops catering to the hallucinatory experiences and at private parties, drugs in the forms of pills and vapors set the mood.

The family no longer exists. Babies are conceived by seed-mothers, but are incubated and raised by computerized controls. Nobody has a last name. There are no uncles, aunts, nephews or nieces. No wives and husbands, no fathers and mothers. Whenever a child is incubated, a 30-year-old faces Lastday. Zero Population Growth has been attained.

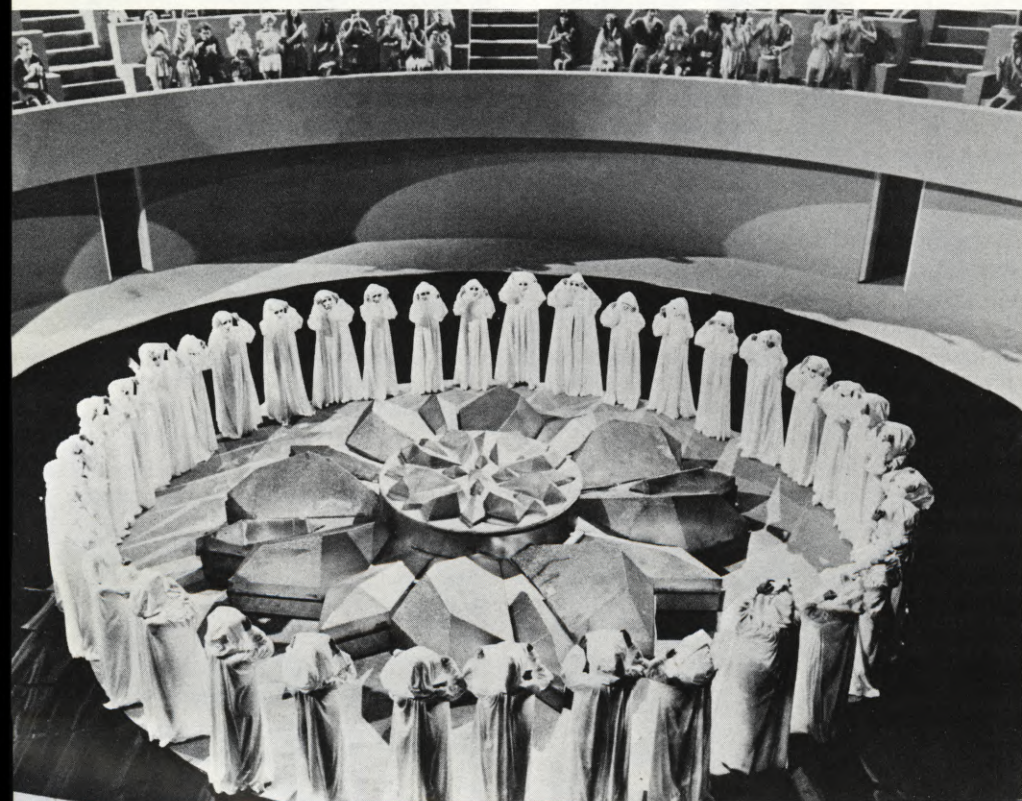
Citizens move about the arcades on people-movers and maze-cars zoom through translucent tubes to carry people to more distant areas. In the arcades, the shops are unique. If you wish to experience again a fond memory, drop into a Relive Shop. If you desire to change your looks, step into a New You Shop for instant, painless cosmetic surgery done by lasers. Need a pick-me-up? The Hallucimill provides a quick drug experience. And if other desires are to be appeased, the Love Shop awaits.

How much do these things cost? Nothing. In this blissful period, money does not exist.

Perhaps it is the absence of money that has reduced crime to the sole offense of trying to live beyond the age of 30. But among the children of the early teens, there exists senseless rowdiness. At an abandoned cathedral, kid gangs are rampant, running wild because there has never been an ounce of parental control. When their palm crystal turns from yellow to green, however, they must depart their gangs and live the more respectable life of the adult.

If there is a semblance of religion during the 23rd century, it is confined to the ritualistic cessation of life on the appointed day. In an awesome display of pageantry, the 30-year-olds dress themselves in white and enter the Carrousel, an elaborate enclosure that spins them upward. While they strive desperately for the rainbow ring that will renew their life, crowds of spectators cheer and applaud. There is no sadness about death, either among those who must face it or those who

On their 30th birthdays, "Lastday" celebrants gather at the "Carrousel" for a bizarre rite in which they will attempt to defy computerized death and renew their life spans. Although they are led to believe that this can happen, in reality it never does. The society is without crime, except that of attempting to escape to live beyond the age of 30.



gather nightly to witness their efforts to survive. There is no funeral, no burial. Those who fail are incinerated and Stickmen in flying chairs turn their remains to crystals and vacuum up the residue.

But "LOGAN'S RUN" is by no means a sterile, chrome-and-concrete arena where the automatons of a computerized society cavort. It is filled with laughter and happiness, sparkling with individuality, garnished by the greenery of the city's parks and playgrounds and enlivened by the upbeat tempo of a community that looks positively at the life around it.

DOMED CITY OF THE FUTURE

The sets built at MGM for "LOGAN'S RUN" were undoubtedly the most expensive erected at the studio since its great early days of awe-inspiring musical spectaculars.

Costs for interiors and exteriors would have been astronomical if it had not been for the state of Texas. In Dallas, Houston, and Ft. Worth, producer David and director Anderson located the most advanced architecture in America and incorporated the futuristic structures into "LOGAN'S RUN". Most notable was the Dallas Market Center, a 4.8-million-square-foot complex consisting of six ultra-modern structures erected on 135 acres which have become the largest single wholesale merchandise mart in the world. In its Apparel Mart, "LOGAN'S RUN" utilized futuristic backgrounds of the West Atrium, a five-storied terraced space featuring an entire wall of mirrored plexiglass and a variety of acoustical materials created by artist Paul Maxwell; and the Great Hall, a five-level arena 280 feet long, 150 feet wide and 60 feet high where 4500 people can be accommodated at a show or exhibit.

At the World Trade Center, cameras captured crowd and restaurant sequences in the seven-story, glass-capped courtyard of the 25,000-square-foot Hall of Nations.

The World Headquarters of the Zale Jewelry company in Dallas served as the exterior of Sandman Headquarters; the Bruton Park Building became a 23rd-century apartment complex; the First International Bank Building, with its reflective metal ceiling, backgrounded an action sequence; and the Oz Club, an extremely modernistic discotheque and restaurant, became the Love Shop for the film.

En route to Ft. Worth, the modernistic Health Center in Arlington, Texas, became the Sandman's gymnasium. In Ft. Worth, the city's recently com-



Cast and crew of "LOGAN'S RUN" filming on location inside the Atrium of the vast World Trade Center in Dallas. Lighting these huge sets was obviously a problem, but there is no sound stage anywhere large enough to build such settings, and even if there were, the cost would have been prohibitive. Since these locations had just the right "futuristic" look, studio sets were designed and built to tie in with them.

pleted \$5,000,000 Water Gardens in the heart of town was an ideal "performer" as a 23rd-century hydro-galvanic wave-power plant. The futuristic interior of the Hyatt Regency Hotel in Houston is also seen in "LOGAN'S RUN".

Sets for "LOGAN'S RUN" built at MGM studios were equally eye-popping. On Stage 15, largest sound stage in the world, two important backgrounds — Sandman Headquarters and the New You Shop — were constructed. The complete interior of Stage 30 housed two fabulous settings, the Ice Caverns and the awesome Carrousel, an ingenious product of construction know-how, special effects wizardry and inventive movie magic where an audience of 500 filled the arena to cheer the dozens of stunt people who portrayed Lastday celebrants striving for life renewal.

Two sound stages were required to handle one single set for "LOGAN'S RUN". An opening was made between

two adjoining stages to provide space for the maze tunnel along which the full-scale maze cars sped. The electrically-powered, teardrop-shaped plastic bubbles are so well designed that they can easily be converted to actual street travel.

Another stage was fully utilized to construct the decaying, vine-infested remains of the U.S. Senate chambers where Peter Ustinov lived with his hundreds of cats as companions. The felines, provided by Hettie Kram of Cat Care Shelter, West Los Angeles, lived on the set for almost two weeks while performing their roles. Double entrances to the fully enclosed set prevented any of the cats from defecting.

To create a vast undersea complex used for raising and harvesting food, the "LOGAN'S RUN" company moved into an abandoned section of the El Segundo, California, sewage disposal plant for several weeks' work. It goes without saying that the completion of

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PHOTOGRAPHING "LOGAN'S RUN"

After having moved a camera through the organs of the human body, famed cinematographer Ernest Laszlo, ASC, thinks nothing of moving it through the bizarre situations he encounters in the 23rd century

Recording on film the atmosphere of a civilization predicated to exist 300 years in the future is a tall order. To do just that, MGM assembled for the production of "LOGAN'S RUN" a team of Hollywood's most highly skilled technicians, men of long experience and incomparable expertise.

Such a project requires not only artists and craftsmen with a vast fund of technical knowledge to draw from, but people who are willing to "jump off into the unknown", so to speak, tackling problems the solutions to which have

no precedents — people whose imaginations transcend the "tried and true" of the past.

Even among science-fiction films — which, by very definition, invariably break some new technical ground — "LOGAN'S RUN" is a far-out project. There are those who will equate its dazzling impact with that of Stanley Kubrick's stunning "2001: A SPACE ODYSSEY" — and with good reason. But in certain respects it goes even beyond that landmark film classic.

For example, whereas "2001" started

with current science-fact and extended it by technical logic 30 years into the future, "LOGAN'S RUN" conjures a society 300 years hence and deals in ideas that extend far beyond present realities into a realm of pure and vivid imagination.

In keeping with this extended reach into the future, such advanced techniques as holography, laser science and computerized graphics were melded with the conventional techniques of film-making.

Continued overleaf

(LEFT) Logan, a policeman dedicated to exterminating those who try to evade the law that limits one's lifespan to 30 years, and Jessica, a member of the underground movement determined to circumvent that law, begin to discover something they no longer believed existed — love. (RIGHT) Logan and Jessica, with an old man they have found in the outside world (Peter Ustinov), arrive at the hydrogalvanic system where wave power provides energy for the city beneath the domes.



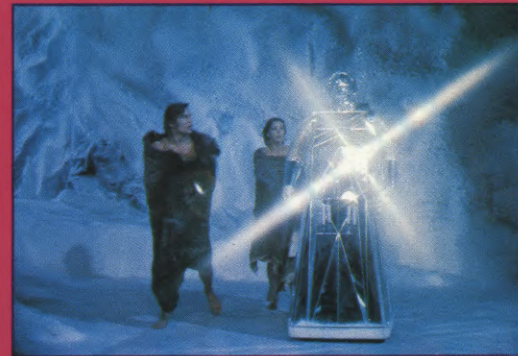
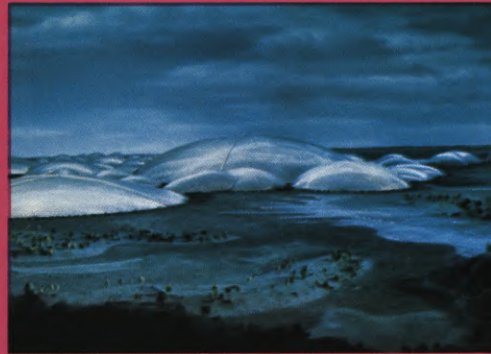
(LEFT) Beaten and dishevelled, Logan and Jessica begin a frantic bid for freedom through the arcade of the city. (RIGHT) As they continue their terrifying flight from the law that insists that they must die at 30, Logan fires a disintegrator gun at their pursuers. The gun is an ingenious prop ordered by Producer Saul David who wanted a gun that would shoot bursts of green fire. It contains a chamber with carbide and water to produce acetelyne gas, sparked electrically, with the flame passed through a flux to make it green.





(LEFT) A giant stylized hand with a glowing red crystal, symbolic of the crystals in the hands of all the city's inhabitants, glows red to remind them of their limited mortality. (CENTER) The same red glowing crystal, shown here mounted on the wall of the Great Hall, flashes on and off to let the people know that the Lastday death rite is about to begin in the Carrousel. (RIGHT) The atrium in the Dallas Merchandise Mart, with its multiple levels and escalators provided a stunning futuristic set for the film.

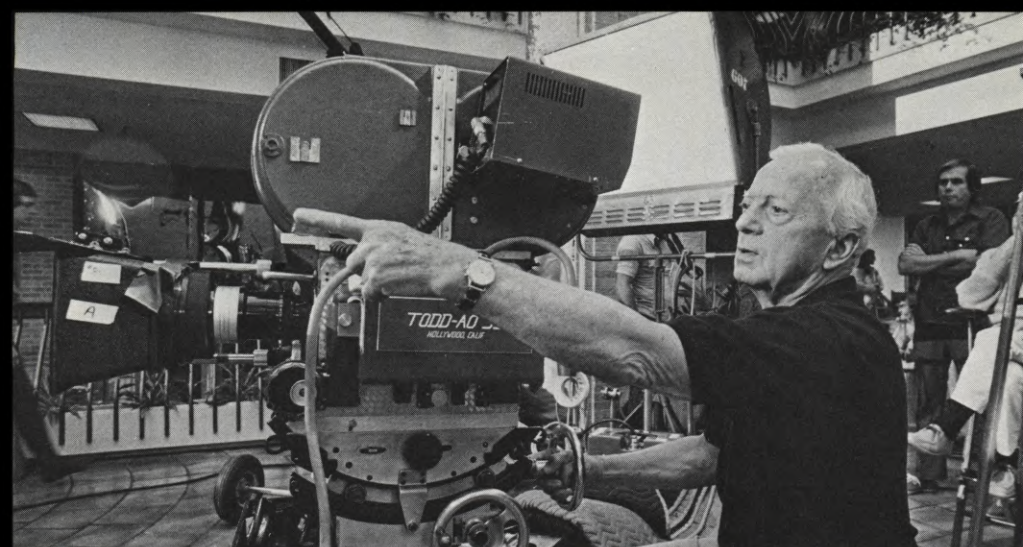
(LEFT) In the atrium, Logan and Jessica plot their escape. The enormous dimensions of this set, like other used during the filming in Texas, represented a stupendous lighting problem. (CENTER) A view of the outside of the domed city as the lovers look back at it during their flight. (RIGHT) They flee through the pipe-filled corridors of the underwater power complex, actually an unused former sewage disposal plant in El Segundo, California.



(LEFT) In their flight, they stumble into the ice cavern where food for the city is stored. The mad robot, Box, who tends it has decorated it with ice sculptures of birds and animals. (CENTER) A grisly sight. They see frozen in the ice the nude corpses of those who have tried to flee the city before them, but have ended up in the deep freeze. (RIGHT) Wearing animal skins to protect them from the subzero cold of the ice cavern, they come face-to-face with the diabolical robot (Roscoe Lee Browne).

Scenes inside the operating room of the New You, a painless instant plastic surgery emporium where the people of the city can go to change their physiognomies. The six-armed octopus-like machine that does the work was a tremendously intricate prop with all six arms animated and shooting out laser beams. At one point in the story it runs amuck and tries to kill, tearing the flesh and clothing of its intended victim and drawing blood.





Director of Photography Ernest Laszlo, ASC, checks a set-up on Dallas location for "LOGAN'S RUN". On top of the Todd-AO camera can be seen the monitor of the electronic viewing system used on the production. It was helpful to the director and producer, enabling them to view "instant dailies" via playback on the set.

Where does one find a Director of Photography with the skill, imagination and sense of adventure required for such a project? Fortunately, "LOGAN'S RUN" Producer Saul David didn't have to look very far, because he had worked with ace cinematographer Ernest Laszlo, ASC, on the filming of his wildly imaginative "FANTASTIC VOYAGE" a decade ago and had found that gentleman superbly capable of moving his camera through the arteries and capillaries (to say nothing of the heart and lungs) of the human body.

Add to that the fact that Laszlo is a classically trained veteran whose expertise is solidly founded on many years as Assistant Cameraman, Operator and, since 1944, First Cameraman.

His credits are far too numerous to list completely, but they include such outstanding productions as: "JUDGMENT AT NUREMBURG", "IT'S A MAD, MAD, MAD, MAD WORLD", "SHIP OF FOOLS" (for which he won the "Best Achievement in Cinematography" Academy Award) and "AIR-PORT".

During his lengthy career as one of Hollywood's top cinematographers there is almost no technical problem which Mr. Laszlo has not encountered — and solved, but he welcomed the opportunity of striking off into new and unexplored creative territory that "LOGAN'S RUN" offered. Of the experience, he says: "During my entire career I've never worked so hard on a

picture." But he also found it a thoroughly exhilarating adventure.

In the interview that follows, he discusses that adventure and some of the unique challenges which it presented:

QUESTION: Can you give me a bit of background regarding your assignment to photograph "LOGAN'S RUN"?

LASZLO: Well, of course, I had worked with the Producer, Saul David, before on "FANTASTIC VOYAGE", which turned out very successfully. So, when Mr. David gave me the script of this picture to read I could tell that it was going to be an exciting project — quite unique in many ways and extremely challenging. Since I love a challenge, I looked forward to working on it.

QUESTION: What sort of pre-production schedule did you have in order to plan your shooting?

LASZLO: Very little. I went to Texas twice to scout locations and make a final selection of the shooting sites we would be using. I came back on a Sunday and we started shooting in Dallas the following Wednesday — so you might say that I had two days of preparation. It was like that all the way through the production. Perhaps because the sets were so intricate and took so long to build, I usually didn't see any of them until a day or two before we were scheduled to shoot there — so everything was a big surprise. One of the things I liked so much about working with Stanley Kramer was that he always had his sets built a month ahead of time and he and I would take a script and plan our every shot right in the sets. That was a luxury we didn't have on "LOGAN'S RUN".

QUESTION: How would you describe the photographic style which you employed in shooting "LOGAN'S RUN"?

LASZLO: There were actually two styles — one for the action that takes place within the domed City, and quite a different style for the sequences shot outside the domes in natural sunlight. Inside the city the light is supposedly filtered and diffused by the translucent domes and the interiors are lighted from subdued artificial sources. So in photographing those sequences I had to use — not necessarily an extremely soft quality of light, but nothing harsh. On the other hand, once the characters leave the city and get out from under the domes, the quality of the light becomes harder and sharper, with somewhat less fill. This made for an effective visual contrast between the

With Director Michael Anderson and stars Jenny Agutter and Michael York, the cinematographer checks a couple of cats for photogenic qualities. These are two of the hundreds of cats who appear as the feline friends of Peter Ustinov in a sequence that takes place in a vine-overgrown set representing the U.S. Senate chamber 300 years in the future.



controlled, protected environment in which they lived and the raw "real" world they experienced when they got outside.

QUESTION: What would you say was your most challenging lighting problem on this picture?

LASZLO: The most difficult problem was lighting those vast buildings in Texas. The Great Hall in Dallas, for example, was longer than two football fields. It was such a tremendous area that I had to use 9,000 amps to light it — which required bringing in a special transformer. Hiding the lights was also a big problem, but there were a few large pillars that helped that situation. The place was so big that, even with 9,000 amps, I still had to force the film one stop in development.

QUESTION: Did you use a daylight balance in there, or were you shooting strictly with incandescent light?

LASZLO: We had both types of sequences. For daylight we could let some outside light come in and augment it with arcs, but for night sequences we used incandescent light and had to black out the skylights — which was quite a job.

QUESTION: Many of the sets in "LOGAN'S RUN" have large mirrored areas and highly reflective surfaces. What kind of problems did that cause?

LASZLO: In the Atrium, which is a very large structure, almost everything is mirrors or highly reflective metal. I think I spent more time getting the lights out of those mirrors than actually lighting the place, but I must say that it was worth it. The result is very, very effective. It looks great.

QUESTION: Did you use much colored light in shooting?

LASZLO: There's one sequence where I used it quite a bit, along with some other exotic lighting techniques. Logan and Jessica go into the Love Shop, where "free love" is the activity. Everybody is naked and so, most of the time, the lighting is kept quite low. We shot that in a private nightclub in Dallas called "Oz". We were shooting in there for three days and it was some job to light. Each lamp had to be hung separately and it was difficult to hide them. As I said, most of the time the light was kept low, but every now and then we would flash a bright light for effect, but not long enough to accentuate the nudity. In addition to colored light, we also used black light in there.



Between set-ups, Laszlo jokes with Key Grip Marty Kashuk, for many years a skillful and valued member of his crew. Far from being a straightforward assignment, the photography of this film demanded the most precise and intricate coordination with almost wall-to-wall mechanical and photographic special effects.

QUESTION: Black light has its own set of problems, doesn't it?

LASZLO: Yes. In the first place, it's not very bright and you really have to pour it in there and shoot wide open or you won't get anything. You wouldn't dare stop down. Secondly, because of its peculiar wave-length, it's very difficult to get any sharpness with black light. We used it also in the Sandman headquarters. There's another interesting sidelight about shooting the Love Shop sequence. Saul David especially wanted this to be something dreamy and beautiful and in good taste, so he hired a ballet master to choreograph the action. Then we shot it at 48 frames to accentuate the dreamy effect.

QUESTION: Can you tell me about shooting in the ice cavern set?

LASZLO: Well, it was an extremely

beautiful set. Dale Hennesy did a wonderful job in designing it, but by its very nature, it had some unique built-in problems. First of all, I didn't dare use anything like flat light in there because, in order to bring out the texture of the ice and snow, cross light was the only thing to use. However, again, there was no place to hide the lights. I had no choice but to chop a few holes in the ceiling and put lamps in so that I could get the required cross light. It was a shame to have to do that, even though we patched up the holes afterward. I must say that Dale was most cooperative when it came to any changes like that which I needed to have made. He and I were on "FANTASTIC VOYAGE" together and we're old friends, so we work together very closely and very well.

QUESTION: Did you get an oppor-
Continued on Page 664

Lining up for a close shot of "Lastday" candidates toggled out in shroudlike garments and death masks. After a short initial period, cast and crew members working on the film suspended disbelief and began to accept the screenplay's bizarre elements as reality — an attitude which resulted in an atmosphere of greatly enhanced realism on the screen.



BEHIND THE SCENES OF "LOGAN'S RUN"

By SAUL DAVID
Producer

"LOGAN'S RUN" is, in some ways, an amalgam of all the "future society" films that have been made before — but it is one of the most ambitious attempts to portray a future utopia that has ever ended up on the screen. It probably owes as much to the kind of thinking that went into *Brave New World* as it does to the novel *Logan's Run* because in making the picture we frankly used everything any of us had ever thought about in connection with this kind of vehicle. The result is that, while it has a lot of the linear action aspects of the novel, *Logan's Run*, passages that a number of people rather liked, it also has the more thoughtful overtones of some of Huxley's ideas about what the future might be like.

One of the things that I had hoped to

do in this case was make a "future world" picture that didn't owe anything to Fritz Lang. That's harder to do than one might think because if you give an artist a script of "LOGAN'S RUN" and say: "Visualize something like this for us." — you'd be amazed; it always comes up "METROPOLIS". That picture made such an indelible impression on the minds of the whole Western world, that nobody can think of portraying the future except in terms of towers connected by ramps. By way of contrast, in designing this picture, we set out to incorporate many of the things that people are actually thinking about today — wide open spaces, parklike areas that are ecologically perfect and pleasant, a lot of green visible — that kind of thing. With that in mind, we made our city of the future one

which, for the first time, doesn't owe anything to "METROPOLIS".

By the same token, we tried to get away from the essentially German *Bauhaus* design styles that were part of that film — the strongly cubistic, rectilinear kinds of structures. What I asked for was the kind of design that ones sees currently being created out of stressed concrete — the sail curves, and that sort of feeling. The effect that can be achieved with canvas pulled tight by cables makes a beautiful curve and we were looking for shapes of that kind to make the picture visually unusual — one that didn't look like everybody else's picture. Having said that — and having taken my hat off to Huxley — what we have actually made is a fantasy-adventure film.

In point of fact, I don't know any

The MGM production of "LOGAN'S RUN" deals with a society 300 years in the future in which (LEFT) the inhabitants ride in sleek "maze cars" which whisk them through tunnels from one part of their domed city to another, (CENTER) a place known as the New You where instant plastic surgery can change any or all of their features, and (RIGHT) where those who rebel against the rule of being liquidated at the age of 30 are relentlessly hunted down and killed by special police.



(LEFT) In the Great Hall, which is a central gathering place for the citizens of this Utopia, a huge red crystal glows, symbolic of the crystals in the hands of each person that indicate their life span. (CENTER) When Logan shoots the computer, the crystal explodes. Extras in the scene did not have to simulate panic, because the crystal caught fire — an effect which was not in the script. (RIGHT) On "Lastday", a doomed citizen, floating in a force field above the Carrousel, explodes in a spectacular flame-out.



more about the future than anybody else does. I have the same share in it that everybody else does — but that's it. When you make this kind of film, depending upon your wit or your temperament, you extrapolate from what you've got in the present to what you think may happen in the future. In other words, you take all the tendencies you see around now — juvenile delinquency, sexual license and you-name-it — and you project those things to the future, simply exaggerating them. As a matter of actual fact, a man living in 1576 could by no means have extrapolated 1976, so our guesses are likely to be very far off, but they are illuminated by our ideas of what is entertaining — and that's really it.

We have a chase through this distant, beautiful and alarming future and, for once, it comes out relatively optimistically. We come down strongly on the side of freedom and happiness — which is not to break any new ground, but it is unusual in a science-fiction feature. I think, and hope, that we have made an exciting, thought-provoking "fun" picture — the kind of movie I used to go to see when I was a kid that let you out of the theater feeling that there was champagne in your veins and that you'd had a very full heaping on your plate. That's really the kind of picture that we hope "LOGAN'S RUN" is — but the ticket sales will tell us if we're right.

As for the origins of the project, my involvement with the material goes back very many years, because it was first brought to me as a publishing venture. At that time, I didn't think all that much of it and I suggested to the authors that they make a lot of changes — which they didn't make. Instead, they sold it to somebody else. Coincidentally, I was later serving at MGM as Executive Story Editor when first George Pal and then Irwin Allen wanted to make the picture, and I tried to assist them in getting it made. In the course of trying to do that, I wrote several of the essays executives write (saying: "Here's the way you should do it."), and which are greeted without enthusiasm by picture magnates. But when the other deals came apart, Dan Melnick said to me: "Well, why don't you make it the way you keep saying it should be made?" And that's really what happened.

What I did was apply to the novel those criticisms and judgments I had made all those years ago. All this has a surprisingly happy ending, because Bill Nolan, who is one of the authors of the novel, has read the script and approves the changes. That's not what you usually hear from a novelist, and it's very gratifying.



Associate Producer Hugh Benson, Producer Saul David and Director Michael Anderson take a break on the set of "LOGAN'S RUN". The highly imaginative science-fiction spectacle is an almost wall-to-wall maze of intricate special effects and required the unique talents of many of Hollywood's top technicians to bring this special magic to the screen.

In any case, because I had thought about the project for a number of years, I had a kind of structure for it in mind. The novel is extremely episodic, very linear, and people just go from one thing to another without any particular reference to where they came from. Most pictures can't work that way — so the design of the picture is much more compact. It has a real three-act struc-

ture — which is the major transformation I made in it. That meant discarding a number of things in the novel and substituting other concepts — which is where Mr. Huxley came in. I guess it's safe to say that I lifted liberally from his ideas.

Beyond that, this kind of picture offers a peculiar challenge in the making. **Continued on Page 674**

In addition to its many other challenges, "LOGAN'S RUN" proved to be an exercise in staggering logistics. On Texas locations, as many as 700 costumed extras were used in a single sequence, but, according to Producer David, "They were happy; they wore the clothing like they meant it, and we didn't have any of the problems that usually come up when you have masses of people."





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VISUALIZING A LIFESTYLE 300 YEARS IN THE FUTURE

By **DALE HENNESY**
Production Designer

The challenge of designing a total environment for an age three centuries to come required the application of unfettered imagination to existing forms, and then projecting them far beyond current reality

The basic challenge to a Production Designer is to establish an overall visual concept for the picture, based on the script, before attempting, through sketches, to design the individual sets. In the case of "LOGAN'S RUN", this procedure ran a course of many changes from the original starting point.

Because of the demands of the scripts and the scope of some of the concepts that were conceived set-wise, it became a question as to whether we would have enough stage space to do it correctly. We were given a lead on some interesting architectural structures in Dallas and Houston, so the producer, Saul David, and I took off on a survey of the incredible buildings in the World Trade Center down there — the Merchandising Mart, the Furniture Mart and the Apparel Mart.

One room, which they call the Great Hall, is bigger than any sound stage I've ever seen. They use it for fashion shows and dinners and it has a very strange look about it — so truly unusual that the moment we saw it we knew it could really work as a kind of springboard for the basic look of the film.

Then, about half a block away, but in the same building, we were taken to another room which we found to be entirely different. It was all sort of abstract, with mirrorized, chrome and polished surfaces — a very super-

looking room. Those two rooms, together with another in a building about a mile down the street, gave us a kind of key as to what the visual character of the picture would be. For example, based upon the one room which had all the mirrors in it, we ended up "mirrorizing" the whole show to give it a kind of reflective quality.

As a result of what we had found in Texas, we were able to come back to the studio and develop all the other sets to tie in. In addition to designing the basic sets, it was my responsibility to design all basic props (such as guns of the future), the miniature city, and exotic vehicles — such as the little maze cars that traveled back and forth through the city, and a little air car flown by the "Stickmen" characters in the film. I'm extremely proud of the sets.

As a Production Designer you also get involved with the story concept, working with the producer and writer, making suggestions and helping to make changes — hopefully, for the better. We had a super team.

"LOGAN'S RUN" was a difficult picture to do because it involved many moves and a great many special effects. Among the sets we built on the stage was a giant headquarters for the Sandmen, the police of this future society. It is a vast futuristic room where computers monitor the life

cycles of the people who live in this controlled environment. When our hero returns from an excursion outside the domed city, realizing that there could be more to life than dying at the age of 30, he shoots at the controls in the room and it begins to self-destruct. To see a beautiful set which I was very proud of being blown up kind of broke my heart — but it was necessary to make a story point.

All the way through production I was closely involved with Glen Robinson, who did a fantastic job with the mechanical special effects. I worked closely with him to design the set elements so that he could get in behind them and plant his charges for the flashes and explosions. In a film like this that has so many effects, it's not simply a matter of building a pretty set and walking away from it. You really get involved.

An interesting sequence develops when the young couple featured in the story manages to get outside the domed city and into the "real" world. They make a trip through real sunlight and wind and mud and rain — things they've never seen before in their controlled environment. They arrive at what was Washington, D.C., but it is now completely overgrown, like Angkor Vat, and nothing is alive there. They stumble into the Lincoln Memorial, among other places.

Due to some new regulations we weren't allowed to shoot in Washington, so we took photographic blow-ups and painted our own version of the city overgrown with vegetation. These paintings were used to make matte shots. We designed only a small portion of the set for shooting on the stage. The matte artist took over from there and matched his painting to what had been designed. Then the two were composited to show the couple coming into the Lincoln Memorial. It's a marvelous sequence, with him up there in his big chair and the vines growing all over. We worked with matte shots like this and trick effects all through the picture and it was a lot of fun, as well as being quite a challenge.

The Great Hall in Dallas which I mentioned was represented in the film as a central plaza where the people would gather. At the end of the hall we erected a giant crystal, which symbolized the life cycle indicated by the crystals in

The first image one sees on the screen in "LOGAN'S RUN" is a series of shining domes which encapsulate the brave new world of a future city-state. The world outside has been abandoned, and the totality of life and environment within the domes is controlled by computers. Designed by Dale Hennesy, these model domes take on reality through the movement of actual miniature clouds created by a special process.



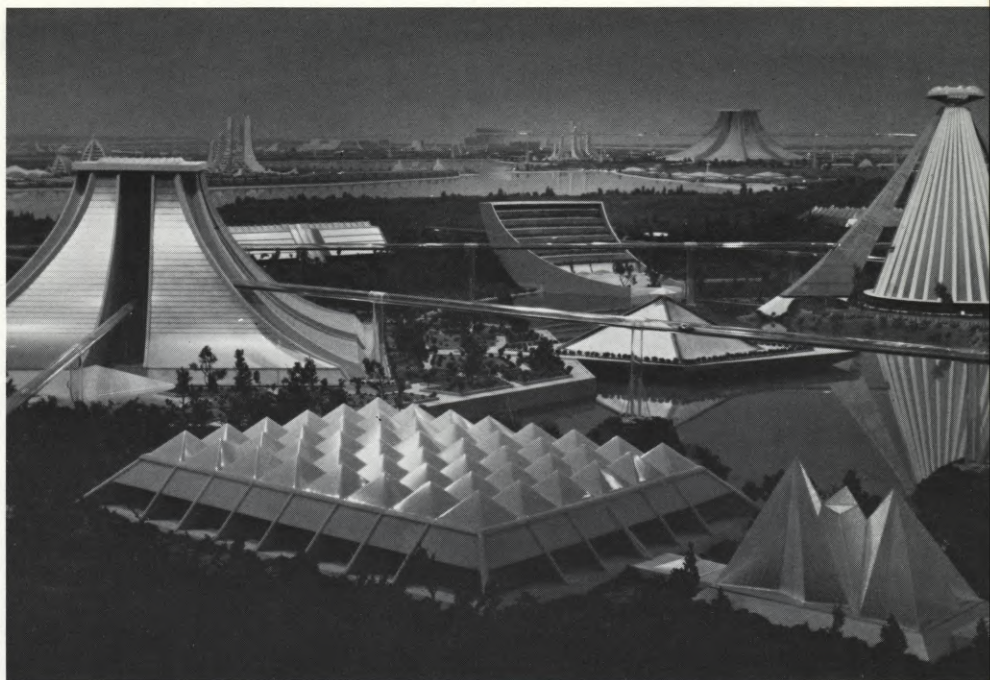
their hands. When that crystal began to flash it told the people that the Lastday ceremony at Carrousel was about to begin and they would all move toward the end of the Hall. As they turned the corner, we cut to the Carrousel set which had actually been constructed on Stage 30 at MGM Studios. The tie-in is very smooth.

In another sequence, the "runner", who is trying to escape from the Sandmen police, is shown running through two buildings in Dallas. We then cut to the Hyatt House in Houston, where he rides down on one of those fantastic elevators. Next he is in the Hall of Nations in Dallas, where there is a fabulous sky-lighted room with a strange black pool in the center of it. He tried to escape from there down a corridor, but is forced back. The Sandman shoots him and he is blown back into the pool. All this is continuous action taking place in three Dallas buildings and one in Houston. Those rooms are incredible. I could never have built them in the studio without spending two-and-a-half million dollars on them. As it was, the Art Department budget for sets was slightly over a million dollars and we came close to hitting it right on the head.

One of the most difficult sets ever constructed in Hollywood was the ice cave set which we built at the studio. The main problem in a set like that is always one of getting the breath to be visible. To this day I don't know of anyone who has found a way to make the breath visible, so that it really looks cold. We had thought first of building the set inside a commercial ice house, but, as it turned out, you can only work in there for about 10 minutes before everything starts to freeze up — so we had to forget about that.

It's a marvelous set, a world of ice where this crazy mechanical man, Box, lives and sculpts wonderful fish, a walrus and seagulls. Those were all constructed out of fiberglass and break-away glass, so that we could drop and smash them when Logan destroys the ice cave. For the main structure of the ice cave we used primarily large fiberglass panels in ice-formed shapes. You could bounce light through the back side of them to give them a sort of icy, crystal look. It was a very tough kind of set to design, because it didn't have normal ice block walls like the Army uses for construction in the Aleutians. It really was a fantasy ice world and we tried to faithfully reproduce it from the description in the original novel. It came off very successfully. I was very proud of it and, again, I was really sorry to see it destroyed.

The New You establishment was



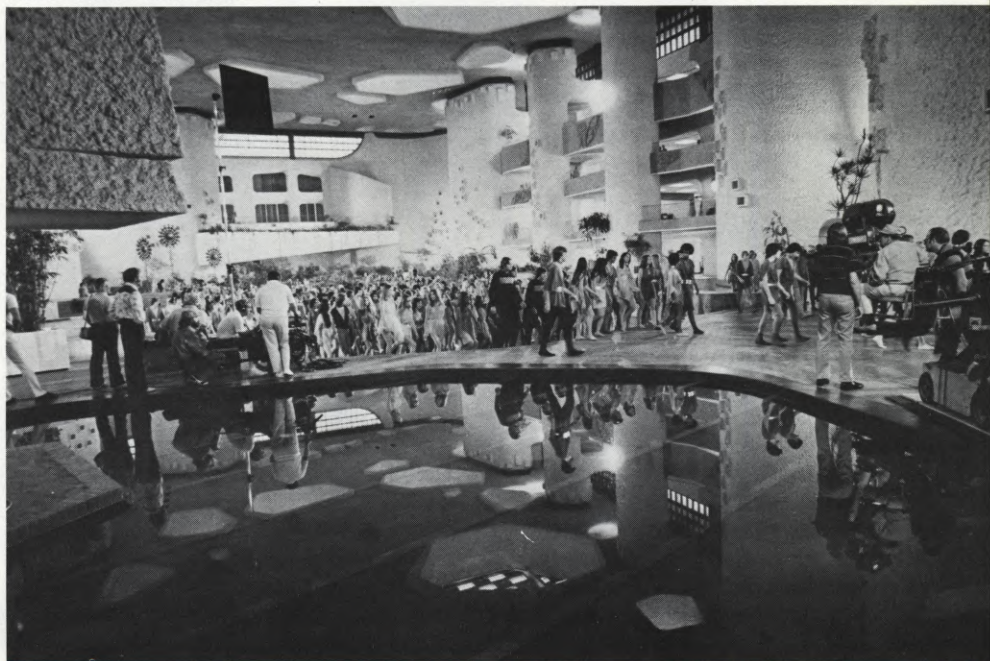
The city itself, as it appears under the dome is a beautiful place of parklike areas, green belts and graceful, colorful buildings. The architecture is based on curved lines, eschewing the cliché "METROPOLIS" look, with its Bauhaus-influenced cubistic, rectilinear structures usually seen in futuristic science-fiction films. The design of "LOGAN'S RUN" owes nothing to Fritz Lang.

another interesting set. In the society portrayed every person can have anything he wants and everything is always just beautiful. If you're not happy with the look of your nose or you want to change all of your facial features, you go to the New You. There's a character there named Doc and he has this incredible laser beam kind of octopus thing (which we designed) that comes down out of the ceiling. He puts you on

a table and, within seconds, can change your entire facial structure.

In designing the New You set, I remembered having seen a picture of a neon entryway — I forget just where I saw it — and that sort of triggered me off into this mirrorized neon look, and that's how we ended up with the concept that people living in this society can always see themselves in reflected
Continued on Page 670

Shooting scenes for "LOGAN'S RUN" inside the vast Great Hall of the Dallas Apparel Mart. It was this structure, encountered on a location scouting trip, that set the keynote for the design of the basic architecture of the film. Production Designer Hennessey says: "One of the fun things about designing for film is to see what you can find on location and then tie it in to studio sets." That approach on this film saved approximately one-and-a-half-million dollars in set construction costs.



MAGIC FOR THE 23rd CENTURY

Snorkels, lasers, holograms, computer graphics, matte paintings, double printing and a few things never tried before blend to bring a society not yet born to life in credible fashion on the screen

By L.B. "BILL" ABBOTT, ASC

The special photographic effects for "LOGAN'S RUN" are concentrated mainly in three sequences: (1) the Carousel, (2) the exterior and interior of the futuristic Domed City, and (3) Washington, D.C., which at this date, 300 years in the future, has deteriorated to a vine-covered rubble similar in its overgrown state to Angkor Vat.

Most of the shooting on the miniature city was done with the Kenworthy Snorkel System, which gave us great fluidity of camera movement and made it possible to get a low horizon on a small miniature.

In the opening of the picture we see a long shot of the domed city at night, with light glowing through the domes. We push in toward one of the larger domes and do a sort of white-out dissolve, as if going through the dome into the interior of the city. The camera then carries on across to show the whole miniature set of the city. In the city are little maze-cars moving through transparent glass tubes. We moved them at a rate that seemed correct for cranking at 24 frames per second. After scanning the entire city, the Snorkel camera picks up on a single maze car and follows it into a building. At this point, a cut is made to the full-size set, where a fellow jumps out of the maze car. He's a "runner" trying to escape from the domed city, but he's caught and shot. It makes a very interesting

opening for the picture.

I had never worked with the Snorkel before, but I found it to be a very good piece of equipment. When you put the anamorphic lens on it the working aperture is f/11 at 24 frames, so you have to use an unusually high light-level in order to balance to that kind of key. There was no problem when we were outside the dome, because the only movement involved was that of the camera and the clouds in the sky above the city.

A grip rides the arm of the Snorkel in order to manipulate it and he has a monitor through which he can view the scene. The grip we had was very good at it, so the whole sequence was shot quite easily.

The exterior and interior of the domed city were small-scale miniatures. The exterior was about 1/400 full size and the interior was about 1/48 full size.

There were four spots in the sequence of the miniature city where we matted in people. We made specific shots of the miniature design so that we could put people onto the walkways. Then we went up to the Sepulveda Dam, where they have a large concrete area and we shot the people on the concrete, later matting them into the miniature shots. Having the miniature to line up on, we could place the people where we wanted them. We did

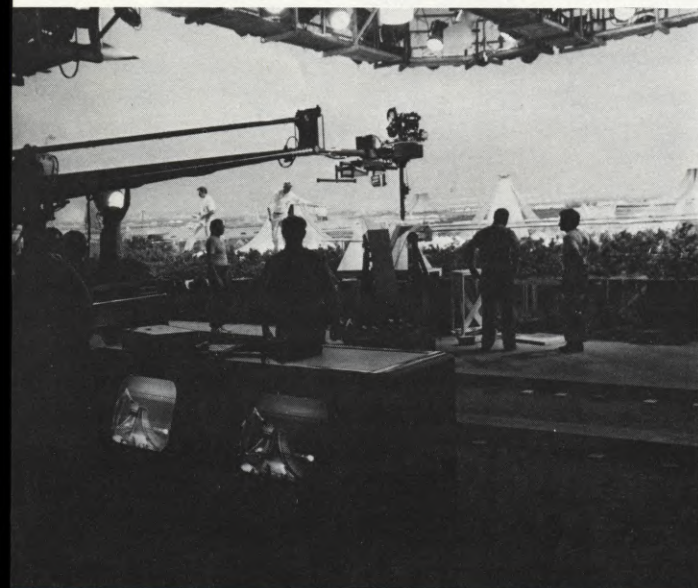
this using a rather new technique. We shot them normally, of course, and then made a combination, using the CRI method. In other words, their surround was white, which made it possible to burn the people into the CRI of the miniature, after having lined them up properly. It was kind of like a traveling matte, where you have an oblique angle and they are backed up by bushes and trees, with some bushes in front. You make a matte for the bushes that are in front and then you use a hold-out while you are printing the miniature set, later filling it back in with the negative.

These were pretty long shots and they seemed to work alright. The challenge in shooting a miniature is to keep it from looking like a miniature. To solve this problem, in several instances, we shot people against a blue screen and then put them in front of the miniature city. There were maze cars moving in the miniature and, in a later sequence, explosions going off and lights flashing, so you had the feel of them being in a live city.

We had a wonderful backing to simulate the dome and we had two modes of lighting: one for night and another for day. We changed modes simply by turning the lights on in the buildings and cutting the overall light down — and vice versa for day.

For filming the sequence that takes place after Logan shoots the computer

(LEFT) Shooting miniatures inside the city for "LOGAN'S RUN", using the Kenworthy Snorkel-B mounted on a Chapman Titan crane. This ingenious device permitted extremely fluid camera movement at "ground level" in the small-scale model. (RIGHT) Dick Deats, a grip highly trained for this specialized function, guides the Snorkel through the miniature city. The Titan crane made it possible to suspend the lens tube more than thirty feet from the chassis into the model.



and the city begins to explode, we had to get off the Snorkel and settle for higher lens angles, switching to conventional high-speed anamorphic lenses to permit cranking at five times normal speed. The accelerated frame rate was necessary because the miniature had been designed to such a small scale.

One of the techniques we used to get an effect in "LOGAN'S RUN" was rather unique. Early in the picture a runner is killed by a Sandman, who then calls on his walkie-talkie to ask for a "cleanup" in the area. A couple of fellows called "Stickmen" come riding in on strange jet-propelled vehicles that squirt smoke out the back and they are supposed to spray the dead figure with a substance that dissolves it down to a residue of crystals, which they then vacuum up.

We tried using laser beams to achieve the effect, but it wasn't satisfactory. Then somebody in the Mill Department at MGM advised Saul David that if you make a figure out of Styrofoam and then spray it with certain chemicals (I think we used a combination of methane and ketone) the Styrofoam figure will just melt away. We ended up by using that technique to make a transition from the real "corpse" to the Styrofoam duplicate, which just melts away, leaving a residue of crystals.

The scenes shot in what is supposedly a vine-covered, deteriorated Washington, D.C. of the far future were created through the use of a conventional matte process. Prior to the start of production, illustrators drew up sketches of the needed scenes and, using these as a guide, one of the artists went to Washington and had matching 4x5 color stills shot. These were enlarged and mounted onto masonite boards to provide the matte artist with a base onto which he could add the necessary deterioration — rubble, vines, etc. They also served as a means of making line-up films to enable us to photograph the people to the correct size and position within the composition of the scene.

For example, for the scene in which we see a side view inside the Lincoln Memorial, with Logan and Jessica looking up at the statue of Lincoln, we had on the set in the studio a piece of column about 10 feet tall, a patch of floor (laced with vines) and about 30 feet of ivy-covered wall. The rest of what appears on the screen came from the still photograph shot in Washington.

In the long shot of the entire exterior of the Memorial, where they are seen going up the steps, we built a section of



Scenes of the miniature city are filmed with the Snorkel-B, while the video console is watched to check the camera movement. (Left to right) Operator Al Myers, Director Michael Anderson, Special Effects expert Bill Abbott shouting instructions to people on the set through a bull-horn. The Snorkel tube can be seen in the background.

steps big enough to back them up, photographed that piece, and then inserted it into the overall photograph-painting of the structure.

The matte process was used in several other sequences of the picture. For example, when Logan and Jessica are fleeing from the domed city they pass through what is supposed to be an undersea complex, with large glass ports through which they can see fish swimming in the ocean outside. The basic scenes were shot in a former sewage disposal plant that is no longer in use. The final scene in the script called for a glass port filling one entire side wall and another port taking up the end wall, as well as a pool of dark water in the foreground.

We bought some conventional, inexpensive aquariums from a store and rented some fish to put inside them — fresh water fish like gars and others that could be made to look like deepsea fish. I put the aquariums up on five-foot parallels in order to get the correct lens-height. I made a line-up shooting down the side of one tank, with the other tank at the end, and cranked the scene at four times normal speed, figuring that, in terms of a 1/16th scale, this would make the fish move as if they were 16 times larger than their actual size. We also made a painting to take out what we didn't want and paint back in what we did want. For the dark pool in the foreground, I made a shot of a swimming pool and matted that into the proper area.

We used mattes also to extend the

scope of the fantastic Water Gardens filmed in Fort Worth, Texas. We added on to the structure itself and also filled the background with open ocean.

I'd like to say a word about the advances in matte painting that were applied in "LOGAN'S RUN". For years we have used as much photography as possible in creating matte paintings. For example, if you had a shot of a Western town and you wanted to put the snowcapped Canadian Rockies behind the town, you would get a black and white photograph of the mountains and blow it up to a large size (so that the matte painting artist wouldn't have to paint the Lord's Prayer on the head of a pin, and could work in a scale compatible with the size brushes he wanted to use).

Having this photographic base to start with, he would qualify it by, perhaps, putting the snow on the mountains. Then, if the scene was in color, he would glaze the photograph in the proper colors. Today, the matte artist starts with a color enlargement of these same mountains and he doesn't have to color it in. He simply augments it by adding the snow, for example, just as our artist added the overgrowth of vines to shots of the buildings made in Washington.

Skilled matte painting artists are very rare. There's only a few of them around anymore, but when you start them off with reality, so to speak, and they simply have to qualify or embellish it, you've got a winner right off the bat.

Continued on Page 676

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MECHANICAL SPECIAL EFFECTS FOR "LOGAN'S RUN"

The technologies of hydraulics and electronics combine with a far-out imagination to work wizardry in making a 23rd-century utopia come excitingly alive on the screen

By GLEN ROBINSON

I had just completed work on "THE HINDENBURG" and had been planning to take a couple of weeks off when I received a call from MGM to work on "LOGAN'S RUN". The man who had been assigned to it had left the project and they asked me to take over. They hadn't started to shoot yet, but were in the planning stage.

What appealed to me about the picture was the challenge that it presented. According to the script, there would be many things in it that would be hard to do, and I can't resist that kind of challenge. So I came aboard.

I didn't have to wait long for the challenge to hit me with full force. What they wanted was a device called "the Carousel", a huge turntable with movable metal leaves around the edge and a big crystal in the middle that would revolve in synchronization with a similar crystal high above. To make it more complicated, they wanted people to levitate upward from this thing, supposedly propelled by a force field. When I was asked whether we could do it, I said that I thought we could if we approached it in a good manner mechanically.

When the idea was brought up in a meeting originally, they didn't think it could be done. They didn't think they could fly more than two or three people at a time, whereas the script called for 15 to 18 people to be in the air at once. They had thought they would just magnify that and do it in miniature. But right off the bat I was sure we could rig a wheel and fly all those people. We would also make a wheel underneath with hydraulics for the leaves. By attacking it that way mechanically, we could put any number of people in the air with reasonable safety. By "reasonable safety" I meant how much weight the stage would carry. We determined through calculations that we could put anywhere from 25 to 30 people in the air at once, and we made provision for that number. However, we found out through tests later that so many people would make it too busy for the special photographic effects Bill Abbott had in mind to superimpose. So we cut the number down to 18.

The detail of how it was done is quite interesting, because we had to synchronize the wheel at the top of the stage with the wheel on the bottom, which meant that we had to power them from the same source and carry a cable



Special Mechanical Effects expert Glen Robinson, shown here at the control console for the giant "Carousel" set in MGM's "LOGAN'S RUN", was part of the team that won Academy Awards in Special Visual Effects last year for "EARTHQUAKE" and again this year for "THE HINDENBURG". He had basic training for this science-fiction epic when working on MGM's "FORBIDDEN PLANET" 20 years ago. He is currently building the 40-foot electronic-hydraulic monster that will play the title role in the Dino DeLaurentiis remake of "KING KONG".

or belt to both. Locating the proper motor to power them was a second problem. At one time MGM had on the lot motors and winches to turn a merry-go-round, but they'd since been sold in the auction. Because such things are very expensive to buy, I determined that we'd just get into something simple. I figured out the horsepower needed and decided that we could do it by overlapping the power from a group of inch-and-a-quarter drill motors,

mounting them in series and controlling them with a Variac. We tried it with 16 motors first, but found that we needed only 12.

We had to carry sufficient power through commutators to run the motors and the hydraulic pumps for the leaves, in addition to at least 300 amps for lighting. That meant that we had to run down another commutator. By hooking the bottom wheel to the top by cables through a series of bogie wheels, we

A far cry from the lovable "Robbie the Robot" of "FORBIDDEN PLANET" fame is Box, the mad mechanical monster of "LOGAN'S RUN". Whomped up in a hurry, it had small motors to make it go and disc brakes to make it stop. Inside the casing, actor Roscoe Lee Browne, wearing a mirrored mask, could control the speed with his foot, and his knees could control which way the robot would turn.



could run the top wheel also. Our electricity was transmitted down from the top wheel by another commutator and from there we just made up a series of winches. I made the drums on those winches to fit the drill motors and I rigged disc brakes in a system whereby we could always freeze a particular drum in case something should happen. In other words, if somebody was overriding his limits and we shut off the power, the disc brakes would go on immediately and stop the people at whatever height they might be.

All of this was controlled from a control box located about halfway between the top and bottom and we could individually control each person who was flying. I worked the master controls that fed the electricity to the fliers and controlled the hydraulics, as well. I also had safety battery switches I could shut off in case anyone was off his mark. I had another phase where I could override by stopping everybody and freezing them at the same altitude. As a back-up, in case I failed, there was another man who had a deadman's switch with which he could shut off all the power to the winches. For example, if one of the fliers went too high, that could be dangerous, in which case he would push a switch and cut off all power to the winches. The disc brakes would freeze and the flier would be lowered down to a height where there was no more danger.

In the script these fliers were supposed to flame out as they went up. In order to get that effect, we rigged little explosive charges onto each flier that could be remotely controlled. We added other explosives that gave off a field of sparks to produce the illusion that there was an electrical short. When the electrical voltage hit them they would appear to disintegrate. It worked out quite well and was very spectacular.

We had some other large-scale effects, too, such as the breaking of the flume in the pits and the blasting of the control center. We simply blew it all up with explosives.

The flume sequence I mentioned refers to an undersea complex where Logan is being chased by the Sandmen. When one of the Sandmen tries to blast Logan, he hits some of the tanks that release the flow of water from the ocean. It comes roaring into the locks.

We shot the actual washout in the studio and we built a large tank with a big gate, which was hydraulically controlled, so that we could dump the water in and wash the people into another area where they could escape up an elevator into the ice cavern.

For the chamber where the water



The mechanical masterpiece of the picture is the giant Carrousel set, which required that a huge crystal on the floor and another high up in the ceiling be able to revolve synchronously, while condemned citizens of the Domed City levitated in a "force field" to desperately bid for life renewal. Eighteen stunt people were "flown" on wires simultaneously for this stunning sequence.

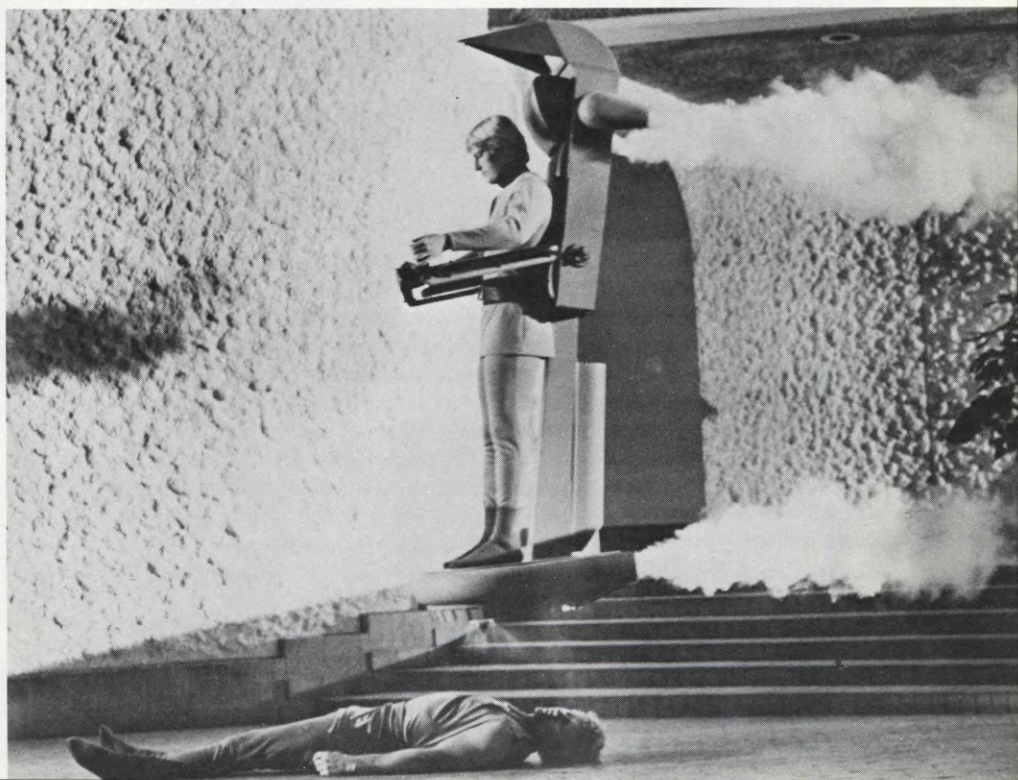
came through and washed them away, we put up large windows made of Lexan, which is a very strong Plexiglas. It's really tough and I was surprised at the strength of it. The Lexan was only about 1/2-inch thick to contain six feet of water, but we had no problems at all, even though it was a very large window. Usually, when you're dealing with that much weight, you have to use inch-and-a-half tempered glass.

For the opening sequence in miniature, where the Snorkel comes down toward the domes of the city, we were able to create real miniature clouds. We didn't think we could get them, but we did. We made them with some

equipment that we'd had experience in using on "THE HINDENBURG" and we were able to make billowing cumulus clouds to scale. The Snorkel camera comes down and goes right through those clouds. It looks very realistic.

Dale Hennesy did an excellent job of designing the miniature city and it tied right in with some of the buildings in Dallas. In the final sequence of the picture, Logan comes back to the city and shoots the life-clock computer and that starts the whole thing breaking up. Part of that was shot in Dallas, where we dropped things on people and had fires and explosions and some pretty good disintegration started. Then the same action carried over into the

A "Stickman" jets in to liquidate the corpse of a citizen killed by the police while trying to escape from the city. He is riding an airborne vertical platform, complete with air-polluting exhaust. On location in Dallas, the wires "flying" these vehicles were triangulated to permit motion in any desired direction. This is one of several types of fanciful vehicles created by Robinson and his staff for the film.





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Warren, Mich. 48093

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Edina, Minn. 55410

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Missouri

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Kansas City, Mo. 64124

The Mechanical Eye
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Kansas City, Mo. 64108

West End Diving & Salvage
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Bridgeton, Mo. 63044

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Billings, Montana 59102

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Cliffside Park, N.J. 07010

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Madison, Wisc. 53704

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W. Allis, Wisc. 53214

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Waukesha, Wisc. 53186

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218 N. Bridge Street
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Wisc. 54729

miniature, with the whole city blowing up. Of course, when you have a miniature of that small of a scale, you also have to scale down your explosions to match. You use a combination of various explosive materials to get the effect. One of these is called a "pocket match" it is a raw match that creates a little explosion when it's lighted. You string them together about an inch-and-a-half apart and use zirconium flash powder to make the fuse burn like a firecracker fuse. We used other kinds of explosions and dust and little benzol fires. There's quite a variety of types of fire you can get, depending upon what you burn. For example, if you burn benzol you'll get a very thick type of flame, but if you use alcohol it's lighter and you can see through it. It makes a lot of difference in a miniature. Then, of course, you have to overcrank at a suitable speed to make the effect look real.

The "maze cars" used within the city for transportation were interesting. The maze cars in the miniature ran through the entire set and were enclosed in three-inch Plexiglas tubes with chains running through them. They were little streamlined cars and we also built some of them to full scale so that the actors could ride in them. They go pretty fast. We used them running off electric motors or pulled them with a winch, or they could be pulled by hand. We had three ways to go. They were very well designed and looked like genuine little modern cars. In one sequence we burned a couple of them, with stunt people on fire jumping out the windows. It looked good.

The robot in the film was kind of fun to work on. It was something Mr. David wanted made up in a hurry and we got it done. I got some drill motors (and, of course, you can use AC or DC to run them) and put them inside the robot. I also put in disc brakes, so that the person inside could control the speed of it with his foot, and his knees could control which way it would turn. He could go forward or in reverse or turn to the right or to the left just by using his knees. His hands were left free out in the open. The main objective was to get enough power and traction. To keep the man from falling over, we designed the base so that it was pretty heavy.

Another thing that Mr. David requested was a futuristic hand-gun that would shoot green fire and look like it had a lot of force. It sounded simple, but it really was hard to do, because you couldn't just put in a shell and get what he wanted.

Several men worked on that problem, but the one who really solved it was a very sharp gun-man from 20th
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Fujica CineCenters

THE USE OF HOLOGRAMS IN "LOGAN'S RUN"

A feature film about the future is a fitting vehicle to bring to the screen for the first time an exciting new technique which may well be the forerunner of future television and motion pictures

By STRAWBERRY GATTS

As I understand the story, it all began with Producer Saul David's son seeing a hologram called "THE KISS", which was on display at a kiosk advertising Orgone Cosmetics in The Cannery in San Francisco. Thinking his father might see a way of using it for his upcoming science-fiction film, "LOGAN'S RUN", he told him about it. Finding that Wilder's was the company that owned Orgone, the contact to make holograms for "LOGAN'S RUN" was made through them.

A few weeks before, I had been in San Francisco shooting film for, and learning the printing of holograms at, the Multiplex Co. This was the company that had made "THE KISS". I noticed on the bulletin board a newspaper article on Multiplex. The article was illustrated with a live model standing beside the "KISS" hologram. I felt that the hologram registered in a very interesting way, even though the photograph was on poor-quality newspaper print.

I decided to do some sort of registration experiments. The first opportunity came in the form of 1/2" black and white video equipment. In the course of playing around in the studio, I turned the cameras on the row of holograms on display, and was amazed at the way they recorded — not entirely 3-dimensional, but not 2-dimensional either. I then put turning 360° holograms in front and turning 120°s behind them. Amazingly, each image retained its own identity. Lloyd Cross then stuck his hand inside the revolving 360°s to illustrate how the holograms recorded with live action. The result was very eerie.

By the time Saul David expressed an interest in the holograms, this tape had been mostly erased. On seeing the few remaining feet, he decided to use them for a scene in the film.

In talking with Director Michael Anderson, I found they wished to use the holograms in a scene where Michael York is separated into six different personalities, while still appearing as one individual. In the script I read, the author had proposed using something like six glass figures, but on seeing the above tape, decided holograms would be the perfect effect.

The scene consists of a "live" Michael York being captured by the police and taken to a chamber where a computer that has control of the con-

sciousness of the whole population is kept. The computer is also used to divide the personalities and then cross-examine each psyche of a captured runaway.

They decided to use six 360° head shots of Michael York saying the six truthful phrases that eventually break the power of the machine. I matted the lower part of his body with black velvet so that his head appeared to be a floating Greek bust. Lloyd Cross and I worked on the shooting. We got 18 takes in three hours, of which six would eventually be chosen. Since holograms are silent, Michael mouthed the words so the sound could be synched in later during the filming of the scene.

When a hologram is filmed as the subject in a scene, the angle at which the camera is placed is critical, since to view an image clearly, one must be within a certain viewing area. This is because, in order to see an image, one first has to illuminate the hologram with a 100-watt lightbulb, reconstructing the light waves as they were during the printing process. This reconstruction is what makes the image appear. The image appears, not in natural tones, but as a rainbow-colored image because the hologram acts as a prism breaking the illuminating white light into the basic hues of the spectrum. One may move up or down within a certain area to create the particular color desired for the image, ranging from violet to red. To create motion, the 360° hologram is mounted on a cylinder and rotated.

To make a Multiplex-type hologram, a black and white 35mm motion picture film is made of a subject on a turntable that is rotating once every 45 seconds. For each 360° hologram about 70 feet of film is needed. The motions of the subject must be smooth and even, otherwise a time smear or "warp" is shown. The time ratio is about 1/6 normal speed. In effect, what you are dealing with is a time-space relationship on a volume awareness level. Camera speed is 24 frames per second and the film used is Kodak 5231 Plus-X negative. Any lenses may be used and I have found zoom shots to be most effective. A positive print is made, and this is what is used to print the hologram.

This process is really a form of integral photography, adapted to

holography, where many photographs from different perspectives are merged optically and holographically. This is done by the Multiplex printing machine which optically enlarges each frame of film to about 7" and squeezes it to about 1/30th of a degree. A laser is used as the exposing light, giving the resulting image properties of a true ("true" meaning subject illuminated directly with a laser) hologram. To make a 120° Multiplex hologram, a piece of special experimental holographic film (from Kodak or Agfa) that has been cut to 9½ x 19 inches is exposed. Three of these are printed for a 360° hologram and later spliced together to reconstruct the original sequence. Total exposure time for a 120° hologram is two hours, since the machine must stabilize after each movement.

The film is then processed individually in developer, stop, fix, rinse, bleach, rinse, bleach, rinse, photoflow, squeegee, and put in the dryer. Copies may be made from the original master at a much faster rate by using contact printing. In contact printing the laser is used to scan, total exposure time being about two minutes instead of the original two hours. Normal processing then takes place. All that is needed to then see the image is a 100-watt clear light bulb. I have found that a 150-watt bulb is even better, giving a brighter image, but that a 200-watt is too bright. A clear bulb must be used, as any coating on the bulb diffuses the light and, thus, diffuses the focus of the image.

HISTORY

Holography really began in 1947 when Dr. Dennis Gabor of the Imperial College of Science and Technology in London found that light may be captured by intensity and frequency directly onto a photosensitive surface, without passing through a lens. The normal way of recording optically captures only the intensity of light waves. Each point of an object reflects light waves in ever-expanding circles. The combination of the pattern formed by these overlapping circles creates the particular wave front of the object. For example, think of many pebbles dropped into water, and their ever-expanding interconnecting circular patterns. The intensity and frequency

of the waves and the intersecting patterns resulting are what is recorded to make a 3-dimensional image exactly as it occurred at that time in reality.

The problem in 1947 was that there was no really good source of cohesive light to use for creating these wave-fronts by bouncing it off the object to be photographed. (Cohesive may be described as the distance over which light waves remain in phase with each other.) Ideal exposure light would be all of one wavelength. Dr. Gabor approximated it with a filtered mercury arc lamp.

In 1960 the laser was invented by Dr. Theodore Maiman of Hughes Aircraft. The name laser came from the initials of Light Amplification by Stimulated Emission of Radiation. The laser is a totally coherent light, in that its beam is all of one wavelength. The name hologram was derived from the Greek word for whole: "holos".

In 1965 Emmett N. Leith and Juris Upatnieks of the University of Michigan used the laser to produce the first successful 3-dimensional image. This was done by splitting the beam into two parts. One beam, called the subject beam, was used to illuminate the subject being photographed, while the other was called the reference beam

and used to interfere with it, creating patterns of intersection. This was recorded on a glass plate covered with a high-resolution emulsion, forming a hologram. To reconstruct an image, a laser was directed at the hologram from the same position as the reference beam during the original exposure.

In 1969 Dr. Alex Jacobson and Victor Evtuhov made the first holographic movie at Hughes Research Lab of fish swimming in an aquarium. One problem with this early film was that the film, needing a resolution of about 1500 lines/mm, had an ASA rating of .02. To record an image at all, they had to backlight the fish. The film was 30 seconds long and could be viewed by only one person at a time peering through a 70mm aperture.

MULTIPLEX CO. PRINTING TECHNIQUE

The Multiplex Co. uses the combination of two techniques in their holograms. One is the aforementioned integral photography, where many normal photographs are taken, using a Mitchell (because of its rock-steady pin registration). Since the image is formed by regular photography, any type of illumination may be used. The second

technique is one used by Charles Ernst of TRW, Matt Lehman of Stanford University, and scientists of Bell Telephone Lab using holographic plates on which many separate holograms of the same object were recorded in thin vertical strips. To reconstruct motion one moved either the plate or the head back and forth. This technique is applied by Multiplex in the second stage, or laser exposure, on the 9½ x 19-inch film, using a positive print as a negative. The result is a holographic image for each frame of film. For a 360° hologram there are approximately 2160 separate holographic images. The eyes of the viewer then act as a projector, putting together a series of images at once into a time sequence.

Both of these areas of exploration were given up as impractical, until Lloyd Cross, Jerry Pethick, Dave Schmidt, Peter Claudius, and several other people formed the Multiplex Co. Lloyd had, for several years previous to the formation of the company, been teaching holography to anyone who wanted to learn. I feel that he is single-handedly responsible for taking laser technology out of the "secret scientific labs" and making it available to anyone with the desire to learn.

Continued on Page 669

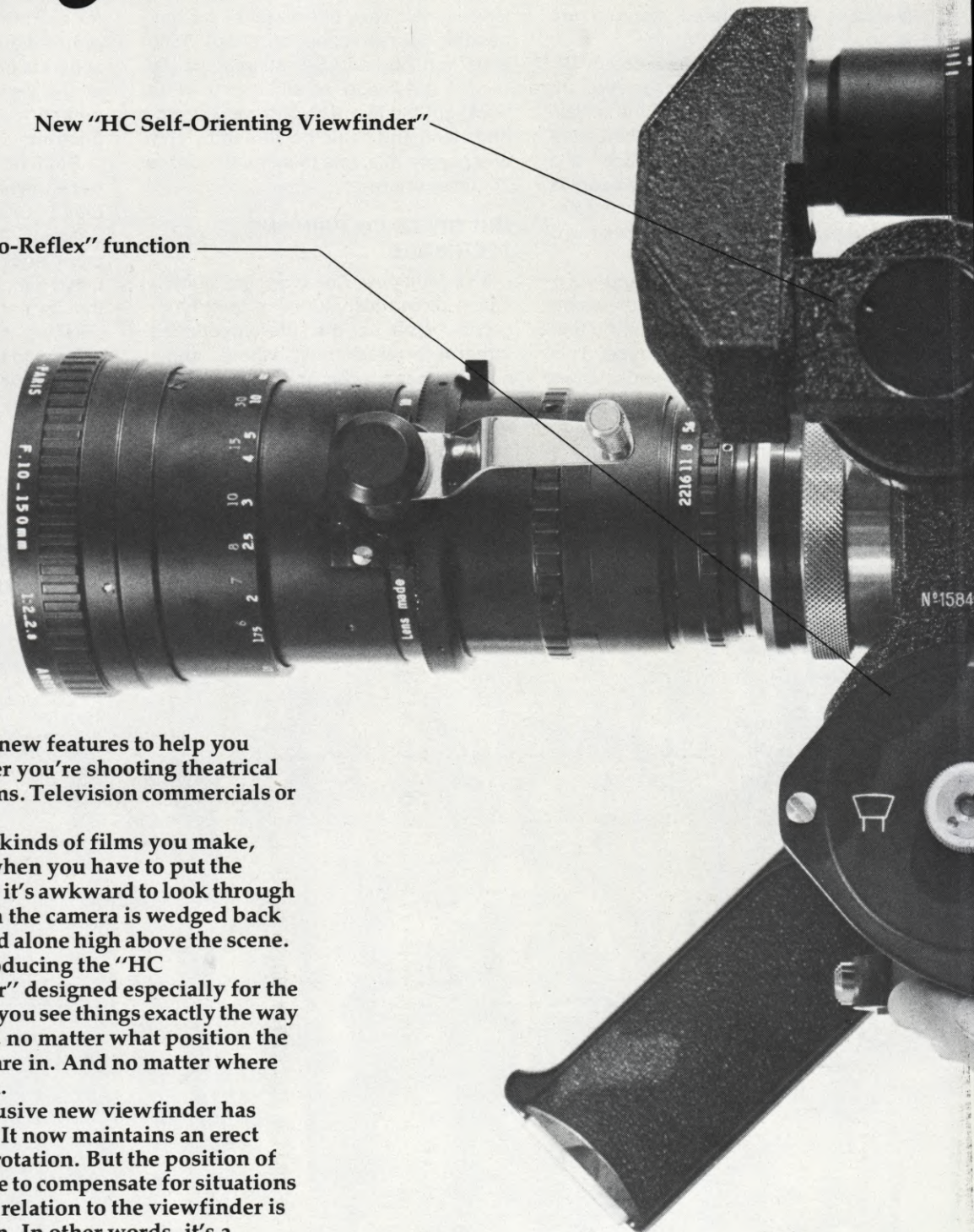
Strawberry Gatts is shown standing next to a "stable table", which is floating on columns of nitrogen gas and is necessary to the manufacture of certain types of holograms. Partially covering her left hand is an argon laser which gives off a green light. Near her right hand is a mirror, used to direct the beam, and a beam-spreader which spreads the beam over a larger area. The holes in the table are for screws which attach instruments to the table once they are in position. This is to insure complete stability.



Here are two new help you make bet

New "HC Self-Orienting Viewfinder"

Motor with new "Auto-Reflex" function



The Eclair ACL has two new features to help you make better films. Whether you're shooting theatrical features or educational films. Television commercials or documentaries.

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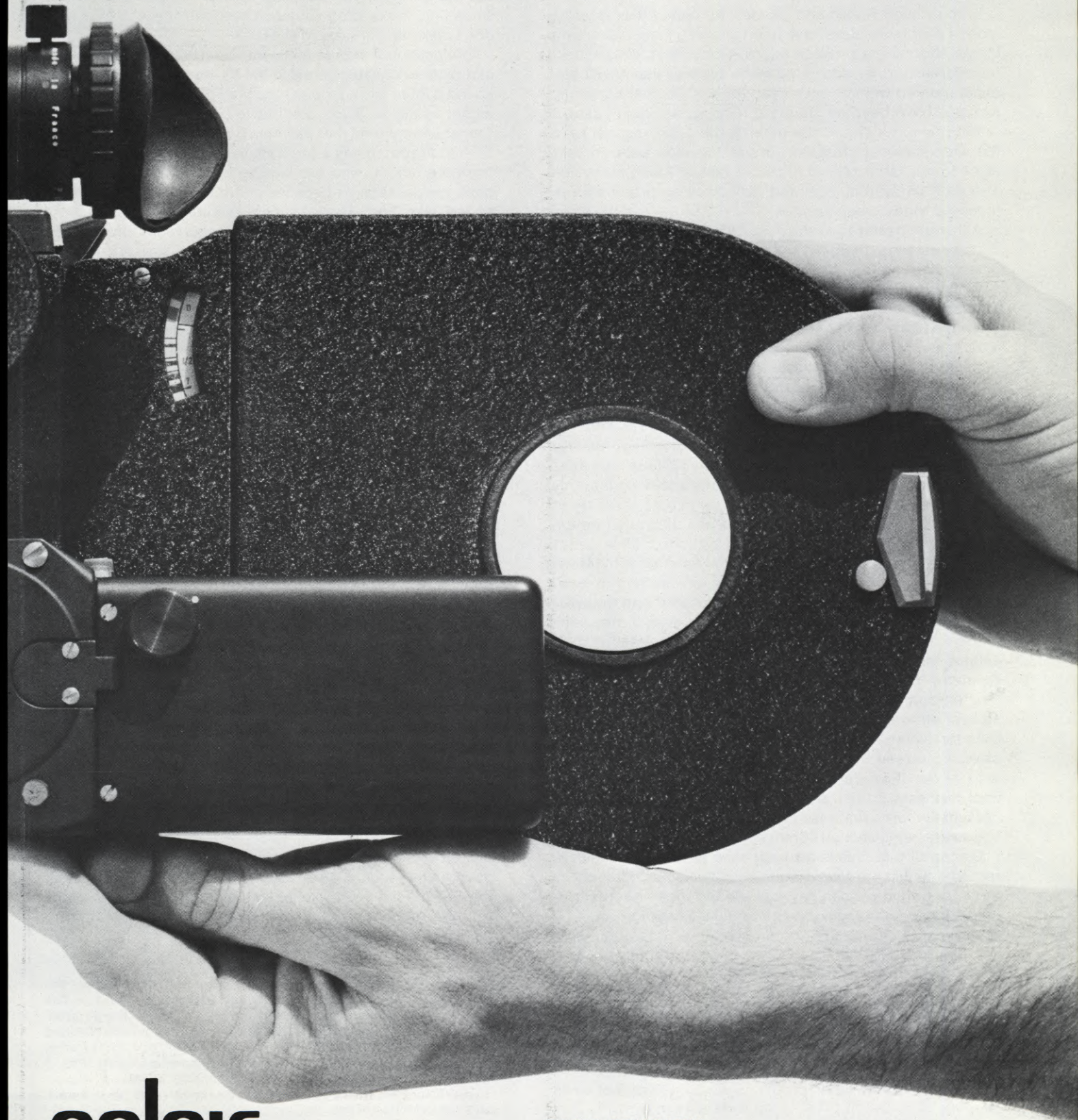
Well now, Eclair is introducing the "HC Self-Orienting Viewfinder" designed especially for the ACL by Angenieux. It lets you see things exactly the way the camera lens sees them, no matter what position the camera or the viewfinder are in. And no matter where you are in relation to them.

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The Eclair ACL's motor also boasts a new "Auto-Reflex" function, while retaining all of its regular features. It always stops with the mirror in the viewing position. So if you want to resume shooting quickly, there's never any need to adjust the inching knob for viewing.

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THE PROPOSED TRILENT-35 SYSTEM

By **MIKLOS LENTE**

Soundmix Ltd., Toronto, Ontario, Canada

The TRILENT 35 system is a patented innovation that deals with a new method of making motion pictures for the 1.85:1 (1.66:1) aspect ratio flat wide-screen format and for television at the same time. It is a simple three-perforation-pulldown 35mm system, easy to explain and easy to understand. However, first I would like to make it clear why it is needed.

In the United States and Canada for nearly twenty years motion picture theaters have been showing films that are no longer shot for the once-standard Academy (1.33:1) aspect ratio screen format, and of the many systems that have been experimented with, or even used for a while, there are only two that have become standard. One is the 2.35:1 aspect ratio (anamorphic) and the other is the 1.85:1 aspect ratio flat wide-screen format. In Europe the ratio used is very close to this latter ratio but it is, in fact, a 1.66:1 ratio. The TRILENT 35 system is aimed at improving production in these flat wide-screen formats.

Although theaters are showing 1.85:1 (1.66:1) aspect ratio on their screens, most films that are shot for this method of presentation are still photographed and printed on the full Academy frame and matted out only on the projectors for the desired screen ratio. The reason for this is obvious. To show the film later on television you need the old 1.33:1 aspect ratio. So the cinematographer has to take both formats into account when deciding the composition of a picture and, as a cinematographer, let me tell you that it is an artistic impossibility to have pleasant framing for both formats at the same time. On television one always ends up with wide leg-room and, especially disturbing, usually empty head-room, which makes the framing look very awkward. Sometimes you see a microphone sneaking into this area for an extra dramatic touch. Cinematographers try to give their best to express themselves and the story through pictures and indeed most theater-exhibited films today show very imaginative and beautiful cinematography. However, it is a shame that these pictures look so bad on television. Today's audience is visually educated and bad picture compositions are disturbing to them even if they can't pinpoint the reason for it. But aside from the framing difficulties, the whole idea of making motion pictures in the Academy format and expecting them to look good on both theater and television screens is completely wrong on several other grounds. One is that you use a smaller film area for big screen theater use and a bigger film area for small TV screen use. Of course, nobody complains in TV-land about the quality this gives but now with the new improvements in film stock grain structures, that extra 25 percent film area really isn't needed. As you know, some TV shows are being shot on 16mm film with a far smaller area.

On top of that, this is also opposite to what is artistically required. While it is always up to individual interpretation, as a rule of thumb we can say that the big theater screen requires looser composition and more vista than the small TV screen. On a big theater screen even in a wide-angle shot you see good details, but to see the same thing on television the camera should be closer and frame tighter. But instead of that we are getting exactly the opposite. The result is a looser composition on TV than we have in the theater. So here we are ending up on television with our theatrical films badly framed both technically and artistically.

There are a few other problems which I have met while shooting films in the present flat wide-screen system. That

A suggested method for saving substantially on film stock and lab costs by eliminating the enormous waste inherent in current 1.66:1 and 1.85:1 "wide-screen" 35mm formats

extra head-room which one has to protect for television, cuts down the usable height of the set for the 1.85:1 ratio composition. If you want to use the whole set height in 1.85:1, for example, which normally would not require a ceiling, with the TV area to be protected on the top of the picture you need to put a ceiling in. This ceiling piece may cut out some lights, so you have to change the lighting. But since time is pressing you usually compromise; that is, you don't make that low-angle shot.

On location it is practically impossible to put a backlight in a room because it gets into the TV frame area. One has to spend a lot of extra time to hide the lights. Extra time equals higher costs, or, if you don't have extra time, lower quality. Earlier I mentioned that the mike boom often sneaks into the TV head room. It has a good reason to do so, for it is too far from the actors, who are kept within the 1.85:1 area. This often means retakes because either the mike was in or the sound was bad. Radio mikes sometimes help, but not always. So, as you see, that extra head room affects even the sound quality.

All in all, that extra head-room is a lot of extra headache and needless extra cost for the producer. Now you are probably wondering, if these problems are all true, why this system was put into use in the first place. It is very simple. In the mid-fifties when the 1.85:1 ratio system started as a sort of poor man's CinemaScope, nobody gave a damn about television. At that time TV showed only old films in the Academy format. Most filmmakers did not want to show their films on television and, if eventually they ended up there, did not care how they looked. In fact, filmmakers treated television like a bad rash and hoped that with the right ointment it would disappear. One attempt of that ointment was CinemaScope (1953) and, subsequently, many other wide-screen formats, including the cut-down Academy frame of 1.85:1 (1.66:1) size. The rest is history. The ointment didn't work and television survived and grew up, and filmmakers today would starve without it.

CinemaScope has been improved (Panavision, Todd-AO) but it is an even more troublesome format for TV. The cut-down Academy format is the only other system that has survived from that era because, with all its faults, it is the only system that can serve both the movie theater and the TV screen at the same time with the least cost and without requiring new equipment. But it happened in spite of television, and was really designed to take advantage of every theater's new wide-screen. So, when they have to compose their films for both formats, no wonder cinematographers get frustrated.

In the last few years, more and more cinematographers have decided to use either 1.66:1 or 1.85:1 aspect ratio hard mattes in the cameras, especially in Europe. American producers and studios have resisted this trend very strongly. If the 1.85:1 hard matte is used in the camera, I have to agree with the American producers, because, if you transmit for

Continued on Page 668

(OPPOSITE PAGE) A series of diagrams illustrating the advantages and potentials of the Trilent-35 System. FIG. 1 — The 4-perf. silent frame, representing maximum 35mm image area. FIG. 2 — The Academy frame, as modified to accommodate sound track for 1.33:1 format. FIG. 3 — Current 1.66:1 (or 1.85:1) frame, showing waste areas. FIG. 4 — 3-perf. full-aperture frame. FIG. 5 — The Trilent-35 frame. FIG. 6 — Trilent-35 printed in 4-perf. mode. FIG. 7 — Triscope anamorphic original. FIG. 8 — 4-perf. blow-up print from Triscope.

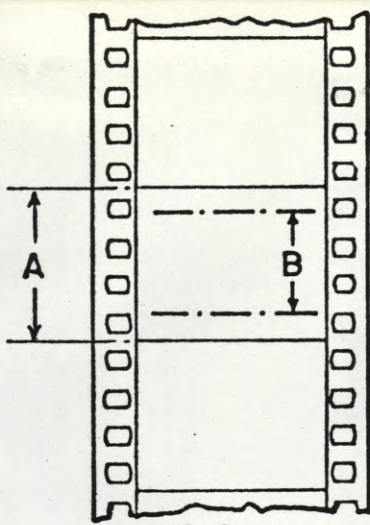


FIG. 1

4 perf. silent gate
24 x 18 mm
.980" x .735"

ACADEMY FRAME

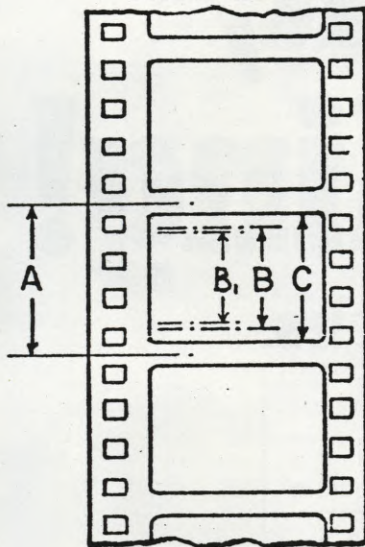


FIG. 2

22 x 16 mm
.869" x .631"

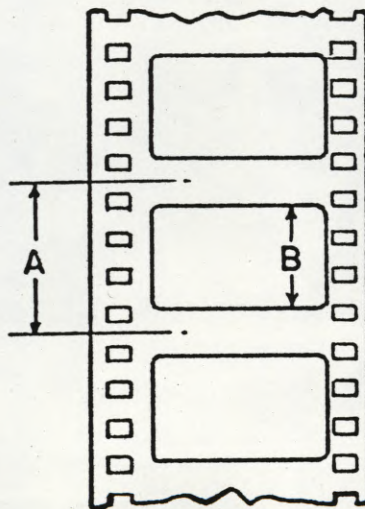


FIG. 3

max. theatrical
projection area

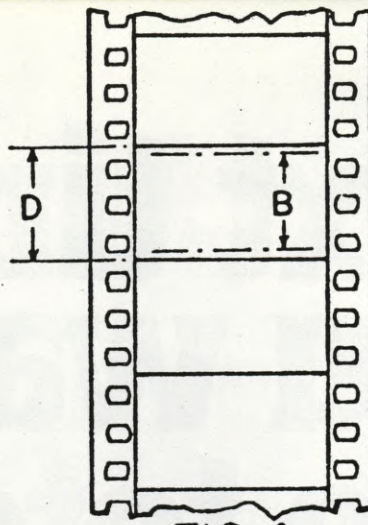


FIG. 4

3 perf. silent gate
24 x 14 mm
.980" x .550"

TRILENT 35

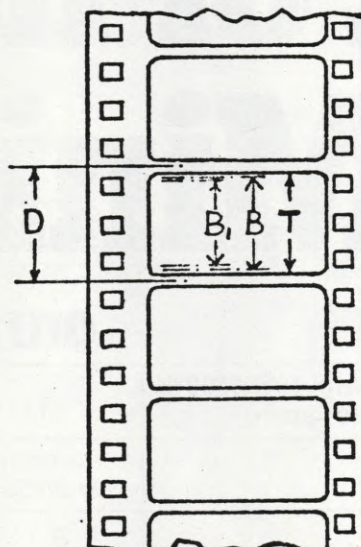


FIG. 5

22 x 13.5 mm
.868" x .531"

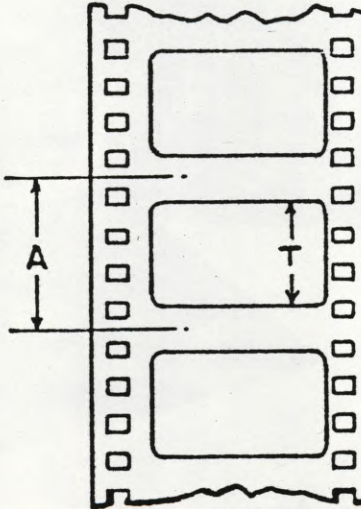


FIG. 6

Trilent 4 perf.
print

- A: 18.96mm
.7464"
- B: 12.6 mm
.497"(1.66:1)
- B₁: 11.3 mm
.446"(1.85:1)
- C: 16 mm
.631"(1.33:1)
- D: 14.22mm
.5598"
- E: 18.6 mm
.732"(2.35:1)
- T: 13.5 mm
.531"(1.63:1)

TRISCOPE

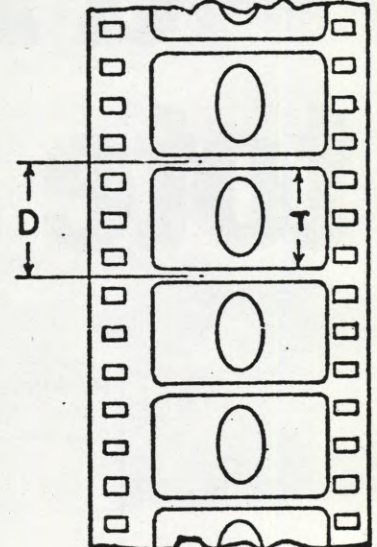


FIG. 7

22 x 13.5 mm
1.45:1 anamorphic
camera original

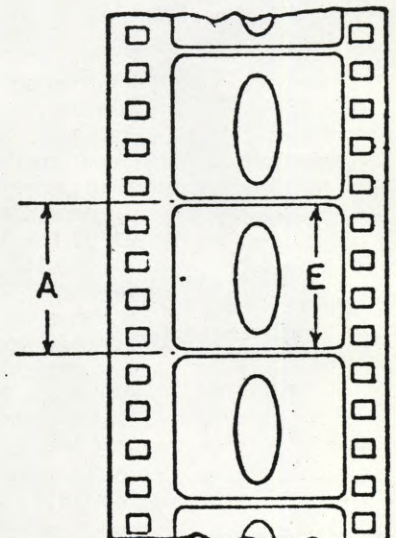


FIG. 8

Triscope print
2:1 anamorphic

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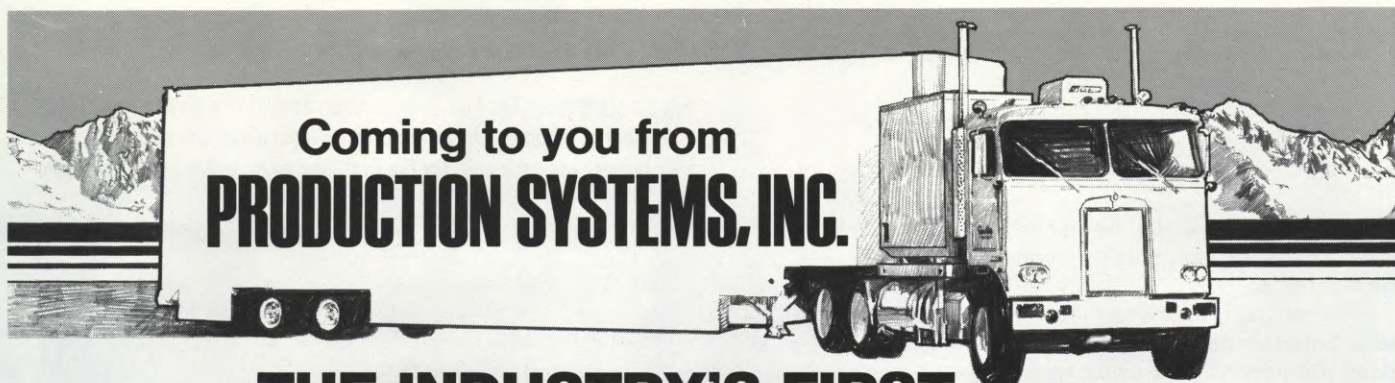
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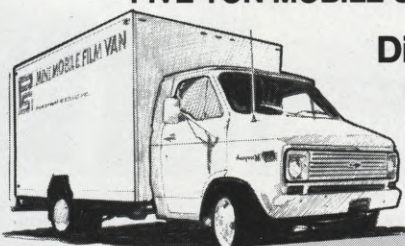
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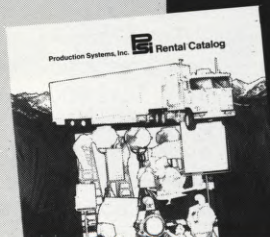
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British Lion Films • Foster And Laurie/Charles Fries for NBC • Louis Armstrong: Chicago Style/Charles Fries for CBS
Journey Through Darkness/Bob Banner for NBC • Las Vegas Lady/Crown International Releasing • Goodbye Norma Jean/
Austamerica • One Flew Over The Cuckoo's Nest/United Artists • Moonface/American Film Institute • Firebugs/Film
Communicators • Mackintosh & T.J./Penland Productions • Ode To Billy Joe/Max Baer Productions • All American Girl/
MGM • Friday Foster/American International • Pom Pon Girl/Crown International Releasing • Outlaw - Josie Wales/
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FILMEX '76 SCORES ITS GREATEST SUCCESS

In its sixth year, The Los Angeles International Film Exposition stages its most spectacular show, features its most ambitious program, attracts its largest audience and, for the first time ever, winds up in the black

In classic Hollywood tradition, the silver shafts of searchlights scanned the night skies.

In the elegant, futuristic Plaza of the ABC Entertainment Center at Los Angeles' Century City, crowds gathered and watched spellbound as a truly spectacular extravaganza unfolded.

Clowns cavorted; the resplendent marching band of the University of Southern California did its flamboyant thing; in thirtyish finery, ballroom dance teams of the Rogers-Astaire ilk swung and swayed; bright-eyed Busby Berkeley types tippy-tapped their way into your heart.

Mummers in Colonial costume paid tribute to the American Bicentennial, as 1,776 multi-colored balloons soared heavenward. Dressed-to-the-teeth movie stars arrived in their limousines and swept grandly up the staircase. An old-fashioned hearse pulled up and a coffin was carried into the Plaza. It was

The ever-smiling usherette, Blanche, ready with tickets, a flashlight and munchies served as a symbol and official "mascot" of FILMEX 76.



The elegant, futuristic ABC Entertainment Center at Los Angeles' Century City again served as the site for FILMEX. Plitt's Century Plaza Theatres 1 and 2 were kept busy with screenings from 11 a.m. until two the next morning for 17 days. The posh Century Plaza Hotel, directly across the "Avenue of the Stars" from the theatres, was the location for the gala Benefit Ball, held after the world Premiere screening of Alfred Hitchcock's "FAMILY PLOT".

opened to reveal film cans containing the reels of Alfred Hitchcock's "FAMILY PLOT", to be World Premiered within the hour. Next, Mr. and Mrs. Hitchcock themselves arrived and were seated where they could get an excellent view of the climactic spectacle: hundreds of colorful fireworks and sky rockets set off from the tops of the twin triangular towers soaring above the Plaza.

Thus it was that, on the evening of March 21, in a burst of Hollywood hoopla and hyperbole harking back to the twenties and thirties, FILMEX kicked off what was to be by far its most successful stanza.

The 1976 Los Angeles International Film Exposition (FILMEX '76) attracted the largest audience in its history during the 17-day non-competitive event which was held March 21-April 6 at the ABC Entertainment Center in Century City. Originally scheduled as a 15-day event, the Exposition was extended two days to accommodate repeat showings of sold-out films and additional programs. Films were screened at Plitt's Century Plaza Theatres 1 and 2 in the Entertainment Center; other Filmex events were held at the Century Plaza Hotel and adjacent facilities. Gary Essert, Filmex Director, announced that 100,000 people (actual

count: 99,861) attended the 105 separate events during the Exposition, which included 255 films representing 30 nations. Average audience size increased from 76% to 84% of theatre capacity.

Preliminary financial information indicates total ticket sales income of \$200,000 (\$122,000 from general ticket sales and \$78,000 from the Opening Night Filmex Society Benefit-Ball) and \$181,000 from other sources (including Filmex Society membership contributions, and grants from the City of Los Angeles, Atlantic Richfield Company, Deluxe Laboratories, Motown Productions, S.E.A. Metaxa Distilleries, The Bing Fund, and The National Endowment for the Arts), bringing the total revenues to date to \$381,000. Expenses are estimated at \$380,000, indicating a "break-even" situation for the first time since the annual Exposition began in 1971.

Total accumulated liabilities have been reduced this year by \$86,000, from \$212,000 to \$126,000 through a program of payments and debt compromises. Current operating costs, however, combined with the accumulated liabilities, represent continuing financial problems for the organization. The accumulated liabilities are a



result of Filmex' policy of maintaining low ticket prices while producing a high quality event.

Twenty-three films received their American premieres: two films from Denmark, TAKE IT LIKE A MAN, MADAM! (TA' DET SOM EN MAND, FRUE!), directed by "The Red Sisters" (Mette Knudsen, Li Vilstrup, Elizabeth Rygaard) and GOOD AND EVIL (DET GODE OG DET ONDE), by Joergen Leth; two films from IRAN, THE STRANGER AND THE FOG, directed by Bahram Beyzai and PRINCE EHTEDJAB, directed by Bahman Farmanara; two West Indian films, SMILE ORANGE from Jamaica, directed by Trevor Rhone, and Hugh A. Robertson's BIM from Trinidad; from the Netherlands, Paul Verhoeven's KEETJE TIPPEL and Adriaan Ditvoorst's FLANAGAN; and Hans-Jurgen Syberberg's KARL MAY from the Federal Republic of Germany. Additional American premieres included Francesco Rosi's THE CONTEXT (CADAVERI ECCELLENTI) from Italy; THE TRAVELLING PLAYERS from Greece, directed by Theodoros Angelopoulos; a Belgium/France/Tunisia co-production THE SON OF AMR IS DEAD (LE FILS D'AMR EST MORT!), directed by Jean-Jacques Andrien; Walerian Borowczyk's Polish film, THE STORY OF SIN (DZIEJE GRZECHU); from Sweden, THE GARAGE (GARAGET), directed by Vilgot Sjoman; from the Soviet Union, Akira Kurosawa's Academy Award-winning film, DERSU UZALA, APHONYA, directed by Georgy Daneliya, and THE BONUS, directed by Sergei Mikaelyan; two films from France, Henri Glaeser's ONCE UPON ANDREA (TOUS A POIL ET QU'ON EN FINISSEI), and THE JUDGE AND THE KILLER (LE JUGE ET L'ASSASSIN), directed by Bertrand Tavernier; from Czechoslovakia, THE BLACK-FEATHER GANG (DRUZINA CERNEHO PERA) by Ota Koval; and

from Hong Kong A TOUCH OF ZEN (SHA-NU) by King Hu. The most recent films in the Tribute to Cuban Cinema were also American premieres, YOU HAVE THE LAST WORD (USTEDES TIENEN LA PALABRA) by Manuel Octavio Gomez, and THE MAN FROM MAISINICU (EL HOMBRE DE MAISINICU) by Manuel Perez.

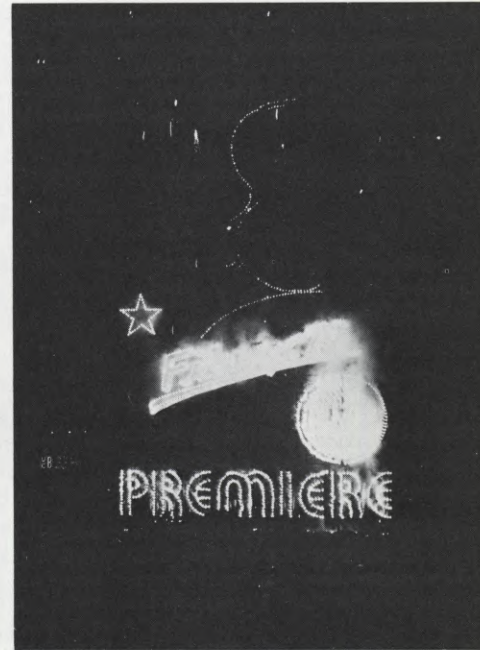
Six world premieres included Alfred Hitchcock's FAMILY PLOT, which opened FILMEX '76, the Academy Award-nominated documentary THE CALIFORNIA REICH, directed by Walter Parkes and Keith Critchlow, Neil Israel's TUNNELVISION, THUNDERCRACK by Curt McDowell and George Kuchar, Arturo Ripstein's FOXTROT and Michael Ritchie's THE BAD NEWS BEARS, which closed the Exposition.

Twenty-four programs sold out, including the Sneak Preview of Ingmar Bergman's FACE TO FACE produced by Dino DeLaurentiis and starring Liv Ullmann. Seven of the sold-out programs were repeated, including DERSU UZALA, THE PROMISED

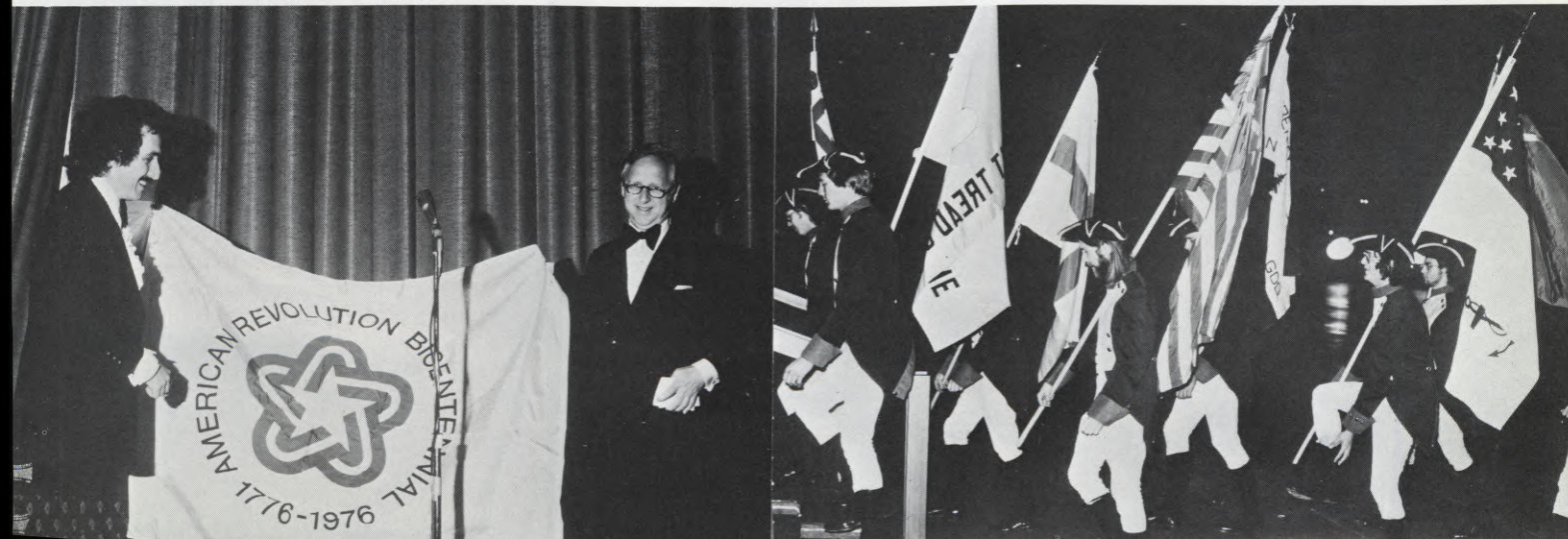
LAND (which was also nominated for the Academy Award) directed by Andrzej Wajda, CHRONICLE OF THE YEARS OF EMBERS (also nominated) from Algeria, directed by Mohamed Lakhdar-Hamina, and EXHIBITION, directed by Jean-Francois Davy from France.

A major highlight of FILMEX '76 was the 48-hour Cowboy Movie Marathon and "Cow Person" Contest, won by wrangler Wayne Storm, who was in attendance as Marathon Grand Marshal for the 48-hour Classic Western fete. The Marathon was sponsored by Motown Productions.

A Special Tribute to Mary Pickford was introduced by Kirk Douglas, and Jack Nicholson presented a silver certificate to Maxine Elliott Hicks (accepting for Miss Pickford). Miss Hicks appeared in 1916 with Miss Pickford in POOR LITTLE RICH GIRL. The films presented included two full-length features, SPARROWS and REBECCA OF SUNNYBROOK FARM (which was accompanied by a 20-piece



(ABOVE LEFT) In the Plaza of the Center, an hour before the Premiere screening, a spectacular show presented many colorful characters. (RIGHT) The famous Hitchcock profile depicted in fireworks. (BELOW LEFT) A banner was presented officially designating FILMEX as a participant in the American Bicentennial celebration. (RIGHT) Colorful, though slightly tangle-footed, soldiers of the American Revolution parade the nation's several early flags.





Film star Charlton Heston chats with FILMEX Director Gary Essert (left) and Assistant Director Gary Abrahams at the Benefit Ball. It was the early vision of these two young men, combined with much hard work and a lot of help from their friends that ultimately led to the current preeminence of FILMEX among the world's foremost film events.

orchestra under the direction of Lyn Murray), and the short film, THE NEW YORK HAT.

Thirty free shows were offered at Filmex 76, including two film series entitled "The Americans: A National Portrait" and "Classic American Clowns" (which were sponsored by the City of Los Angeles and Atlantic Richfield Company), and "Social Reflections", a highly popular series of documentaries.

Other major attractions included a retrospective of Frederick Wiseman's films; a Tribute to George Pal; an extensive examination of the experimental film, featuring the work of Stan Brakhage, made possible by grants from the Bing Fund and the National Endowment for the Arts; and a survey of recent student films.

A towering inferno. A fantastic display of fireworks atop the twin towers of the ABC Entertainment Center climaxed the show that kicked off this year's Exposition. No other world film event can touch FILMEX for sheer showmanship and the evocation of the zany, exciting, magic days of the early Hollywood.



A series of eight "Midnight Monster Movies" was sponsored by Deluxe Laboratories.

A special series of five Cuban films was also presented, including MEMORIES OF UNDERDEVELOPMENT, YOU HAVE THE LAST WORD, THE MAN FROM MAISINICU, THE NEW SCHOOL, AND BAY OF PIGS. A unique graphics exhibit of 100 original Cuban film posters was displayed in conjunction with the series.

A three-day Producers Conference, which was underwritten by S.E.A. Metaxa Distilleries, examined the many-faceted role of the producer in film and TV production trends in the U.S. and Europe. The Advisory Committee included Robert Chartoff, Tony Bill, Lillian Gallo, Leonard Goldberg, Robert Radnitz and Robert Wise.

Arthur Knight was the Chairman of the Advisory Committee. Participants in the Conference included 36 of the industry's major producers and filmmakers.

Pauline Kael, renowned American film critic, delivered an appraisal of the state of the movies followed by a lively discussion with a sold-out house of enthusiastic fans.

The Filmex Society Benefit-Ball, following the world premiere of Alfred Hitchcock's FAMILY PLOT, was attended by a diverse assemblage of celebrities, including Jimmy Stewart, Charlton Heston, William Wyler, Eva Marie Saint, Peter Bogdanovich, Peter Falk, John Cassavetes, Gena Rowlands, Cloris Leachman, Henry Winkler, Rosalind Russell, George Jessel, Irene Dunne, Diane von Furstenberg, Barry Diller, Dionne Warwick, Helen Reddy, Clay Felker, Bruce Dern, Geoffrey Holder, Carol Kane, Edie and Lew Wasserman, Dr. and Mrs. Jules Stein, and Kitty Hawks, among others.

Wendy Goldberg, Filmex Society President, coordinated the gala at which Mr. Hitchcock was presented the first Filmex Award for excellence in filmmaking. Opening Night activities, which were sponsored by Lufthansa German Airlines, were planned and produced by Robert R. Bennett.

Some of the major filmmakers in attendance included Bertrand Tavernier, Andrzej Wajda, Hans-Jurgen Syberberg, Henri Glaeser, Jean-Claude Brialy, Hugh Robertson, Georgy Daneliya, Michael Ritchie, Robert Wise, William Wyler, and Delbert Mann.

The 1976 Los Angeles International Film Exposition was dedicated to Adolph Zukor, who celebrates his 104th birthday this year. The Exposition is presented annually by The Filmex Society in association with the City of Los Angeles and with the cooperation of the Academy of Motion Picture Arts and Sciences, the American Film Institute, the Los Angeles County Museum of Art, and the film schools of UCLA, USC, Cal-Arts and Loyola. The next Exposition is scheduled for March 15 - 31, 1977. ■

FILMEX '76 — VITAL STATISTICS

Nearly 100,000 people attended FILMEX '76 (20,000 more than last year).

113 events, representing 30 nations and consisting of 129 features and 126 short films, were presented.

Twenty-four programs were sold out:
The Art Of Animation
APHONYA
THE BAD NEWS BEARS

THE CALIFORNIA REICH
CHRONICLE OF THE YEARS OF
EMBERS

DERSU UZALA
THE ENIGMA OF KASPAR HAUSER
EXHIBITION
FAMILY PLOT
HARVEST: 3,000 YEARS
HIGH SCHOOL/BASIC TRAINING
JUVENILE COURT
Pauline Kael In Discussion
THE LOST HONOR OF KATHARINA
BLUM

Masters Of Independent Cinema
ONCE UPON ANDREA
George Pal Tribute
PASTORAL HIDE AND SEEK
THE PROMISED LAND
SEVEN BEAUTIES
Sneak Preview (FACE TO FACE)
THUNDERCRACK
A TOUCH OF ZEN
TUNNELVISION

Other popular programs:
ADOPTION
BIM
THE CONTEXT
KARL MAY
KEETJE TIPPEL
Mary Pickford Tribute
SMILE ORANGE
THE TRAVELLING PLAYERS

**CONTEMPORARY CINEMA
(Participants)**

AUSTRALIA
Matt Carroll, Producer SUNDAY TOO
FAR AWAY
BELGIUM/FRANCE/TUNISIA
Jean-Jacques Andrien, Director LE
FILS D'AMR EST MORT! (The Son
of Amr is Dead!)
BRAZIL
Andre Luiz, Director A LENDE DE
UBIRAJARA (The Legend of
Ubirajara)
FRANCE

FILMEX STATISTICAL PROGRESS

	1971	1975	1976
Duration (in days)	11	14	17
Participating nations	13	27	30
Participants attending	85	127	175
Programs	43	88	105
Features	53	102	129
Short films	54	134	126
American Premieres	9	19	23
World Premieres	0	8	6
Sold-out Houses	9	16	24
Total Attendance (approx.)	30,000	80,000	100,000
Budget	\$150,000	\$265,000	\$380,000
Income			
Ticket Sales & Opening Night Benefit	47,000	187,000	200,000
Grants & Contributions	19,000	88,000	*135,000
Miscellaneous	2,000	20,000	* 45,000
Total Income	68,000	295,000	*380,000
Expenses	115,000	310,000	*380,000
Net Accumulated Liabilities	\$ 50,000	\$212,000	\$126,000

* Amount is subject to increase pending final year-end statement, June 30, 1976

Jean-Francois Davy, Director
EXHIBITION
Henri Glaeser, Director TOUS A POIL
ET QU'ON EN FINISSE! (Once
Upon Andrea)
Bertrand Tavernier, Director LE JUGE
ET L'ASSASSIN (The Judge and the
Killer)
Jean-Claude Brialy, Actor
FRENCH DELEGATION
Jean-Louis de Turenne, French Film
Office
Yvette Mallet, French Cultural Services
Christian Tual, Cultural Attache
Catherine Verret, French Film Office
GERMANY (Federal Republic)
Hans-Jurgen Syberberg, Director
KARL MAY
HONG KONG
King Hu, Director A TOUCH OF ZEN
ISRAEL
Efrat Lavie, Actor MY MICHAEL
JAMAICA
Trevor D. Rhone, Director SMILE
ORANGE
Milton Verley, Executive Producer

JAPAN
Shuji Terayama, Director PASTORAL
HIDE AND SEEK
Hiroko Govaers, Representative
JAPANESE DELEGATION
Mr. & Mrs. Nagamasa Kawakita, Toho-
Towa
POLAND
Andrzej Wajda, Director ZIEMIA
OBIECANA (The Promised Land)
Wojciech Pszoniak, Actor
POLISH DELEGATION
Alicja Cieczkowska, Director of Film
Polski
S. Izydorczyk, Film Polski
Bronislaw Michalek, film critic
TRINIDAD
Hugh A. Robertson, Director BIM
USA
Walter F. Parkes & Keith F. Critchlow,
Directors THE CALIFORNIA REICH
Curt McDowell, Director
THUNDERCRACK
John & Charles Thomas, Producers
Continued on Page 690

(LEFT) Academy Award-winning star Jack Nicholson meets and greets Kirk Douglas during the FILMEX "Tribute to Mary Pickford" ceremonies. (RIGHT) The indefatigable Alfred Hitchcock, a much-loved favorite of the Hollywood film industry, chats with Australian singing star Helen Reddy at the Benefit Ball, at which he was the guest of honor. The huge success of this year's FILMEX was due to the unstinting support of the Hollywood film community, the City of Los Angeles and a large roster of private individuals and companies.



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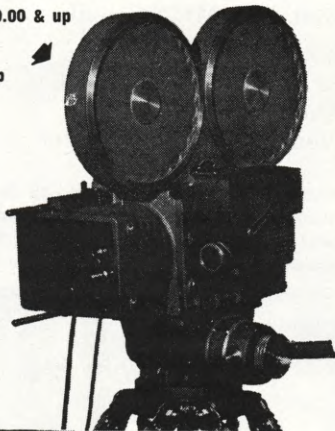


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green oases and cave-like native homes.

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Frederic Underhill — producers/directors, Glacierfilm

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PHOTOGRAPHING "LOGAN'S RUN"
Continued from Page 635

tunity to do much low-key lighting in the picture?

LASZLO: In addition to the Love Shop sequence, which was certainly low key most of the time, there was one other sequence that called for really low key lighting. The main part of the escape sequence takes place in what was formerly a sewage disposal plant in El Segundo. It has tremendously large pipes and we went very low key there because the menacing mood of the sequence demanded it. You always have to adapt your lighting style to the set and to the mood required in the sequence.

QUESTION: Did you shoot any actual exterior night shots?

LASZLO: There's a single night scene which we shot at the Water Gardens in Fort Worth. It's part of the sequence in which they return to the city after having been outside and that entire action happens at night. The night scene at the Water Gardens wasn't easy to shoot, but it turned out beautifully.

QUESTION: With the enormous amount of special effects in this picture you must have had to work very closely with Bill Abbott.

LASZLO: Yes, I did. I must say that it was a joy to work with Bill. He's a very wonderful person, very understanding, and I did my very best to cooperate with him. He was with us on "FANTASTIC VOYAGE" also, and we

Laszlo confers on the set with Producer Saul David. In the background can be seen one of the "maze cars" represented as transporting citizens through tubes to various areas of the city. The sleek, diminutive vehicles could be powered by batteries, motivated by winches or pulled by hand.



On location at the recently completed \$5-million-dollar Water Gardens in Fort Worth, Texas, Director Michael Anderson and his crew prepare to shoot a scene of Logan and Jessica with Peter Ustinov, the first old person they have ever seen outside their totally youth-oriented society.

have a wonderful relationship that works to our mutual benefit.

QUESTION: Tell me about the Carousel sequence.

LASZLO: Well, of course, that was the big one, technically speaking. They built this marvelous set, an arena seating several hundred people, with the big turntable in the middle and all the people flying up to the ceiling. My main problem was that I couldn't get back far enough to get a full shot of it with the lens we had available. So Saul David called Dr. Richard Vetter at Todd-AO and he came over to consult on the problem. It just so happened that they had been working on the development of an extreme wide-angle lens. It was in prototype form and hadn't actually been completed, but they let us use it for that sequence and it saved our necks.

Continued on Page 698



NEW AIRSHIELD PROTECTS DELICATE MOTION PICTURE EQUIPMENT

For motion picture cameramen and still photographers, especially those who do a lot of location shooting, the protection of their costly lenses and other equipment in transit is a primary concern. There are on the market to serve this purpose excellent cases of rigidized metal and hard leather, but many of them are expensive, bulky and heavy in weight — the latter factor something to be considered when traveling internationally by air.

To solve the problem effectively and inexpensively, Sima Products Corp., manufacturer of FilmShield, has just introduced AirShield, a line of lens and photographic equipment pouches that combine the protective features of a hard case with the flexibility of a soft pouch . . . and they do it with air, protecting the contents just as air bags cushion people in automobile collisions.

The protective walls of the AirShield pouch inflate instantly with just a few puffs, and the case resembles a mini-air mattress, providing an air-cushion buffer for lenses and other delicate

photographic equipment.

The AirShield pouches designed especially to accommodate lenses come in three sizes: small, medium and large, accommodating the entire range of lenses from wide angle to zoom. Best of all, any of the smaller lenses will fit snugly into larger pouches without rattling, thus eliminating the need for a wide inventory of lens cases. When not in use, AirShield may be deflated and folded up, fitting into a pocket.

Constructed of durable leather-grain vinyl and closed by means of sturdy drawstrings, the AirShield pouches designed for lenses retail at \$4.95 for the small and medium sizes and \$5.95 for the large size. They are available in photo stores nationwide.

With the photographer primarily in mind, Sima has also designed a rectangular Utility Case to hold light meters, camera bodies, strobes or other fragile equipment. The Utility Case measures 10" by 8" and, like its lens-model counterparts, is easily inflated in a matter of seconds. It is made of leather-grain vinyl and a zip-lock

seals in the contents for storage. Though designed mainly to accommodate photographic items, it is also ideal for safely carrying other location items, such as: medications, radios, watches, electric shavers or anything else of a breakable nature (without bouncing, or rattling).

In addition, Sima has available an even larger inflatable case measuring 10 by 11 inches. It is designed to handle such fairly large pieces of equipment as color temperature meters, walkie-talkies, binoculars — and, for the outdoorsman, such accessories as: gun scopes, compasses, etc. The exterior of this case is made of heavy-duty leather-grain vinyl, while the inner wall lining is a soft suede-like material. Sturdy metal snaps are used for easy sealing and metal grommets are also provided to allow convenient attachment of carrying straps. The empty pouch, inflated, can even serve as a head or back rest.

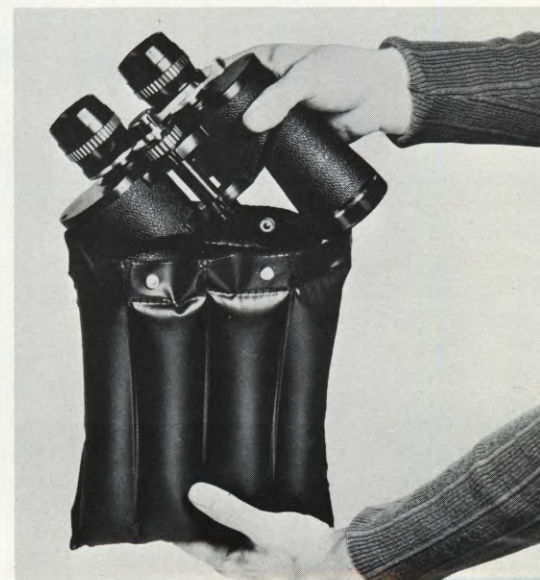
For further information regarding AirShield Inflatable Pouches, write to Sima Products Corp., 7380 N. Lincoln Ave., Lincolnwood, Ill. 60646. ■

(BELOW) The new inflatable AirShield pouches by Sima were designed to afford lightweight protection to lenses by cushioning them in air. Easily blown up with a few breaths and securely fastened by drawstrings, the pouches are made of durable vinyl and are available in three sizes. (TOP RIGHT) The Airshield Utility Case, measuring 10" x 8" was designed to protect light meters, camera bodies and strobes. (BOTTOM RIGHT) An even larger bag, measuring 10" x 11" accommodates color temperature meters, walkie-talkies and binoculars.



10" x 8" UTILITY CASE

10" x 11" ACCESSORY CASE



MOUNTING EQUIPMENT

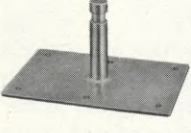


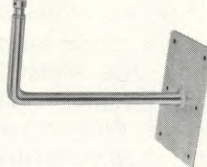
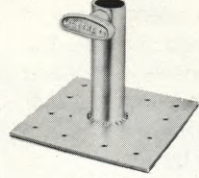
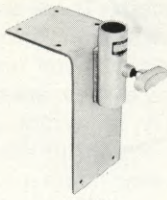
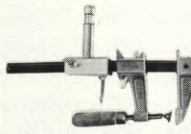
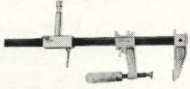

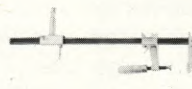

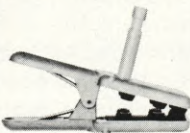
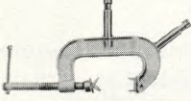
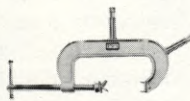
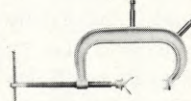

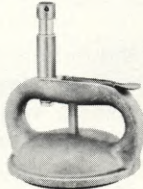


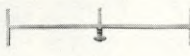


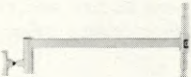
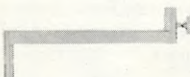
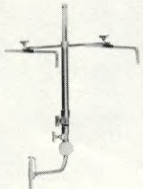
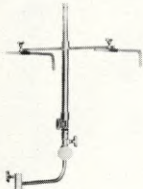
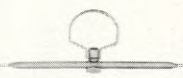

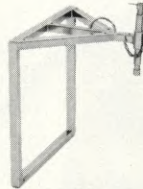
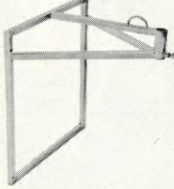
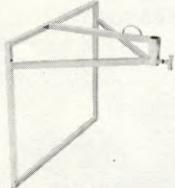
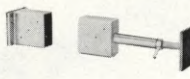
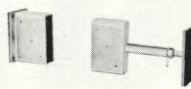
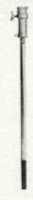

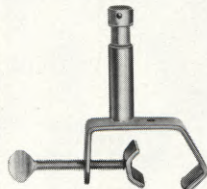


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THE PROPOSED TRILENT-35 SYSTEM
Continued from Page 654

television, as you must, only the middle of this matted frame, you lose 34 percent of the original picture on the sides and eight percent on the top and bottom. That is just too much loss. You really need a scanning system similar to that used for anamorphic films. Faced with this impossible choice on the last two features I was involved with, "THE IN-BREAKER" and "THE APPRENTICESHIP OF DUDDY KRAVITZ", I realized that a system could be devised to solve the artistic and technical problems of composition for both wide-screen and television formats with very little expense, while sweetening the pot for the producers by saving a bundle of money.

I call it the TRILENT 35 system. It used a standard 35mm camera with a modified movement to pull the film down only three standard perforations for each frame. The camera aperture has a 1.63:1 aspect ratio of 22 x 13.5mm (.868" x .531") size. The width is the standard Academy aperture measurement, but the height is not. As you see, the TRILENT system provides a little more than the full 1.66:1 ratio height (13.2mm, .520") in the camera. Let me explain the importance of this.

I arrived at the 13.5mm (.531") as the most favorable camera aperture height after considerable calculations and consultations. This measurement gives the necessary picture heights for both 1.85:1 (11.3mm, .446") or 1.66:1 (12.6mm, .497") theatrical releases and still leaves a little extra room. And here is the unique feature of the TRILENT system. Using the 13.5mm (.531") camera aperture height we can use the extra area on top and bottom, which is slightly in excess of the proper 1.85:1 or 1.66:1 compositions, for television transmission loss and home receiver cutoffs. You remember I talked about the problem of the extra head-room on television when theatrical films are shown. No problem any more. With the TRILENT system the home TV set will end up with the same frame height as theaters; in other words, exactly what the cinematographer framed for, and, since we don't have big excess head-room to protect any more, the other production problems which I mentioned earlier will also disappear. With the three-perforation-pulldown TRILENT camera the 13.5mm (.531") aperture height also allows .72mm (.028") wide frame lines between pictures which is perfectly compatible with modern negative splicing requirements.

Now, let's see what is happening with the side of the frame. In theatrical exhibition, naturally, the full frame width is projected. On television, however, we are going to lose about nine percent of the picture width on both sides, but this will cause far less problem in composition than the extra head and leg-room in the present flat wide-screen system.

Let me give you an example. If we are photographing people with the TRILENT system in front of a ten-foot wall, television transmission will cut off less than a foot on each side of the wall. That is not a serious loss. Only in the occasional wide shots will objects or people be so small that they will have to be placed carefully into the TV frame area which, of course, is marked in the viewfinder. Earlier I talked about TV requiring aesthetically tighter framing than theaters and that is exactly what we are getting with the TRILENT system. With the TRILENT system, technology is in line with the artistic requirements of the two media.

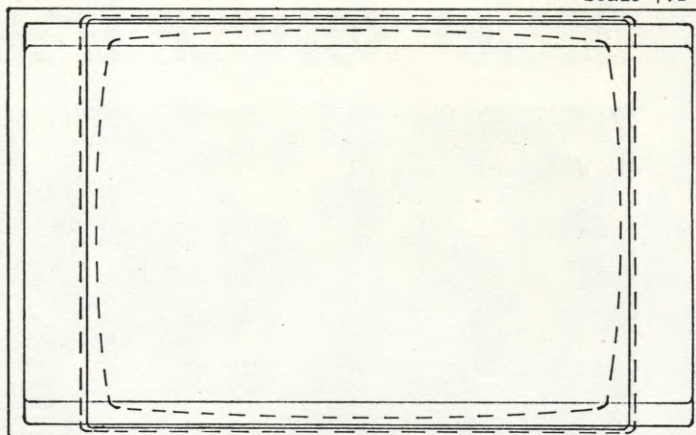
Now let me point out a few other advantages of the TRILENT 35 system.

For theatrical presentation we are using exactly the same print areas as the present flat wide-screen systems; hence, no quality change. In fact, there is an improvement because we won't be at the mercy of the projectionists to se-

TRILENT 35 SYSTEM.

Specifications.

Scale 7:1



	<u>millimeter</u>	<u>inches</u>
TRILENT camera aperture	22 x 13.5	.868 x .531
1.66:1 viewfinder marking and projector aperture	20.9 x 12.6	.825 x .497
1.85:1 viewfinder marking and projector aperture	20.9 x 11.3	.825 x .446
TV projector aperture (---)	17.5 x 13.1	.689 x .516
TV transmitted area (——)	17 x 12.75	.669 x .502
TV safe action area (——)	15.3 x 11.5	.602 x .452
Three perforation short pitch negativ film height.	14,219 mm	.5598"
Separations between frames	0.72 mm	.0283"

lect the proper framing. Here is a comparison table for different projector aperture areas.

Academy format		Square mm Negative Area
for 1.85:1	20.9 x 11.3mm	236 standard
for TV	20.7 x 15.5mm	320 4.6 times of 16mm
1.85:1 hard matte camera		
for 1.85:1	20.8 x 11.3mm	236
for TV	14.3 x 10.8mm	154 37% less than TRILENT
TRILENT 35 format		
for 1.85:1	20.9 x 11.3mm	236 same as standard
for TV	18.0 x 13.5mm	343 3.5 times of 16mm
16mm format		
for TV	9.6 x 7.2mm	69 1/3 of TRILENT

So as you can see the television projection area of the TRILENT 35 system is 37 percent larger than that obtained from the 1.85:1 hard matte cameras and 3½ times larger than that obtained from the 16mm format, thus assuring very good quality for the TV screen.

Now we come to the added bonuses of the TRILENT 35 system. These bonuses will appeal to cinematographers, directors and, even more so, I am sure, to producers.

Having a lower camera aperture height than with Academy frame we can open the shutter a little more, thus gaining some extra exposure. The exact angle is determined by each individual camera shutter and movement design.

Camera magazines will hold 25 percent more running time than with present four-perforation-pulldown camera speed. With the new hand-held sound cameras this is important because directors with the same 400-ft. loads will get a running time of six minutes instead of the present four-and-a-half. Since some cameras have switched to 500 foot

Continued on Page 685

THE USE OF HOLOGRAMS IN "LOGAN'S RUN"

Continued from Page 651

He began teaching holography at his loft in New York City in the summer of 1969. I met him his first week in town, and that very first night used a ruby laser to bounce patterns off the Prince Street Bakery, using a machine Lloyd and Jerry had developed. This machine used a ruby laser to form patterns stimulated by sound vibrations when hooked up to a record player. It is very interesting now that I remember using the *Beatles' Magical Mystery Tour* album as my sound source. A few weeks later Lloyd gave the first laser light shows at the Fillmore East in New York's East Village. He later moved to San Francisco and began teaching classes in holography there, and later had, for a short time, a school on the pier in Santa Monica.

THE FUTURE

I have found that many motion picture techniques can be applied to

holography. Areas that have not been much explored are zoom shots, changing the timings and frames/second, movement of the camera (rather than the subject), cutting different sequences of film together, adding backgrounds (as in my first hologram, "THE SKIER"), and various lightings. All these things I began to explore over a year ago, but due to a limited budget, I was just able to do enough to find out that they worked. It would also be very interesting to use a Panavision camera and 70mm film.

I've been talking to some of the people in UCLA's X-Ray department. I found that they use a very sensitive special emulsion on their film. This film gives an illusion of depth, and I think exploration in its use to make a hologram would be very interesting.

Cameras using a laser scanning device, possibly a prism or some sort of crystal, might be the answer to illuminating the subjects to be photographed. This would take the only effective way of photography for holo-

grams out of the studio. Using sonar to record the image patterns might be another answer.

Video tape uses a beam of electrons to capture images. Electrons travel in a magnetic field. Lasers are a beam of light and light travels in magnetic fields. I feel this area of correlation should be explored, especially since the holographic film may be considered as oversize tape or film, according to what type of emulsion is put upon it.

I think color could be controlled by using two lasers during the printing. One laser would give a red light and the other would give off blue and green exposure light, just as in normal color printing.

Many experiments can be done using holograms of hard lenses instead of the hard lenses themselves. Using the Multiplex printing method these lenses could then be multiplied ad infinitum. Since these lenses would be printed on a piece of acetate, they are totally sensitive to manipulation to con-

Continued on Page 706

(LEFT) The author holds in her hand a calculator which is a light meter. It is used to measure the intensity of the two beams (object beam, which illuminates the subject, and reference beam, which is used to interfere with it). A beam-splitter, which divides the single beam into two beams, controls the intensity ratio of exposure light. (CENTER) She holds her hand behind a 120° hologram to illustrate its transparency and size: 19½ x 9½ inches. (RIGHT) Directly under the lady's chin is a ruby-colored helium-neon laser. The shutter is wide open.



(LEFT) In the film "LOGAN'S RUN", the protagonist, having been captured while trying to escape from the city, is subjected to a computerized interrogation, in which six phases of his "psyche" are projected in the form of holograms visible on screens. (RIGHT) In this photograph the characteristic red-green-blue spectrum of the hologram is visible. To record the holograms for this sequence, Michael York went to the studios of the Multiplex Company in San Francisco, where, in three hours, 18 takes were made, six of which were chosen.



VISUALIZING A LIFESTYLE

Continued from Page 641

images. It's a real ego trip.

At any rate, we took a matching piece of that mirrored entryway with us to Dallas and set it up in the big West Atrium room that has all the mirrors and strange shapes. We put it in the opening of one of the corridors so that, as the characters come up the escalator, they walk right into it. We then matched it with the New You set constructed back at the studio to make a nice tie-in.

It was fun designing the New You set, with its operating table and "octopus laser" unit, but it was also difficult because the producer, Mr. David, wanted certain specific things to happen in there. The mechanical special effects people worked for months to get the table to turn and tilt just so, and the arms to come down in just the right positions. Then the photographic special effects people had problems of animating the laser beams to hit just right. It was a very time-consuming type of thing. In my case, once they had approved my design, I was able to walk away from it — but there was still a great deal of work to be done.

A marvelous location set which we used was the Water Gardens which a New York firm had designed for Fort Worth, Texas, and which I think is something everybody should see. It's incredible! Four square blocks of pools and strange fountains and running water and great plazas — just really incredible. I first saw it in the winter-time and it had such a strange dark

look about it that I knew we could use it for the exterior of our city. Those strange terraces were structurally correct to serve as members for the bases of the domes. It turned out to be a super sequence — really beautiful.

One of the fun things about designing for film is to see what you can find on location and then tie it in to studio sets. This is especially true with what's happening in Texas. Those people down there are just building everything bigger. It's unbelievable what they're doing.

Besides "LOGAN'S RUN" I've been involved with a couple of other science-fiction films and, as a result, some people are beginning to think of me as a science-fiction specialist. I don't want to be typed that way, because I've done a lot of other kinds of things that I'm very proud of. I love science-fiction, but I feel that a good designer or art director should be able to accept the challenge of whatever the script demands.

"FANTASTIC VOYAGE", which I designed, also with Saul David as producer, was another type of fantasy adventure but, except for the futuristic control room where they miniaturized the submarines, it wasn't science-fiction in the same sense as "LOGAN'S RUN". It was concerned mainly with anatomy and biology. I spent many months with medical doctors at UCLA and a medical illustrator who worked very closely with me on the problems of designing the interior of the human body on a vast scale — but it was a fun project.

An interesting aspect of "LOGAN'S RUN" has to do with the materials used in constructing the sets and props —

some of them quite new and unusual. We found a marvelous plastics company in Los Angeles that specializes primarily in ceiling pieces. We had discussions with them and they ended up moulding for us all kinds of unusual shapes and forms. For example, they enlarged the crystals to huge size for the Carrousel sequence by shaping large sheets of plastic material in a form, using a combination of vacuum and heat.

I think there's a whole new world that's going to happen in film through the use of these new materials. Again, that's the fun part of designing — getting together with those wonderful people who work outside the film industry in order to find out what they can do for you. The whole different strange look of "LOGAN'S RUN" is due to the materials we used, mainly the plastics. The textures and qualities that they are beginning to use on the outside for commercial buildings we can make work for us in film.

Because of the complexity of the sets, it would have been nice to make scale models of all of them, as used to be done in the past. We used to make a lot of models to go along with the sketches, but because of the budget we really didn't get too much involved with models on "LOGAN'S RUN". My set designer simply drew up the sets in 1/4-inch scale, with the details 3/4-inch or, in some cases, full-size, and these were turned over to the Construction Department. Then we would go to the Special Effects people and tell them what was required. For example, in the huge Carrousel set we needed a big crystal at the bottom of the set that would turn in conjunction with another big crystal at the top, but with people supposedly being able to soar up into the air as the Carrousel begins to turn. My responsibility had to do with the basic colors, structure and design of the set. Once the producer approved it, all I could do was tell the Special Effects guys: "Make it work, fellows, because that's what The Man wants."

For the ice cave the set designer made a basic floor plan with the elevations indicated that would help the director conceive the action correctly in terms of the script. Then these plans had to be gone over very carefully with Construction. We had areas where there was flocking sprayed with a kind of blue. Then large vacuum-formed "ice" panels were fitted into certain sections so that they could be lighted from behind. Then we took "candy" glass (breakaway glass) and began to drip it all over the flocking areas, so that they took on a moist, drippy look.

I tried to design this set — as I

Control room in the headquarters of the Sandmen, special police of the city-state. From here they monitor the electronic gear that keeps constant watch over each person in the 23rd-century city. Achieving this clean modern look in sets is deceptively simple. Hennesy worked constantly to keep the sets from looking over-decorated.



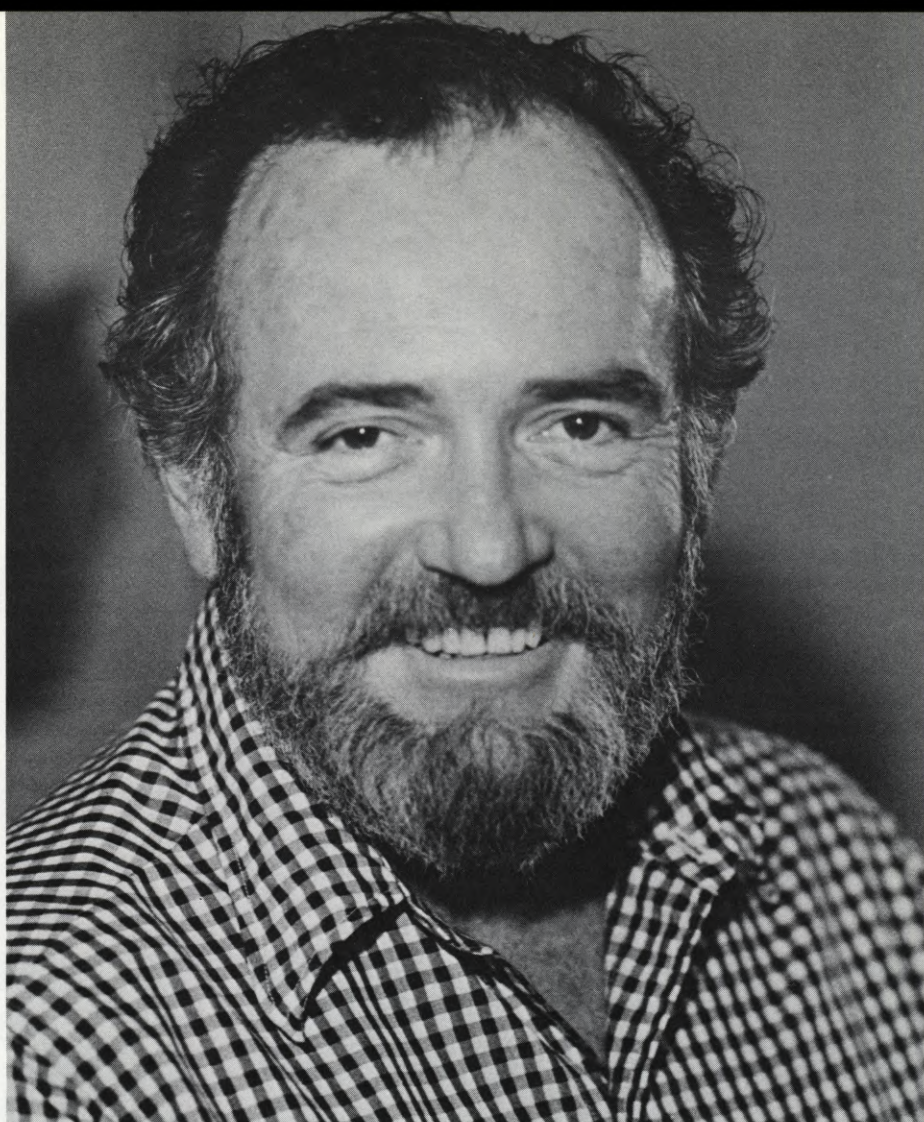
usually do — so that the cameraman's work would not be complicated by having to knock out walls. In a normal set like a bedroom you usually make the walls "wild", so that the cameraman can get in there to shoot. But I try to conceive a big enough set, particularly on a picture like this, where the whole crew can move right in and not be concerned with having to back up to get a longer shot. We did eventually have to cut one section out of the ice cave set so that the camera could get back for a master shot. That happens quite often. You think you've got it right and then they come in and say: "Gee, I wish we could get back another ten feet." You've just got to be prepared to knock out a hunk of the set.

The ice cave set was primarily just a big armature into which we cut areas to fit the plastic panels. We flocked the rest of it and used our drippy technique with the candy glass.

At one time we had 15 or 20 people constantly making icicles to hang all over the place. A sculptor in the mill made a model of a fish, which was then cast in fiberglass. He also did the large walrus. A sculptor on the outside did other figures for the sequence. At one place in the action within the ice cave, the couple running away goes around a corner and sees the runners who had gone before them frozen in large ice chambers. We took fiberglass panels and frosted them from the inside and then stood real people behind them with layers of cellophane in between. You get the illusion that you are looking right through into large chunks of ice where these people are embedded. They were, of course, made up correctly with the right color on the bodies, and they were properly lighted. I think the effect comes off very well.

In that same sequence, another problem was Box, the mechanical man — how to make him work. There was a real man inside the casing, but the design of the robot was a kind of joint effort. I designed the basic body, while the makeup artist came up with a concept of mirrorizing a strange mask that fit over his head. Then the special effects people had to figure out how to make him run. They built a little control unit inside the box in which he stood and, by controlling his knees and feet, he could actually run the thing around, so that it actually worked without being involved with cables or wires (which would have had to be hidden).

The only thing we weren't completely happy with was the way the arms worked. Someday we are going to find a solution to the problem of operating the arms on a science-fiction robot. You always end up with flexible tubing,



"LOGAN'S RUN" Production Designer Dale Hennessey, a former Academy Award winner for his design of **"FANTASTIC VOYAGE"**, was reunited on this assignment with two key creators of **"VOYAGE"**: Producer Saul David and Director of Photography Ernest Laszlo, ASC. Together they form a superb team. Hennessey is currently at work on a vastly different type of fantasy, the Dino DiLaurentiis remake of **"KING KONG"**.

simply because nothing can be found to use that's better.

As far as the visual aspect of the ice cave sequence was concerned, there were problems of how to light it to make it really appear cold, but Ernie Laszlo did a marvelous job of setting his lamps and putting gels on them to get a blue, cold look.

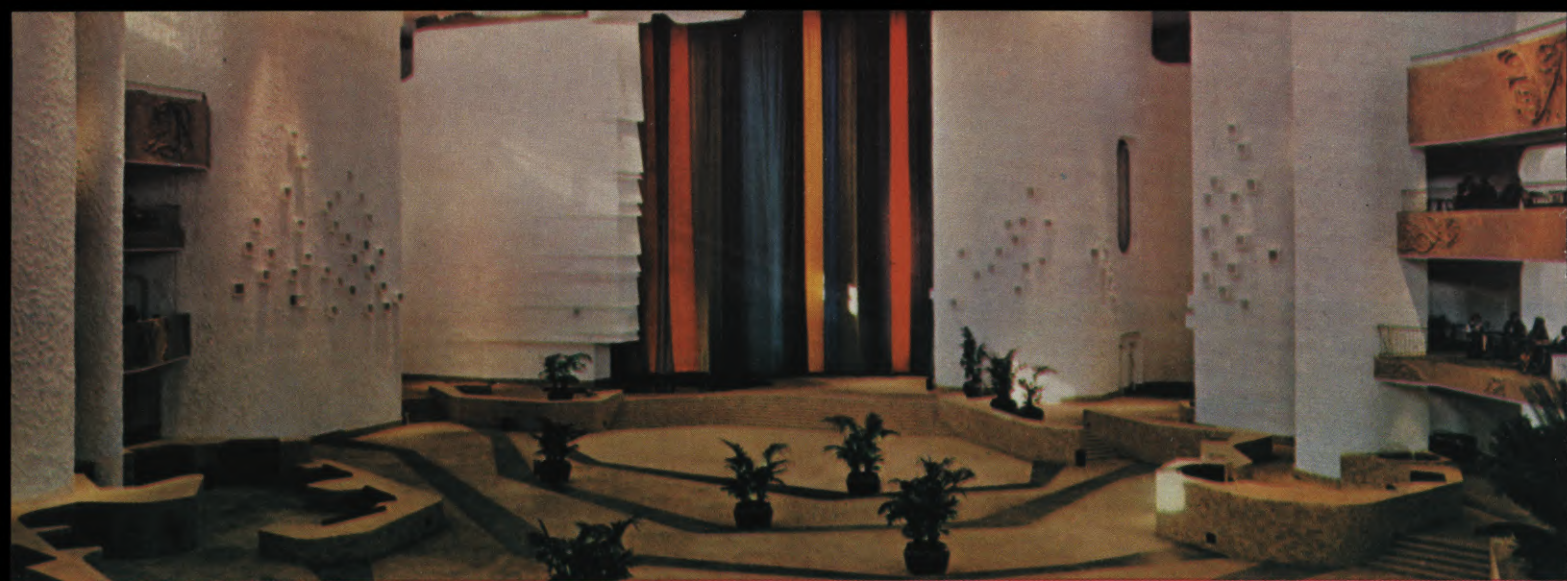
Being called upon to design the miniature city, I was faced with the inevitable question: What does a city look like 300 years in the future? A key to the problem was a building we found in Dallas, the Zale Building, which is a kind of gold and has such a stark, even *mean*, look about its shape that Mr. David and I both loved it. That building became the Sandman headquarters, and we copied it in 1/4-inch miniature scale and set it in the center of the model of our futuristic city.

Then, on the basis of much research and going through good books on futuristic architecture, we decided on soft, sweeping units for the other structures and the apartments where the

people lived. The exterior appearance of the imposing Carrousel building was kind of based on the interior look of the big room down in Dallas. We made a sort of abstract exterior by using a very interesting kind of crazy paper which, as you look at it one way, has a blue-green look to it, but which, as you look at it slightly to the right, begins to go to orange, then red and then purple. As you go all the way around it, these multicolored elements are always flickering. That really gave us the feeling that Carrousel was where everything was happening, a place where the people would gather for excitement.

We were, again, lucky to find this interesting new material. It made the building look as if it were constantly vibrating — like the structures of the old Coney Island days, but instead of light bulbs we had this strange new material to give us a futuristic Coney Island look.

The maze cars which carry the people all over the city became another element which we had to design into the miniature. On stage 25, running



The Great Hall of the Dallas Apparel Mart is a five-level arena 280 feet long, 150 feet wide and 60 feet high, where 4,500 people can be accommodated at a show or exhibit. It inspired the architecture of the film and served as its major set — the central plaza of the city.

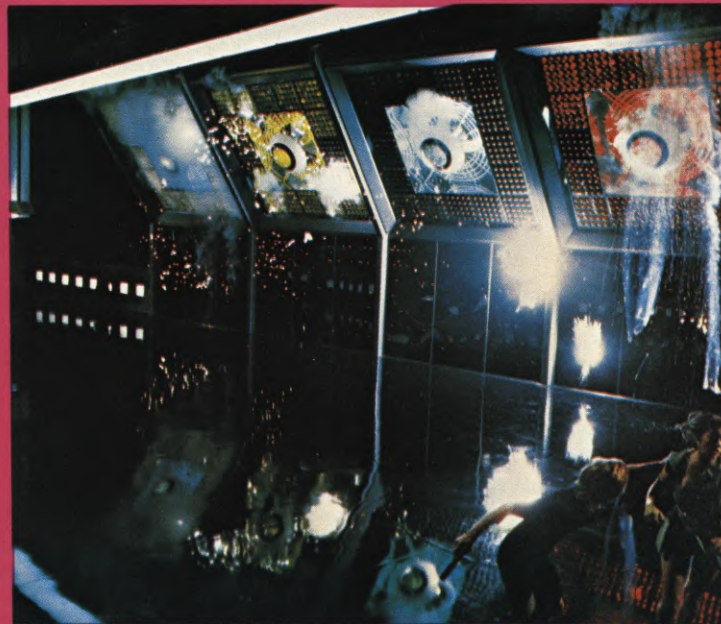
through to Stage 27, at MGM we had built a 225-foot mirrored tunnel in which full-sized maze cars ran back and forth. We simply reduced that in scale and fashioned 60 miniature maze cars, with plastic tubing to serve as the tunnels in which they ran. A large crew of special effects men worked on making these miniature maze cars run

— criss-crossing each other, with some of them popping into buildings. Seeing them all going at the same time was a great sight.

Afterward, the miniature city was turned over to Bill Abbott — who I think is just about the greatest thing in special effects — and it became his responsibility to put in on film. He's

done so much work with miniatures that he knows exactly how to light them and shoot them properly and he did just a great job. In fact, Bill's responsibility on this picture was equal to mine in terms of controlling the matte shots and trick shots and optical work — putting all the tough elements to-

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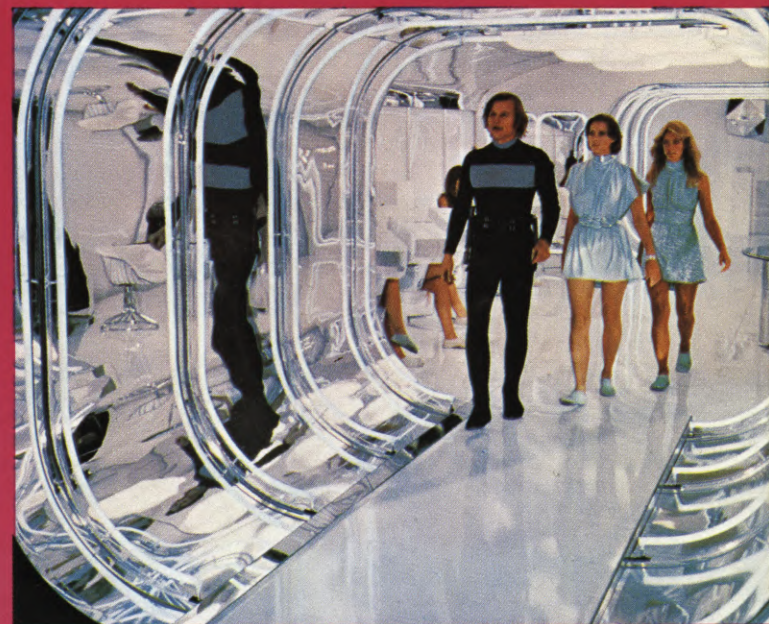
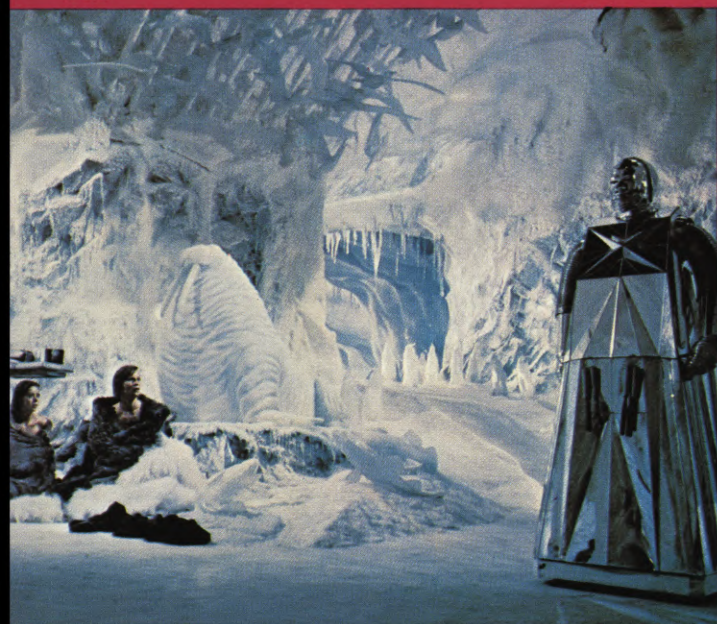
(ABOVE LEFT) The most intricate set in "LOGAN'S RUN" is the bizarre Carrousel, built on State 30 of the MGM Studios. On "Lastday" those doomed to death are seen floating up in the force field. (RIGHT) After Logan shoots the life clocks in Sandmen headquarters, the city begins to self-destruct. (BELOW LEFT) A view of Sandman headquarters before the destruction. (RIGHT) A tunnel built for the maze cars to travel in ran for 225 feet between stages 25 and 27.





Artist's storyboard sketch looking up at the white revolving crystal high above Carousel, as it glows and creates a force field that levitates those who have reached the age of 30 and are slated to die in spectacular flame-outs, vainly trying to reach the crystal and renew their lives. In the actual sequence as filmed, the Lastday participants are dressed in grotesque costumes, complete with death masks.

(LEFT) Perhaps the most beautiful set in "LOGAN'S RUN" (or any other film ever made) is the spectacular ice cave, replete with animal sculptures carved out of ice and a mad robot named Box. It called into play an array of new and unique plastics, plus ingenious techniques for putting them together. (RIGHT) A mirrored interior in a Dallas building inspired the designer to give many of his sets a mirror-laden reflective look.



(LEFT) The lounge of Logan's apartment featured a ceiling made of a double layer of vacuum-formed plastic that modulated the light in an interesting way. Walls were painted an unusual blue-grey to contrast well with the characters' black and pastel green wardrobe. The far-out custom-built couch was inspired by a picture the designer had seen. (RIGHT) Studio set representing the former U.S. Senate chamber, long-since fallen into ruins, with vines taking over everywhere.



BEHIND THE SCENES
Continued from Page 637

ing. There are lots of different kinds of pictures and I sometimes think that there is not sufficient grasp, even among those of us in this industry, as to how dissimilar various kinds of movies are, in terms of how you approach them. Making a film like "LOGAN'S RUN" is as different from making a love story about two contemporary young people as it can possibly be. Making this kind of movie is a lot like constructing a public building. You have to draw plans endlessly and then you have to get a lot of money and dig a big hole and lay in steelwork and allow for bathrooms and all that kind of thing.

There is, in the end, very little room for inspiration. It's the kind of film that depends very heavily upon planning, because so much of it deals with magic. That is to say, so much of it is involved with effects. The director has little of the liberty that a director usually has, and likes to have, because he is confined to those things which will match what the special effects are going to produce later on. A picture of this type has almost endless effects — mechanical, photographic and every other kind, and we were very lucky in getting a director who likes magic and is happy working with it. We could just as easily have ended up with another very good director who might have gone up the wall when confronted with the fact that, whether he liked it or not, he couldn't pan in a certain scene because it was part of a blue-screen effect that required the camera to stay nailed down. However, Michael Anderson is temper-

amentally very well suited to this type of challenge. He understands and likes it and adapts himself to it. I was very fortunate in that respect and also in being able to get a superb cast of really wonderful actors and a first-rate technical team.

Having made a picture of this general type some years ago which enjoyed some success, "FANTASTIC VOYAGE", what I asked for was the same team that had worked with me on that one, and I got Dale Hennesy as Art Director and Ernest Laszlo as Director of Photography. Since we had all worked together on "FANTASTIC VOYAGE", I knew that these people were not going to be afraid of jumping off into the unknown, so to speak — which was what "LOGAN'S RUN" would require.

As an example of just one of the "unknown" challenges involved, there is a major sequence in the picture called Carrousel, having to do with a religious death-rite. These people must be shown whirling in the air, rising and burning up in front of your eyes. It's very easy to write — it can be described in a paragraph — but to construct it and then film it was an enormous problem. But I knew that these people wouldn't be afraid of it. So, even though the studio wanted to go ahead with the project immediately, I waited until I could put the proper group of people together.

It's an odd fact that there are a lot of people who like science-fiction and who tell you that they'd love to work on such a film — directors, art directors, cameramen, and so on — but when you talk to them you find that they really

don't know very much about it, and they'd be really upset at what they'd have to go through in the making of it — the meticulous planning and rigid restriction of the effects.

I was finally able to put Dale Hennesy onto the project almost a year before shooting was to begin because visualization is everything in such a picture. I worked very closely with him and concurrently on the script and we accumulated not simply a lot of drawings (because almost anybody who can draw can come up with drawings), but drawings which would, in turn, feed back into the script. As a result, we changed sequences to conform to what the state-of-the-art would make possible. What you do is lay out a full storyboard and then go backward into the script and play back and forth between the visual and the literary until you get something that can be filmed.

For example, there was in the novel a very big sequence involving something like flying motorcycles duelling in the air, and everybody who read the book just loved that stuff, including the authors. But, after examining the problem, I decided to throw it out almost entirely, simply because the state-of-the-art is such that flying motorcycles, are going to get you a laugh because they are going to look pretty awkward. So this very large sequence in the book boiled itself down to a very small sequence in the film, in which we did only what we were able to do well.

That's the kind of compromise you have to keep making. I don't know if "compromise" is the proper word for it, though, because quite often the difficulties themselves result in another type of creativity. A number of things came out quite well because we couldn't do what we wanted and were forced to think up something else that was even better. But that's what makes this type of picture quite a lot different from the kind of picture in which what the actors and the director bring to the sound stage is the whole thing. In this kind of picture, fortunately or unfortunately, what happens *before* you get onto the stage, is quite as important, and sometimes *more* important, than what happens when you get there.

When I first got into the industry, I met a very nice production man who had worked for DeMille and told me about DeMille's meticulous planning. He recounted an illuminating anecdote in which a lady came up to DeMille at a social function and asked: "When are you going to start making your next picture?" DeMille said: "It's all done, madam — all except the photography."

(Left to right) Screenwriter David Zelag Goodman, who wrote the screenplay for "LOGAN'S RUN", adapting it from the novel of the same name; MGM worldwide production chief Dan Melnick and Producer Saul David on location in Dallas. It was Melnick who gave David the green light for the production, telling him: "Why don't you make it the way you keep saying it should be made?"



That's a very telling statement and it has a lot to do with this kind of film. Not that the photography isn't a huge effort, but you've got to set up for it; you can't improvise.

To illustrate what I mean, let me refer once more to the Carrousel sequence. The set is an arena like an amphitheater — completely circular, many-tiered — in the center of which there is a great red crystal. The people who have reached their 30th birthday and have to die, file in and surround this crystal. They look up. Far, far above them — perhaps 500 feet up — a white crystal glows on and sends a shaft of energy down to the red crystal, which lights up. Now the two crystals start turning together and, as they do, they generate a kind of force-field which enables these people to float up in it. The idea of their state religion is that if anybody can reach up to the white crystal he will be renewed and get his life to live over again. But what actually happens is that these people are incinerated by the force-field as they go, while the people in the stands scream "Renew! Get your life again!"

Whether or not this sounds nonsensical, one can imagine that it presents a lot of problems in terms of how to do it. How we did it was a combination of all sorts of effects. First of all, we did it with the kind of brute strength and money with which you often do the most delicate things. We built an arena on the sound stage. In the center of it was a 40-foot turntable with a red crystal in the center of it. The turntable really turned and the red crystal really lighted up and there were strobe lights going. Far above there was another turntable and a white crystal and we flew people on lines up toward it. In addition to the usual lighting problems that go with an anamorphic wide-screen photographic format, there was the need to conceal the wires and to be able to pan up without hitting the ceiling. All these things presented a series of cinematic problems that really wracked people's brains. Todd-AO constructed special lenses for us throughout the filming of the picture and we used lenses that no one else has ever used, because they're experimental. Dick Vetter would call from Todd-AO and say: "I've got something that seems to have 107 degrees." And we'd say: "Bring it on over." Then we'd strap it on and go.

Aside from the photographic problems, the designing of this bloody Carrousel was preceded by months and months of discussion, drawings, arguments and statements like: "You've got to be out of your mind!" But we finally ended up flying 20 or 30 people on



Director Michael Anderson, Producer Saul David and Unit Production Manager Byron Roberts watch a videotape replay of a scene. Relayed from an electronic viewfinder on the camera to a videotape recorder, these taped scenes were of special value on an intricate science-fiction feature like "LOGAN'S RUN", which involved special parameters and limitations in order to make possible the galaxy of complex special effects.

wires, and when you see those people exploding and burning up on the film, they're really exploding and burning up on the wires, because after we had tried all kinds of optical ways to get the result, it turned out, as it often does in the movies, that the only way to get it to look real is to do it real. So we clad people in asbestos suits and put charges on them. Each man, as he went past the camera, triggered off his flash. In the dailies you can see these people flaming and hanging from wires and being hauled down, while crewmen spray them with CO². It's completely real.

In one dominant sequence of the film, a huge explosion takes place in the Great Hall, shot on location in Dallas. It's an enormous place. What we did was hang a 40-foot red crystal on the wall and pulsate it. One of the scenes involves destruction and the crystal has to blow up. We had 700 extras in costume and we really blew up the crystal. When it went, those kids didn't have to *simulate* panic. They were actually in a panic, because the whole thing caught fire. I was standing there watching this and saying to myself: "We're about to consume 20 million dollars worth of building in Texas!" But we got the fire out before the flames got up to the proscenium, where we would have been in serious trouble. That was absolutely for real, very frightening — and we're lucky nobody got hurt. Surprisingly, while it ruined our crystal, it didn't really damage the

building. We smoked up the walls pretty good, but we cleaned them up and I think we left some happy people in Texas. At least they kept telling us to come back. Maybe they just wanted to get us over the state line.

Another tricky sequence took place in a set called the New You, a kind of combination surgery and beauty shop of the future, where you can go and get yourself a new face or a new body. We see people flipping what amounts to a TV screen that allows them to try on different noses and other features. Then they go into a laser surgery which instantly changes everything.

Again, this is the type of thing that can be written quite easily, but the doing of it is something else. Dale designed and built a machine with multiple arms, but these arms had to have animated laser beams. When the laser beams hit something, that something that has been hit has to ignite. You have to film the scene with the ignition taking place and have to work out the precise sequence and direction which the six arms (and eventually the animated laser beams) are going to traverse. You have very complicated problems of curves and parabolas, because all six arms work at the same time and where they hit the actor his clothes get set on fire and scars appear and blood starts running down his face — and it all has to be in sync!

You can prepare like hell for months and months and then, when you get

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MAKING MOVIE MAGIC
Continued from Page 643

Using color prints as a basis for matte paintings would seem so obvious that one might wonder why it has been done only recently. All I know is that when, in the past, I tried to get large enough color blow-ups nobody was manufacturing printing paper to that scale. But apparently a demand for

such paper developed in the advertising field, so that paper manufacturers started producing it in rolls 100 feet long and 50 inches wide.

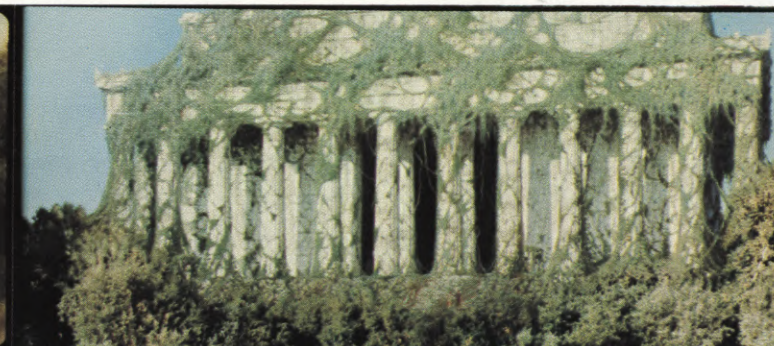
The color blow-ups we got for this picture were made on a paper that has essentially a semi-matte surface. You can paint on it with almost anything you wish except watercolor — water disturbs it. Alcohol or varnish doesn't affect it. So the artist can paint onto it

and, if he changes his mind, wipe the paint off and start over again. Using such blow-ups as a basis for matte paintings offers such advantages in terms of speed and realism that I think they will continue to be used more and more.

There were various effects in the script that called for the use of lasers. For example, each of the people in this future society has in his apartment an



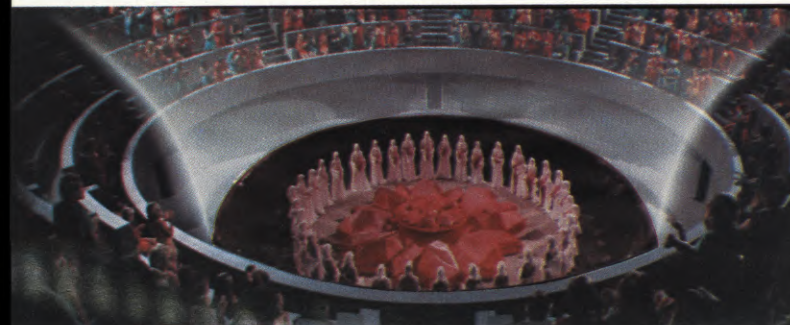
Frame blow-ups of composite matte shots from "LOGAN'S RUN". (LEFT) Jenny Agutter, Peter Ustinov and Michael York walk in live scene filmed at 20th Century-Fox ranch, with painting of Washington, D.C., overgrown with vines in the background. (RIGHT) The spectacular Water Gardens at Fort Worth, expanded by means of a matte painting and with moving ocean waves matted into the background.



(ABOVE LEFT) The Washington Capital Building overgrown with centuries of vines and (RIGHT) the Lincoln Memorial. Both are matte paintings from color stills, with live action of Logan and Jessica printed in. (BELOW LEFT) The two stand looking up at the Lincoln statue. About 10 feet of pillar, 30 feet of wall and a patch of floor were part of small set built in the studio to back them up. (RIGHT) Lincoln looks down at the two below.



(LEFT) The frosty outline of the vase-shaped "force field" can be seen superimposed on live action shot of 30-year-olds assembled for Last-day at the Carrousel. More intricate force field effects were generated for other shots by means of Image West computer graphics. (RIGHT) Using master scene in sewage disposal plant, shots of fish swimming in aquarium were matted in at side and rear, plus shot of pool in foreground.



electronic transport machine capable of what might be called "teletransference". He simply punches up the characteristics of a certain person on a remote control box and an alcove becomes illuminated with a strange ectoplasmic effect which eventually forms into the shape of a person and, finally, the live person. The "strange ectoplasmic effect" was achieved by means of lasers, augmented with wiggle glasses.

In a rather amusing sequence, Logan apparently punches the wrong button on the remote control box of the electronic transport system and a boy materializes. Not being very happy with this turn of events, he dials the boy out and tries again. This time, a pretty young girl, Jessica, appears in a similar manner and Logan ushers her into the room.

In the sequence where Logan destroys the computer, we use laser effects behind the lettering on the screen, which goes crazy when the computer breaks down. Then, when all the circuitry in the city goes out of control and there are all kinds of electrical explosions, we use the lasers to double in light show effects over the city in a staccato manner that gives an appearance of something happening atmospherically.

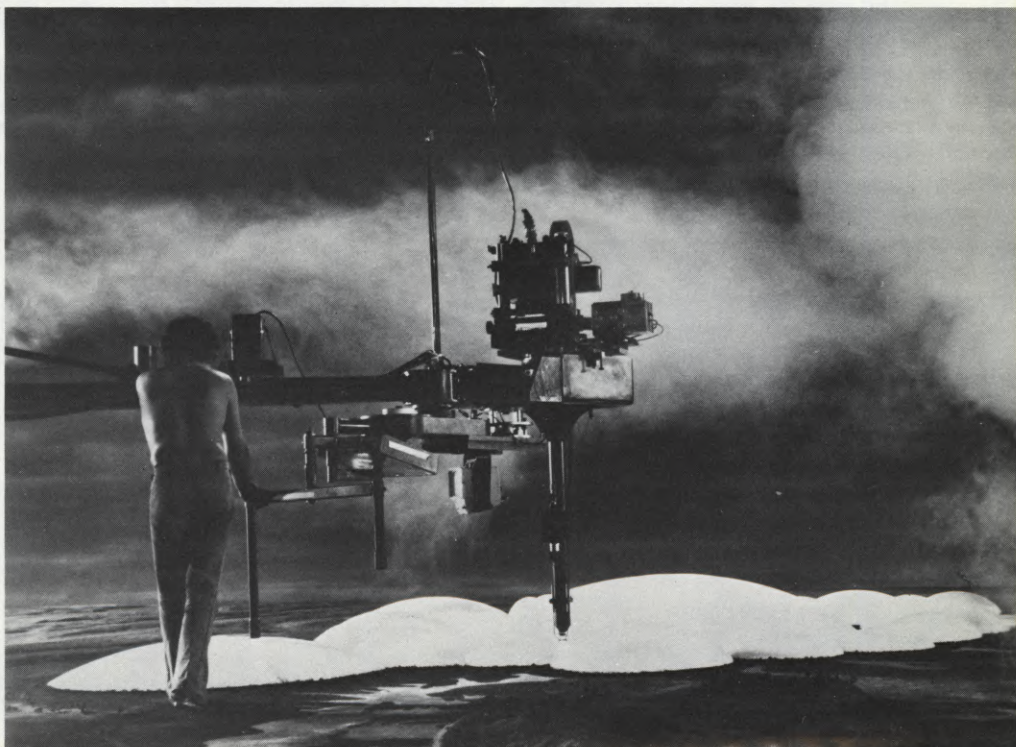
At first MGM talked about getting an outside company of laser specialists to produce these effects, but it soon became obvious that in order to have the degree of control needed to inject whatever effects were desired into the picture, it would be better to create them in the studio. So the studio bought one blue and one green laser and rented a red laser to complete the spectrum. We set them up on the stage and what actually happened was that we would project the laser beams onto a translucent screen and modulate them with many kinds of plastic that were serrated and dented and could be rotated. We put them on motorized wheels that would revolve them very slowly to produce a galaxy of light effects. Of course, once you got these onto film you could do anything you wanted with them. For example, if you wanted them to come through like a lightning effect, you could create this optically by means of a variance in exposure.

From the standpoint of photographic special effects, perhaps the greatest challenge in "LOGAN'S RUN" was the Carrousel sequence, which depicts a religious-type ceremony that takes place in a large circular arena. The premise is that when you have reached the age of 30, you must go. **Continued on Page 700**



Portrait of a couple of dour-looking dudes getting ready to make movie magic for "LOGAN'S RUN". Special photographic Effects wizard Bill Abbott, ASC, and Director of Photography Ernest Laszlo, ASC, shown on the set. A wide variety of cinematic legerdemain was all in the day's work for this pair during shooting of the ambitious science-fiction spectacle.

Preparing to shoot the opening scene for "LOGAN'S RUN". The camera mounted on the Kenworthy Snorkel-B skims over the domes of the encapsulated city like a helicopter, finally moving in tight between the domes to the central unit, lighted from within. The movement then continued, in a "white-out" dissolve, through the interior of the city.



CALIFORNIA'S NEW MOTION PICTURE DEVELOPMENT COUNCIL

By LIZ BRADY

Administrator, California Motion Picture Development Council

The "cobbler's children" finally get shoes, as the state which is the site of the world's greatest film industry belatedly establishes an office to provide every aid for film-makers shooting in California

Eighteen long months, dogged determination on the part of motion picture industry leaders, tenacity and perseverance on the part of a State Senator and a State Assemblyman, the pressures of growing competition from other states, recognition by a far-sighted young Governor of the industry's "felt need", and some good, old-fashioned creative thinking all around have paid off for the Golden State.

How? With the opening on April 5, 1976 of the State of California government-operated Motion Picture Development Council coordinating office at 107 South Broadway in downtown Los Angeles. (Zip code: 90012. Telephone number: (213) 620-5170.)

This is the newest industry liaison office in the country and certainly the only one set up to deal with the California film industry on its own turf, with an insider's view of the problems and benefits of "shooting in your own back yard."

The Los Angeles office is the operating arm of a twelve-person advisory council chaired by State Senator Alan Robbins (D.-North Hollywood). This group has been around since 1974 when the legislature passed a bill which created the Motion Picture Development Council, but did *not* provide any funding to put Council plans into operation. That had to wait, to come from Governor Edmund G. Brown, Jr. in February of this year.

In addition to Senator Robbins, the appointed council members include: Assemblyman Herschel Rosenthal, (D.-Los Angeles), Vice-chairman; Albert A. Dorskind, Corporate Vice President, MCA, Inc.; Howard D. Fabrick, Esq., Loeb & Loeb; George J. Flaherty, First Vice President, International Alliance of Theatrical Stage Employees; Robert K. Hagel, General Manager and Chief Executive, The Burbank Studios; John J. Hennessy, President, Hennessy

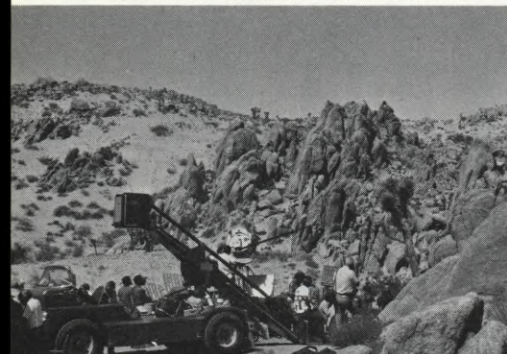
Productions; President, International Quorum of Motion Picture Producers; Chester L. Migden, National Executive Secretary, Screen Actors Guild; Robert C. Peters, Vice President, Paramount Pictures Corporation.

A group of production consultants and advisors has been added to that nucleus to expand the knowledge-base:

Roger M. Anderson, Motion Picture Coordinator, Sonoma County, California; Martin Gang, Legal Counsel to the CMPDC, Gang, Tyre & Brown; Kenneth L. Grossman, formerly with Universal Studios; E. Gregory Hookstratten, Hookstratten & Byrne; Richard M. Kerns, President, West Coast Division, EUE/Screen Gems; Marshall Manley, Manatt, Phelps and Rothenberg; Lindsley Parsons, Jr., Executive Production Manager, Paramount Pictures Corporation; John T. Reynolds, President, Television Division, Golden

Continued on Page 694

(LEFT) A Chapman crane gets ready to soar into the sky during the filming of a Western on a rugged location near Chatsworth, California, just 30 miles from downtown Los Angeles. (CENTER) Shooting ocean scenes for a "LASSIE" TV episode at Trancas, just north of Malibu Beach. (RIGHT) Preparing to shoot on the street of the Bell Ranch in Ventura County, one of several "Western" locations in California.



(LEFT) A scene from Universal's "THE OTHER SIDE OF THE MOUNTAIN", filmed near the famed Mammoth Lakes ski resort in the High Sierras of central California. (RIGHT) Charlton Heston and John Cassavetes play a scene from Universal's "TWO-MINUTE WARNING", filmed in the Los Angeles Coliseum. Both Northern and Southern California boast a vast variety of historic and natural locations, one of the main reasons why the American film industry migrated westward.



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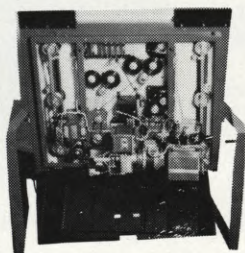


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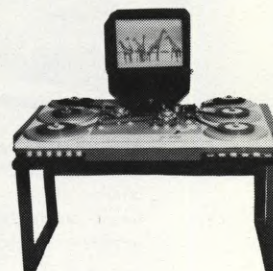
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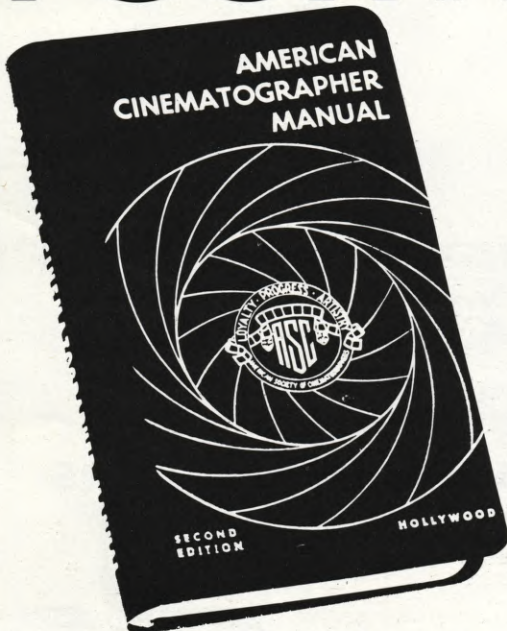
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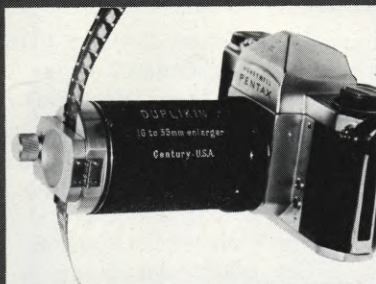
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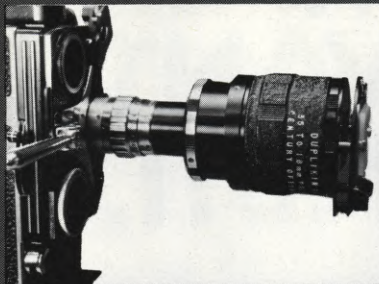
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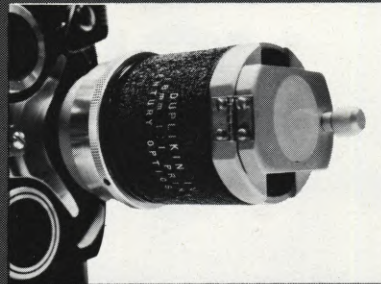
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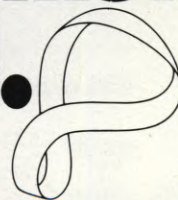
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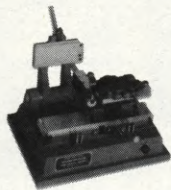
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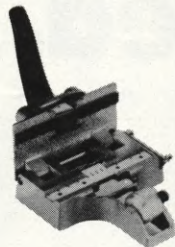
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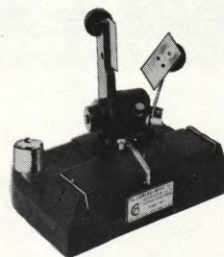
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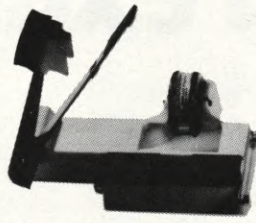
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VICTOR DUNCAN PUBLISHES "FILMMAKER'S EQUIPMENT GUIDE"

A new filmmaker's "Wishbook" was recently announced by Victor Duncan, Inc.

The "Victor Duncan Filmmaker's Equipment Guide" is a 268-page compilation of the latest and best in film production equipment. It is divided into 9 sections: Cameras, Optics, Power, Support, Sound, Lighting, Accessories, Editing and a brand new section on Professional Super-8.

The equipment guide is liberally illustrated with over 1000 photographs and contains newly designed tables to help take some of the mystery out of equipment acquisition.

According to Norm Bleicher, Editor of the "Guide", one copy is available free of charge to qualified professional filmmakers. Additional copies are \$5.00 each. "Victor Duncan Filmmaker's Equipment Guides" are available by writing Victor Duncan, Inc., Dept. A, 2659 Fondren Drive, Dallas, TX 75206.

LABORATORY SERVICE BROCHURE

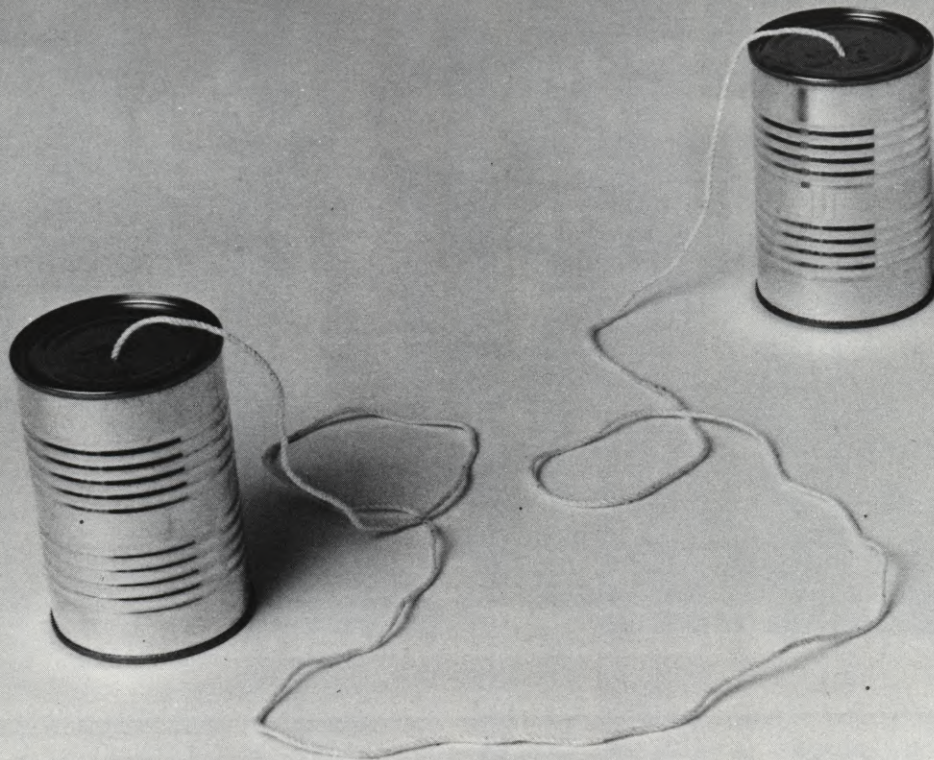
A professional motion picture/filmstrip, slide-set laboratory service and price brochure of 16 pages in full standard 8½ x 11 size provides the industry's most up-to-date price information from BEBELL, INC. of New York City.

Clearly shown are highly-detailed developing, internegative, CRI and release print charges for negative/positive EastmanColor, reversal Ektachrome, color TV spots and B&W reversal plus all related lab & packaging services. Film sizes shown are 16mm and Super-8mm.

In addition there is a full page fast-access Exposure Index chart of 16mm and 35mm Kodak motion picture film stocks including 5240/7240 for "normal developing," under-exposure for forced one to four stops developing," and "over-exposure for retarded developing." (This Exposure Index is available on request as a chart for on-the-spot use for cameramen and camerawomen.)

Carefully designed throughout and indexed for the motion picture professional to work from in figuring lab costs down to the last fraction of a cent, the February 1976 edition of the BEBELL, INC. Prices & Services brochure can be obtained by calling Herbert J. Braun, Sales Manager, at (212) 245-8900 or write to him at: 416 West 45 Street, New York, N.Y. 10036.

WIDENING THE GAP IN SOUND TECHNOLOGY.

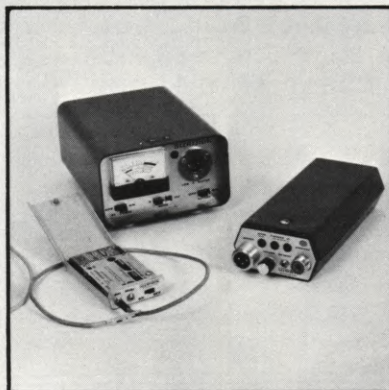


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Swintek wireless microphones have been selected by ABC, CBC, The National Film Board of Canada, and The Olympic Radio and Television Organization for use at the 1976 Summer Olympiad, Montreal.

THE PROPOSED TRILENT-35 SYSTEM Continued from Page 668

magazines they can now give seven-and-a-half minutes with one load under the TRILENT system. If and when the new polyester base films become available, we will be able to pack ten minutes running time into standard 500-foot magazines using the TRILENT system.

With the shorter film travel in the gate and with the slower magazine speed, TRILENT sound cameras most likely will be quieter, although this is not yet tested.

I have touched on a few of the economic advantages of the TRILENT system earlier, such as less time for lighting, easier mike boom positioning and less frequent magazine changes. But, of course, the biggest saving is in filmstock and laboratory costs; 25 percent to be exact. In the production stage it can amount to anything from \$10,000 to \$40,000 depending on the amount of footage used, or even more, if the price of silver goes sky high, as it may.

Let me say a few words about the sound which will run at 67.5 feet per minute instead of the present 90 feet per minute. It is transferred to this speed from the original ¼-inch tape so all post-production work will be done at the same speed and film length as the picture. Our tests show no noticeable quality loss because of this slower speed. Even at 67.5 feet per minute it is still running twice as fast as 16mm speed (by comparison the present standard 35mm speed is 2.5 times faster than 16mm). In fact, the speed of TRILENT sound film is 13.5 inches per second which is very close to the audio industry's quality music standard of 15 inches per second.

TRILENT is going to need some modified production machinery. I have spent considerable time in organizing this and I got help from many people, (especially from Dr. Arnold [of Arnold & Richter, Munich] who, in 1956, designed a somewhat similar system but in the 1:2-1:2.35 aspect ratio range. I have converted one camera myself for test purposes.)

KEM (Hamburg, Germany) will supply the necessary TRILENT conversion units for their modular editing tables. Standup Moviola editor conversions are available from my company.

Two companies in the U.S. are manufacturing a new type of projector easily adaptable to any number of perforation pulldown.

Soundmix, Ltd. of Toronto has already converted several

dubbers and a projector for test purposes. Plans are ready for the post-production work for production of films in the TRILENT 35 system.

Film Optical Ltd. of Toronto will make the liquid gate optical C.R.I. prints with four perforation spacing, so theaters can use their present equipment for projecting. The optical rather than the standard contact printing of the C.R.I. is the only additional cost, but considerably less than the savings on other aspects of the system.

Of course, if this production method becomes popular distributors will soon realize how much they could save on the 25 percent shorter prints and no doubt would entice theater owners to modify their projectors to handle three-perforation screenings. If and when that happens is up to them, but, meanwhile, they will receive regular four-perforation prints of TRILENT films.

How about television films where there is no intention for wide-screen theatrical release? They might well stay with 35mm Academy or 16mm format. However, somebody could suddenly realize that the TRILENT TV (1:1.33) aperture of 18 x 13.5mm (.708" x .531") size gives three times the quality of the 16mm format with a 25 percent raw-stock cost saving over Academy 35mm and might decide it would be feasible for high-quality, lower-cost TV shows, especially if they have high shooting ratios.

A later step in the development of this system will be, for higher budget films mainly, the anamorphic version called TRISCOPE. It will have an about 1.45:1 compression ratio anamorphic camera negative using the TRILENT aperture, optically stretched in the vertical direction in printing to a 2:1 compression ratio four perforation size anamorphic print compatible with present theatrical equipment designed for 2.35:1 aspect ratio presentations.

The purpose of the TRILENT 35 system is to satisfy the artistic needs of motion picture productions while saving a considerable amount of money for the producers. Without these results it is likely that no new system could ever get off the ground. Several producers have expressed interest in using the TRILENT 35 system, as soon as equipment is available. It will be soon; we are working on it. I believe the TRILENT 35 system is a good one. The design takes into consideration all the different exhibition formats of non-anamorphic theatrical films anywhere in the world in theaters and on television. This system makes sense artistically and economically and it could be widely used all around the world within a few years. ■

MECHANICAL SPECIAL EFFECTS Continued from Page 649

Century-Fox named Fred Kramer. He put a little chamber into the gun to hold water and carbide, the same chemical miners used to use in their lamps. When these two substances mix they produce acetylene gas. He also put a little ignitor in the gun and the spark from it set the gas off with the bang of a cannon. We modified it so that it could shoot several times and, instead of having a bright yellow or white flame, the gas would go through a felt washer with flux on it to turn the flame green. It was completely self-contained and all that was necessary was to put carbide in it.

In the film there are fellows called Stickmen who fly around in little jet-propelled vehicles and clean up the re-

mains of anyone the Sandmen have killed. We built little vertical platform-cars for them, but actually they were flown by wires. We did this in two ways. One method was to use piano wire. The other method was to use a Cleveland tram rail dolly and pull them along with a motorized car and winches that could be controlled. Each one had a little tractor. We flew them remotely, with a control box for each man and could produce forward or up and down movement. While we were shooting down in Dallas we actually triangulated the wires. In other words, we could put wires on them to wherever we wanted to take them.

As far as the holograms were concerned, Chris Outwater was the man who was in charge of those, but the Art Director coordinated them and we made up the system that floated them

around and turned them and lowered them.

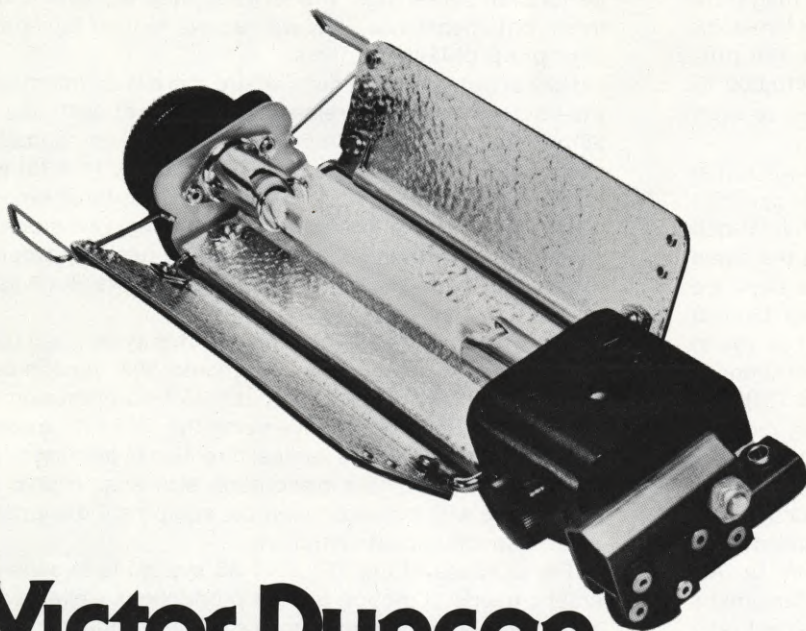
In addition to all that, we had a lot of electronics set-ups in the picture. The brain of the whole community had to be electrified and it was quite a challenge to figure out that system and also how to blow everything up in a certain way at the end of the picture.

I can't say enough in praise of Larry Yzuel, the Superintendent of Construction at MGM. He was very sharp and he worked with us all the way through the production. He was one of the main assets of "LOGAN'S RUN".

As for my work on the picture, I found it interesting, challenging and intriguing all the way through. It made me feel again like I felt when I was working on "FORBIDDEN PLANET" years ago.

It was a big show — a lot of work, but a lot of fun. ■

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VISUALIZING A LIFESTYLE

Continued from Page 672

gether.

For Logan's apartment we drew our motif from a building we found in Texas which had a marvelous shape and a nice five-story atrium with light coming into it. We took with us, from the studio to Dallas, a doorway which we felt worked better for us and we set it up in the atrium. We put a back-up wall behind it, so that when the door was opened the wall gave us a tie-in to make a smooth cut back to the full-scale apartment set built in the studio. For the decor of the lounge in the apartment we went again to our plastics firm in Los Angeles and found that they'd just come out with some really super-looking new ceiling pieces. These are sort of double units. One has a texture through it; the other is clear — and when you light through it you get a kind of marvelous shimmering look.

The set of the apartment itself we kept very simple, in key with the concept of the building down in Dallas. We chose a kind of blue-grey wall color, which worked very nicely with the clothes the characters were wearing — Logan's black uniform and Jessica's soft-green pastel outfit. I tried to get a color-coordinated look into the set.

One of the biggest problems in making science-fiction films is to find suitable decorating elements for the sets. For years we used computers, readouts, tape decks and all that sort of thing, but to find interesting decorations and try to convince people that this is what things will look like 300 years in the future is not all that easy. But my set decorator, Bobby De Vestal, got onto the track of some pretty good shops and ran across some nice pieces. He found a super-looking coffee table and some striking stainless steel and chrome units.

For the apartment lounge we had a big brown couch built, based on a picture I'd seen of a new style couch. I think that it gave the set a nice look. But then again, what is anybody's answer to how the future will look — other than your own personal feelings about it? One thing I was sure of was that I didn't want to over-decorate the set. I didn't want to use a lot of push-buttons and similar things that you might expect to see. Outside the window we hung a scenic background of a portion of the Sandman headquarters and this created the illusion that we were up 15 or 20 stories in the city and overlooking part of it.

We did a bit of shooting with the actual Zale building in Dallas — once to show Logan entering it and again when

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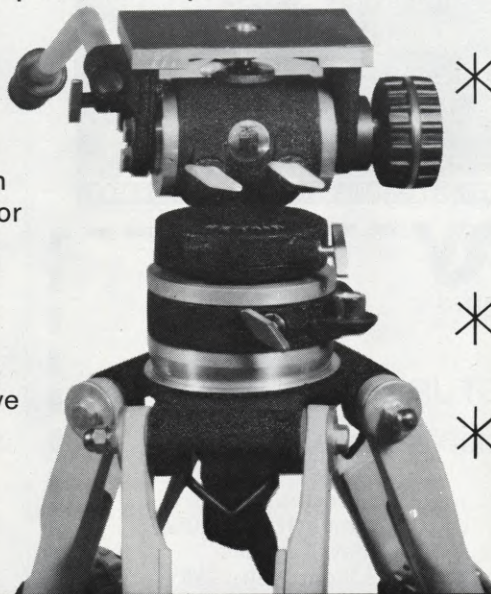


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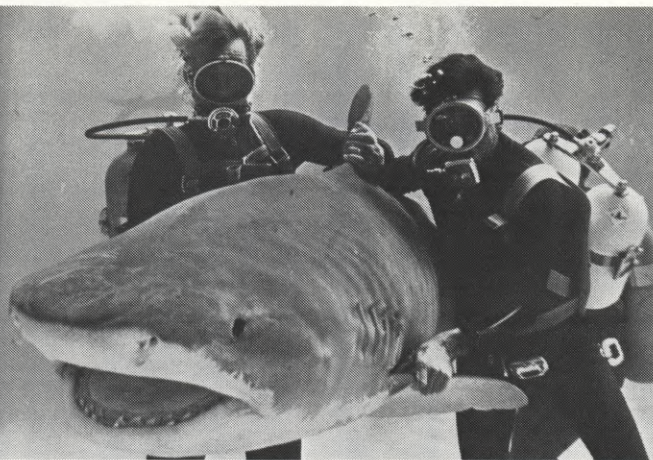
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AUSTRALIA

the city begins to explode and crumble. The people come running out as the building starts to disintegrate and huge pieces come falling down around them. Those were the two major times that we shot the Zale building.

During our location survey in Dallas we found that every place we went there were mirrors, and more mirrors. Some buildings had whole corridors that were nothing but mirrors, and we found this marvelous downtown bank building with an entire ceiling of mirrors. That prompted us to come up with the interesting visual concept of seeing Logan right-side up as he came into the frame. Then, when he walked out of the frame, you could see him on the ceiling upside-down. This was so effective that it was the springboard for me to say: "I'm just going to keep making these sets with mirrors — the more mirrors the better."

Of course, that kind of talk doesn't endear you to a cameraman. Mirrors create horrendous lighting and other problems that usually drive him right up the wall. But Ernie Laszlo took it all in stride and did a wonderful job of coping with the mirrors and arriving at some stunning photography.

In my working with the director I had two continuity artists to make storyboards for him. After discovering the bank with the mirrored ceiling, we came back to the studio and laid out in storyboard form an interesting concept of seeing Logan upside-down as he is being pursued by two Sandmen. The two Police come out of a doorway (right-side-up) and you see Logan running upside-down on the ceiling mirror. Then the Sandmen run out of the shot and we pick them up in the mirror, also upside-down. Next, Logan turns and fires and you see them fall — but it's all done upside-down. I think it has a super look to it.

Speaking of storyboards, we were originally going to storyboard the whole picture. I had three illustrators working with me and all three were doing sketches of the sets the way I wanted them to look. Then we ran into time problems and the director, Michael Anderson, said that he didn't think it was necessary to storyboard the whole picture — only certain sequences where storyboards would be especially helpful. These we did for him.

In the Washington, D.C., sequence, for example, storyboards were very important. Also in the sequence which we shot in the old sewage plant in El Segundo. I've used this location several times before in other pictures and this time it was supposed to be an area of the underwater world where Logan and the girl are being chased by Sand-

men. We built some plastic panels and made it look kind of old and dank and murky. We storyboarded that sequence very carefully, based on the existing building, so that Michael Anderson could keep track of the geography precisely. Using the storyboards, he could plan exactly where in the building he was going to set up various shots.

Another portion of the film that was completely storyboarded was the opening sequence. From the very beginning, where the camera drifts down through the clouds to show the domed city up to the time when the runner is running and gets killed, we very carefully storyboarded the whole sequence. This was necessary — and very helpful to the director — because there had to be precisely matching ties between the studio sets and actual locations in Dallas.

As for storyboards in general, not all directors require them; they don't feel that they need them. But a lot of other directors do favor them; they want to have that extra visual aid. I personally feel that by storyboarding you can sometimes come up with story ideas — or, at the very least, a visual way of approaching certain sequences, which the director is free to either accept or reject. But as a designer this brings you closer to the whole project. There's that team approach, which is the fun part of making films.

I mentioned before that I like to go for color coordination involving sets and costumes, but in "LOGAN'S RUN" we were limited by two factors. First of all, costume colors in this picture were an important story point — the babies in white, the young children in yellows, the teenagers in greens and the young "older folks" in reds.

Secondly, we couldn't do a complete color coordination job because of the existing buildings in Texas and their fixed color schemes. I couldn't go in there and say: "I'm going to repaint your building because I want it to be a better color in relationship to the costumes of the actors."

However, I knew basically that most of the sets were high-keyed — white with mirrors or black with mirrors — and that any other colors would work well in sets of that kind. Most of the sets we built, together with the existing sets in Dallas, had such high reflective qualities that you could put practically any color into them.

Designing all the visual elements for a far-out picture like "LOGAN'S RUN" was a difficult assignment — one fraught with many unique problems, but it was also, in every sense of the word, truly a "fun" picture to work on. ■

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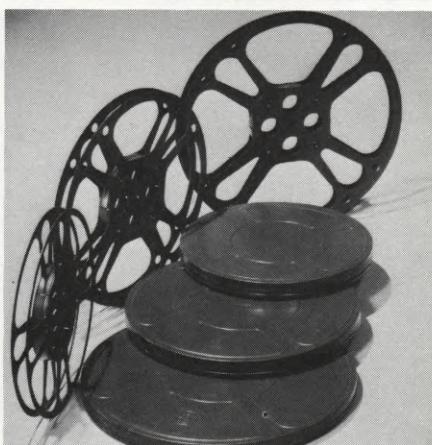
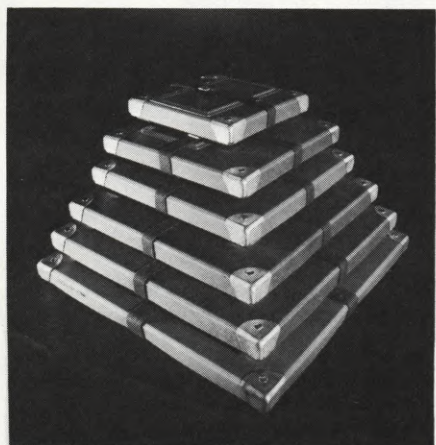
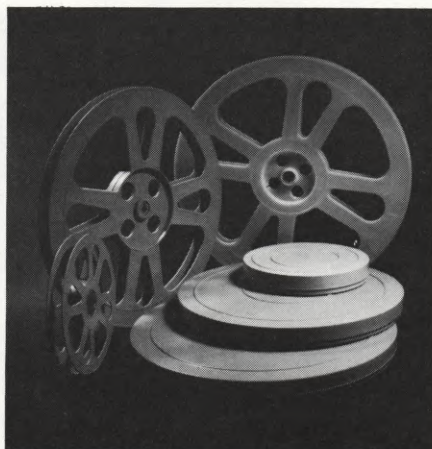
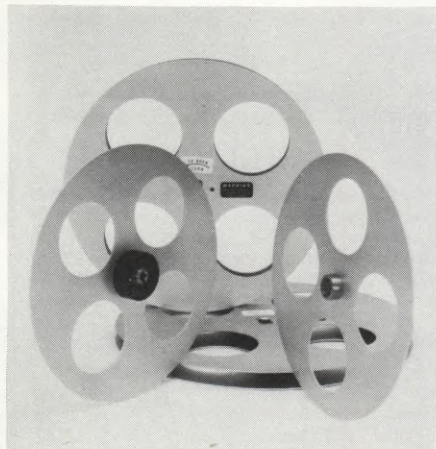
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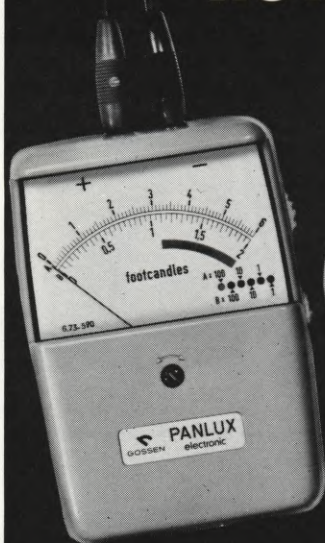
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The Producers Conference, sponsored by S.E.A. Metaxa Distilleries, was held April 26, 27, and 28. Thirty-six industry professionals led 8 seminar discussion groups which were attended by 2,700 participants. The event was coordinated by Peter Stamelman.

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WHAT'S NEW

Continued from Page 602

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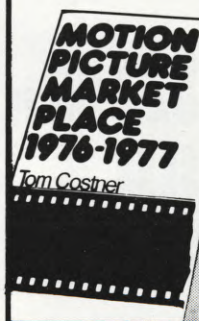
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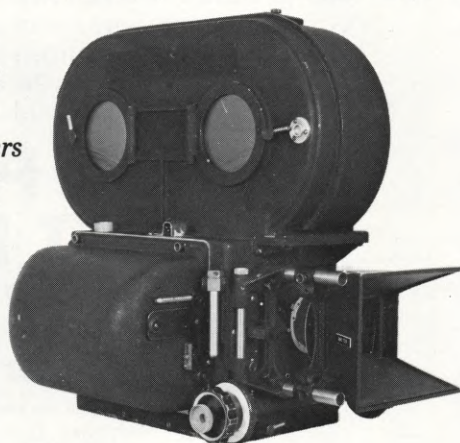
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CALIFORNIA'S FILM COUNCIL

Continued from Page 678

West Broadcasters, and General Manager, KTLA; David Salven, Executive Producer, Universal City Studios; John M. Pavlik, Director of Public Relations, Association of Motion Picture and Television Producers, Inc.; Kenneth Vils of Councilman Ferraro's office; Jacques Barzagli, Special Advisor to the Governor for the Arts, serves as gubernatorial liaison with the Council.

Administration of the office is in the hands of Liz Brady, a twelve-year veteran of State civil service whose background in and out of State service includes industrial/informational/educational and PR film production, direct mail advertising, and public information officer assignments with a wide variety of State departments. Rhoda Sims is office secretary. Research assistants and other staff members will come on board soon.

An ambitious set of goals and objectives has been developed by the Council. According to Senator Robbins, the *primary objective*, however, is to do "everything possible within reason to cut red tape for the industry when dealing with State government, local jurisdictions, and other governmental bodies..."

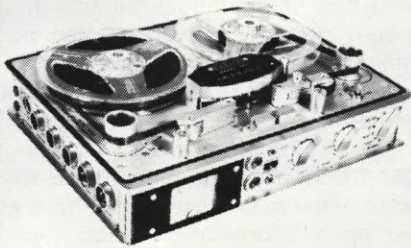
He added, "The parade of filmmakers to out-of-State location sites takes with it almost a hundred million dollars a year, according to conservative estimates. This means those film jobs are not available here in California; it means other states are benefiting from our home-based industry's location activities and it means the MPDC office has a big job to do to slow the march."

In addition to wielding a pair of red-tape cutting shears at every opportunity, the MPDC staff will assist with California location-site information and contacts, compile an inventory of State-owned property available and suitable as potential locations, develop a one-stop permit office for filmmakers dealing with State-government properties and departments, and assist local areas to develop their own motion picture industry development offices.

The permit/fee schedule issue is before the legislature at this writing (Senate Bill 1620) and will allow the MPDC to issue permits after clearing State properties with the concerned departments and the Department of General Services. A filmmaker or location scout can then check with the MPDC office, and have some chance of getting a 24-hour turn-around on his requests.

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Quite a change from the present situation, which, as Robbins indicates, sometimes means that producers can get production permits/costs information faster from another state than they can from within California.

Staff is investigating the steps necessary to set up a visual and computerized location-site file with the nitty-grittys of physical description, location, present and possible uses, access to airlines and other public transportation, and all the other data needed by location scouts, etc.

The birth of this expediting/assistance arm of state government was slow and sometimes frustrating to the point of impending mass resignation.

As far back as 1960 (and before) competition-watchers in the industry saw other states setting up economic development department-based motion picture liaison offices. (New York, for instance, was one of the first to move in this direction.) They knew that California should follow suit.

Their organizing efforts culminated in July, 1974.

On that hot summer day some of the present Council members sat down across a table with representatives from the Hollywood Chamber of Commerce, the Los Angeles City Permit Office, Senator Alan Robbins, and the Director of the State Department of Commerce. With him were the head of his economic development division and the department public information officer.

The MPDC was on its way to reality.

Soon the present Council roster was appointed by then-Governor Ronald Reagan and although it still did not have any money, it became an official arm of state government, attached to the Department of Commerce.

For the next ten months, until it was closed down last May, the Department of Commerce provided a "home base" and support staff for the fledgling group. Many of the research materials gathered by the Division of Tourism were willed to the MPDC and are now providing the "starter" for location-site files.

Probably the ultimate low point of the effort came in the summer of 1975. With the Commerce base dissolved, staff support was available only on a volunteer basis, but everybody hung in there, and in February of 1976 a new scene appeared on the screen.

Fade into the study of the North Hollywood home of Senator and Mrs. Alan Robbins. He is composing a letter to Governor Jerry Brown about the importance of the motion picture industry to this state's economy. About the need for recognition of the prob-

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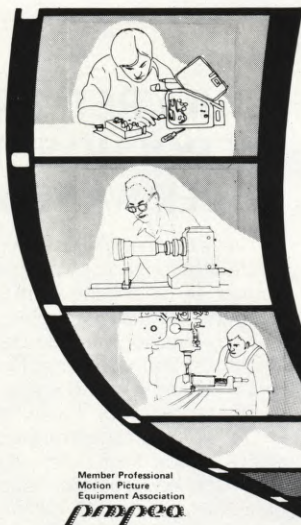
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lems encountered by filmmakers in California. About the labyrinth of red tape frequently encountered by individuals looking for the right person to deal with in State government . . . about the frustrations of making pictures in the world's greatest outdoor location stage.

Cut to Mrs. Robbins (Miriam). She is busily translating all this into Latin in the style of Pliny, the Younger.

Dissolve to the Governor's office in Sacramento. The scholarly missive arrives on the Governor's desk about the time that other documents quoting facts and figures about the amount of money being lost to other states each year arrives on the top of the stack. The young, New-Spirit Governor does his usual thorough study of the situation.

Result: Funding in the amount of \$33,300 is allocated from the Governor's office operating budget. This will set up a coordinating office, hire a small staff, and allow the MPDC to get on with the business of "putting shoes on the cobbler's child." Fade to black.

The funding is enough to get started, but it will only last until July 1, 1976, when the new State Budget goes into effect. Governor Brown has included \$70,700 in that document for the coming fiscal year. An additional amount sufficient to buy computer time, pay for necessary research, etc., has also been requested.

In the meantime while the Chairman and Vice-Chairman carry the ball in the legislature, and the MPDC staff gets things rolling in the downtown office, the Council members are involved with committees to study and plan ways of coping with industry needs.

The Federal Government Coordination committee, headed by Chet Migden, has already become involved with such issues as copyright legislation (the first changes since 1909 will come up before Congress soon).

Other sub-committees are already active: The State Government Committee is chaired by Al Dorskind; the Local Government committee by Robert Hagel; Administration and Budget by Bob Peters; Legislation by Assemblyman Herschel Rosenthal; Public Relations by Howard Fabrick; Labor Practices by George Flaherty; and Commercial and Informational Filming by John J. Hennessy. There is also a Community Projects committee.

Industry input is invited and it's being actively sought out by MPDC staff, according to Chairman Robbins. "Even though there are 28 other such councils around the country all seeking their cut of the California motion picture industry business, we feel that we've gotten a couple of steps ahead simply

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by being here in the heart of the industry," he said.

"We're not only in business to help out, we're in business to listen to people in *all* areas of the industry and at *all* levels. We want to hear what they feel we should do to help expedite film-making in California. The more that telephone rings with suggestions and comments as well as assistance requests, the happier we are going to be," Robbins added. ■

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FILMING "LOGAN'S RUN"

Continued from Page 631

that particular location was a joyful day for all concerned.

Scenes of the rugged trek by co-stars Michael York and Jenny Agutter from the city to the ruins of Washington, D.C., were filmed at the Fox movie ranch in Malibu.

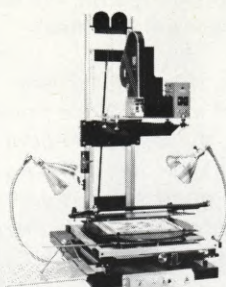
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Michael York became the first film star in history to perform in a hologram when he journeyed to the Multiplex Company laboratories in San Francisco for this unique pre-production filming. In the adventure drama, Michael York's brain is fragmented into six separate images during a police interrogation. The holographic marvels, which produce human images in action and color that float in midair, have York performing in seven different roles at the same time; each facsimile acts independently of the other. York will be seen as a solid image and as the half-dozen ectoplasmic heads surrounding him, each answering individual questions.

This revolutionary screen technique being introduced in "LOGAN'S RUN" could well be the forerunner of the movies and TV entertainment of the future.

In addition, Chris Outwater, one of America's leading scientists in the field of holograms and co-author of a definitive textbook on the subject, was hired by producer Saul David as a consultant on the laser beam holography and to produce unusual light and image techniques that were incorporated in the futuristic decor of the 23rd century story. Laser photography is an important part of "LOGAN'S RUN" special effects. ■

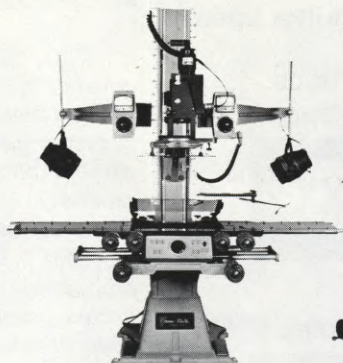
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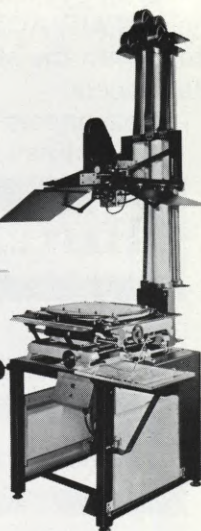
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PHOTOGRAPHING "LOGAN'S RUN" Continued from Page 664

QUESTION: Can you tell me the technical characteristics of that lens?

LASZLO: It's an 18mm, T/1.7 lens that covers a field of about 120 degrees — which, I believe, makes it just about the widest-angle anamorphic lens in the world. Another good thing is that it's relatively distortion-free. While there is some barrel-distortion to the lens, the fact that the arena was round made it completely unnoticeable. The only further problem was that we wanted to cover that sequence with two cameras — once shooting down and the other shooting up — but Todd-AO didn't have another 18mm lens. However, they did have a prototype of a 24mm, T/2.3 lens which they also let us use. Between those two lenses we were able to get everything we wanted. The Todd-AO people were marvelously cooperative all the way through the filming.

QUESTION: Did you use any special filter effects in shooting "LOGAN'S RUN"?

LASZLO: Yes. There were some special filters which Robert Wise had made up especially when he was doing "SOUND OF MUSIC". They're the only filters of their kind and they cost about \$300. each. Bob has two of them and he was kind enough to lend them to me for "FANTASTIC VOYAGE", so I borrowed them again for this picture. I used them in a couple of sequences, but mainly for shooting the Carrousel. They seem to be a combination of diffusion and star filter and they were very helpful, not only in adding sparkle to the crystals in the sequence, but also in helping to hide the wires used to fly the people — which is always a big problem. I'm very grateful to Bob for making them available to me.

QUESTION: Can you tell me about the video viewfinder that you had on the camera during shooting?

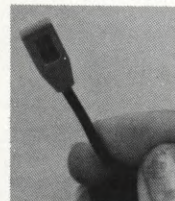
LASZLO: It's very helpful in that you can check the action immediately instead of having to wait for dailies to see if you got what you wanted, but it is mostly a tool for the director. It's helpful in checking composition, but other than that, it doesn't aid the cameraman very much. The image is in black and white and isn't precise enough to really tell you how the lighting is registering. An added disadvantage, in my opinion, is that the actors always want to have a look at the last take, and that can hold things up.

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QUESTION: Can you think of anything I haven't asked you that you'd like to talk about?

LASZLO: No, but I would just like to give credit to my wonderful crew. They work with me all the time and they're very enthusiastic — even under the difficult conditions we had in Texas. We were working a six-day week from early morning until late every day, and some of them had to spend their Sundays cabling, without a day off. They're a marvelous team and I just love working with them.

KODAK BICENTENNIAL CENTER
 Continued from Page 610

Washington Monument Orientation Center — is scheduled to begin showing the film April 1. It will be open 12 hours a day, seven days a week, through October of 1976.

The film was made on location in authentic Revolutionary settings, including an 18th-century plantation known as Kenmore, home of Washington's sister. It depicts Washington's role in the founding of the nation and his impact on our generation.

Greene, perhaps best known as head of the Cartwright family in the long-running television series, "BONANZA", has played a number of historical figures — including Columbus and Beethoven. He thinks the Washington role is particularly challenging.

"There's a mystique about the man," the actor said. "He's remembered for the romantic legends that have sprung up about him. And, while Abraham Lincoln has been portrayed countless times on stage, in films and on television, Washington productions are rare."

The project is designed to help fulfill the National Park Service need to provide an estimated 17 million Bicentennial visitors with an audio-visual program honoring Washington. The one-story, 8,000-square-foot building — expected to be completed in February — also will house a photo-information center with trained personnel to provide assistance and photographic information to visitors as well as perform minor adjustments on photographic equipment at no charge.

The facility's exterior finish will be compatible in color and texture with the famed Monument. It has been designed to present an unobtrusive silhouette with an unbroken straight line roof. The building is about 500 feet southeast of the Monument and midway between the Sylvan Theater and the Monument Lodge.

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MAKING MOVIE MAGIC FOR THE 23rd CENTURY

Continued from Page 677

Those who have reached their "Last-day" assemble in the revolving arena and are supposedly levitated by a force field emanating from a crystal high above the floor. As the levitated people reach the upper area, they flame out; i.e., explode.

Glen Robinson devised a fabulous rig that had a revolving base which was synchronized with an overhead revolving apparatus. It was equipped with electric motors and wires, making it possible to "fly" 15 to 18 people at once. The rig allowed for a variety of camera angles of the people flying in front of the audience, revolving and tumbling as they flew. To get an "up" angle, we actually turned the set upside-down, in effect, shooting downward at what was supposed to be the ceiling crystal and letting the fliers descend to it.

According to the script, those that levitate all the way to the top are given the opportunity of being renewed — a sort of reincarnation, so that they can live their lives all over again. At the end of the film, however, it comes out that this is a big lie. Nobody ever gets renewed. They all get flamed out.

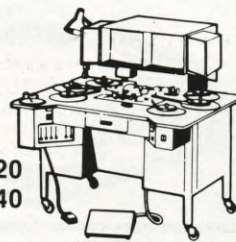
In approaching the effects for this sequence, my first problem was creating the force field in a visually credible way. I started out by building some cone-shaped forms and filling them with various kinds of cellophane and lighting them with colored lights as they revolved. This idea really stemmed from a television series I'd worked on called "THE TIME TUNNEL", in which characters were transported to the past or future and we would always show them going through this "goop", as I called it.

The effect, as it turned out, had some merit, but it just wasn't really right. Saul David suggested that perhaps we could get what we wanted by means of computer photography, so we talked with a company called Image West which creates computer images, mainly for commercials. In our beginning experiments with them the effects were shot on tape and then transferred to film, but we found that quite a lot of quality is lost by this method. Then I found out that the effects can be filmed right off the tube with better quality. It needed only to be a black and white image, to which you could add any colors desired. We double-printed these effects over the Carrousel scenes to create a visible force field.

In the beginning of the sequence, the people assemble at the arena and look

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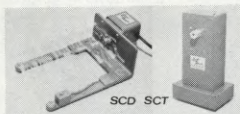
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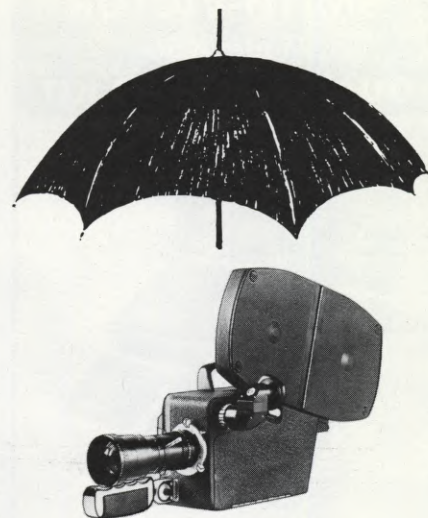


up toward what is supposedly a very distant crystal, similar to the red one they are standing next to, but white in color. (We shot this on the same stage as the arena, but used a smaller crystal to make it appear to be farther away.) As the crystal glows on it "comes alive" and begins to sparkle. The sparkle was accentuated by using a star filter. However, in order to make a star filter work you need a pretty strong light source — so we got some of those little quartz light units that are pinned to life jackets as a safety device. They flash on every half-second and are extremely brilliant. These little lights were mounted on the crystal in order to "animate" the sparkle.

As the crystal starts to sparkle, the force field (which we generated on the computer) comes down toward them in the form of a cylinder with a serrated edge and it covers them like an umbrella. As the base which they are standing on starts to revolve, the cylinder fades away, but is replaced by a vase-like form filled with a smoke pattern that is revolving. We elected that this should only be sensed, because it would have been wrong to make it a solid kind of thing. It required a delicate balance, but the result is quite believable when you see the smoke pattern rising within the vase as a levitating force.

In addition to long shots showing all of the fliers in front of the audience, we made shots of individual fliers from various angles against a black background, so that we could matte them in. These fliers were dressed in fireproof clothing and had explosive charges hidden on them which they could trigger on cue by means of a hand button. When the explosions occurred they completely obliterated the figure, causing it to appear to flame out. Then, by cutting away at the peak of the explosion, the illusion of the figure vanishing was achieved.

We shot these cuts of the individual fliers flaming out and then optically inserted them into a longer shot showing other fliers. For example, you'd take a shot showing perhaps eight people flying and then, having flown your exploding person at the same rate of speed, you'd pick an area where he could be inserted between two of the other fliers and just blow him up, after which you'd stop the double exposure. It's very believable. As a matter of fact, I think that visually the shots of these people dressed in their bizarre costumes is probably one of the highlights of the picture. I've never seen anything like it before, where you are flying 16 people at once who are rising and lowering and tumbling in the air. It's really fantastic!



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**BEHIND THE SCENES
OF "LOGAN'S RUN"**
Continued from Page 675

there and say: "Go!", something doesn't work. That happens quite often, and then you have to think of another way to do it. We had many such moments, but the picture had one wonderful thing going for it — not only the support of the studio, but probably the most enthusiastic cast and crew I've come across. Everybody liked doing the picture. Even the extras, the people in Texas, just loved doing it. They were happy; they wore the clothing like they meant it, and we didn't have any of the problems that usually come up when you have masses of people. It was altogether a very cheerful experience. I've done pictures when they weren't so cheerful, but this one really worked out very nicely.

Why a science-fiction picture at this point in time? I'm sure the idea isn't original with me, but it has seemed to me for some time now that we are into a period when the science-fiction movie is going to be, in succeeding decades, what the Western was to my generation. The Western came of real things, but they mythologized a kind of reality, and I think we are in the process of doing that with science. It's a commonplace that science is our frontier — Space and all the rest of it. You only have to look at what interests the kids to see that that's where it's going. They may not have discarded the Western, but they certainly are fascinated by the ideas involved in science. In fact, many of them are much more at home with it than many of us who are actually making the pictures. My assistant's kid, who is a 12-year-old boy, didn't find anything very strange about things which astonished me even while I was doing them. They made sense to him. He and his peers have been discussing this new world. They confidently expect men to go to other planets. I'm still marveling at TV.

In the course of this trend, I suppose we'll make a lot of junky science-fiction, too — but why not? I feel that this kind of exploratory film is going to become very popular and I think it's a good thing, too, because, in the end, it lends a kind of optimism. So much of what we've done in the last couple of decades has been a species of the "love among the ruins" type of picture, with people looking at each other and saying: "It's all terrible; the jig is up, but we'll go down bravely." That's okay, but you can only go so far with it until you start repeating yourself and boring your friends. By way of contrast, I feel that the science-fiction film, like the

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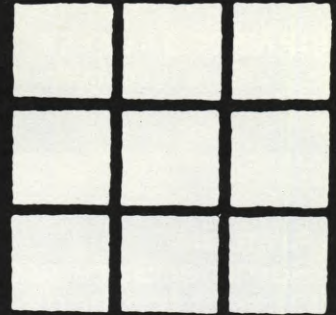
Is "LOGAN'S RUN" meant to be pure entertainment, or does it also say something? First of all, I think that every picture says something, and it's idle to pretend that pictures don't say things. Sometimes they don't say what you meant them to say, and often you are astonished, when you read the reviews, to find that you have said something that wasn't on your mind at all. But I certainly don't think you can make a picture about the future without saying all kinds of things — if only because you are required to make up answers to questions that the story poses. What will the future be like? When you say: "This is what I think it will be like," you are saying something. You are making predictions, but you are doing more than simply making predictions. It's in the nature of doing that kind of thing to say what you feel *ought* to be, as well as what you *think* might be.

Frequently, you also end up saying some ancillary things. For example, everybody knows that "IT HAPPENED ONE NIGHT" was a picture that was only talking about the social problems prevalent during the Depression, but apparently what it actually said to millions of people is that really tough guys don't wear undershirts, because Clark Gable wasn't wearing one when he took his shirt off.

We have probably said some things like that in "LOGAN'S RUN", too. I'm not quite sure what they are yet and I hope there are no shocks in it for us, but you can't make a picture about a whole world some centuries hence without saying something. The storyline in itself does say something fairly explicit — namely, that liberty and the right to live out your life as an individual are more important than pleasure. That idea certainly isn't original with me, but it goes in and out of fashion. This picture does take that simple position. It says that you pay for what you get, but that some things are worth dying for and many things are worth living for. I hope nobody *notices* that it says all those things, because I don't want them to be bored, but I guess it does.

I think, also, that it says that no matter how perfect the Utopia, there will always be somebody who feels that it deserves a change. It says that the essential nature of man is rebellious against rules and, in that sense, it speaks for individual liberty. We are, after all, postulating a society in which, theoretically, every creature comfort has been attained. You can have everything you want without working for it,

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but there is one great flaw. And it's no good, because people will struggle against that one thing. That idea is not original with me, you can also find it in the Book of Genesis, so I make no claim.

From my point of view — that of a producer who writes and has dealt with a lot of story material — one of the hardest things to do in a picture like "LOGAN'S RUN" is to think of a language. Everybody speaks English in it, of course, but if you make a present-day picture or a picture about the past, you have a whole world full of references from which to draw. But when you make a picture about the future, particularly this kind of Utopian future, you find that you are suddenly in a world in which you don't know any of the small talk; you don't know any of the jokes; you don't know any of the slang. You don't know any of those things which make a picture come alive by giving the actors something to deal with and help them to be real people. When you are dealing with the past, you have history to draw upon and you know what they talked about. But here you are inventing it and you find yourself in a world which is remarkably barren.

So what do they say? The trick is to give them something to talk about — but not about the plot, because that really is dreary. What they call "radio writing."

What we tried to settle for in "LOGAN'S RUN" was a kind of standard English but we had to lean very hard on the talents of the actors. You can invent some things, but you really have to ask the actors to involve themselves so as to bring a personal dimension of reality to the material. So I think that if the picture comes off, it will be a real tribute to the skills of the people we had in it — people like Michael York, Jenny Agutter, Richard Jordan and Peter Ustinov. All of them contributed enormously to this picture because they believed in it and kept enriching it and filling it full of little grace notes. Once they were at home in the 23rd century, they began to convince us behind the camera that it was true. In a way, that's very unusual for this kind of picture, because very often a science-fiction picture is one in which the walls are more impressive than the characters. But I think maybe we have done better than that in this film and, if so, it really is a great tribute to the actors and what they brought.

What we've tried to do is build an extravagant world and a crazy society and then say to the actors: "Look, this is where you live. Don't explain it to us." The attempt was to make everything seem overheard, so that whether or not

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we understand what the people are
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they understand. I would rather have
the audience puzzled for a while than
have an actor turn to the camera and
say: "Now, here's what we're doing."

All that I can say finally about
"LOGAN'S RUN" is that I've been work-
ing on it now for two-and-a-half years.
In consequence, as one can imagine,
I'm hoping it succeeds. That period of
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experience for me. Once I turned the
water on, there was nothing but sup-
port, and it meant that when I got into
trouble I was allowed the leisure to get
out of it without somebody standing
and screaming.

I'm very grateful also, that nobody
got hurt during the making of
"LOGAN'S RUN". It's the kind of film in
which it would have been very easy for
someone to get hurt, but nobody did
get hurt — and I'm very pleased about
that.

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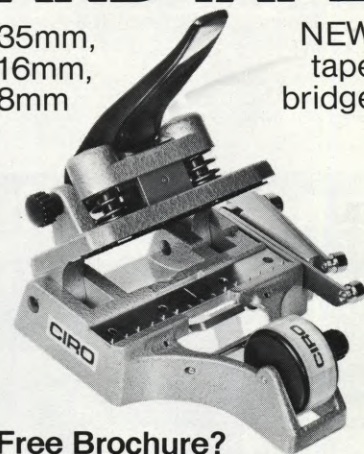
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Continued from Page 669

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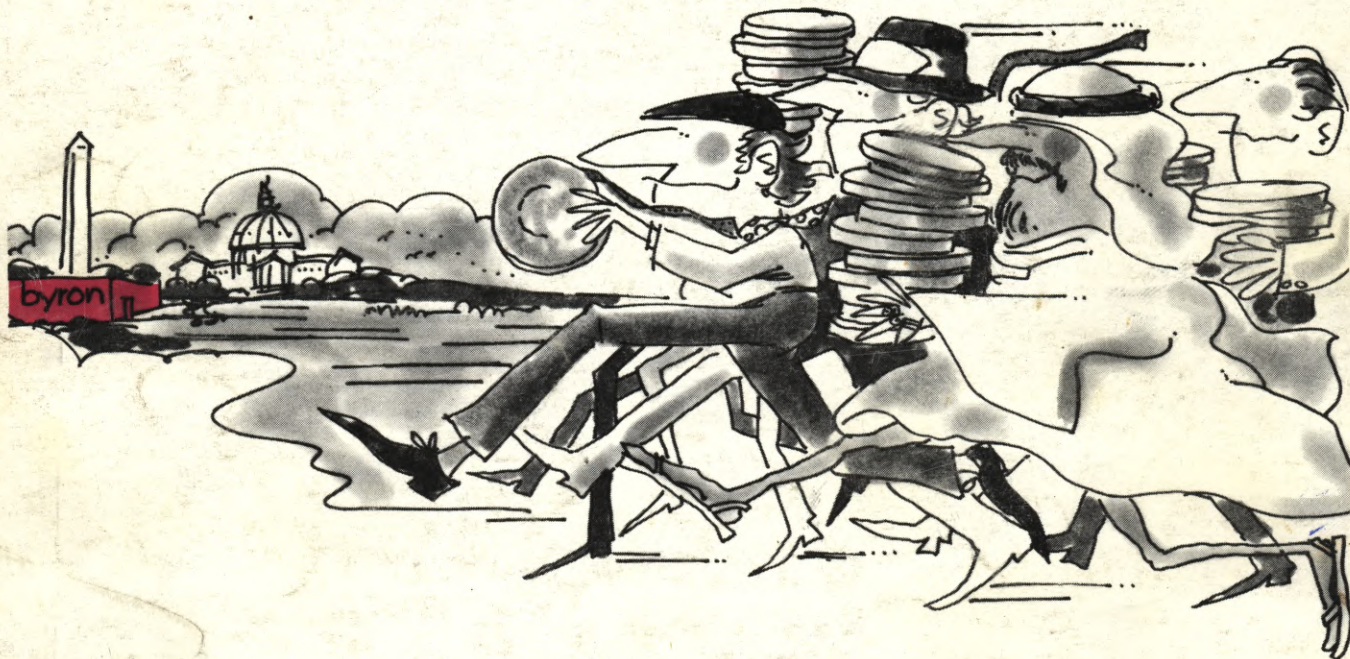
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